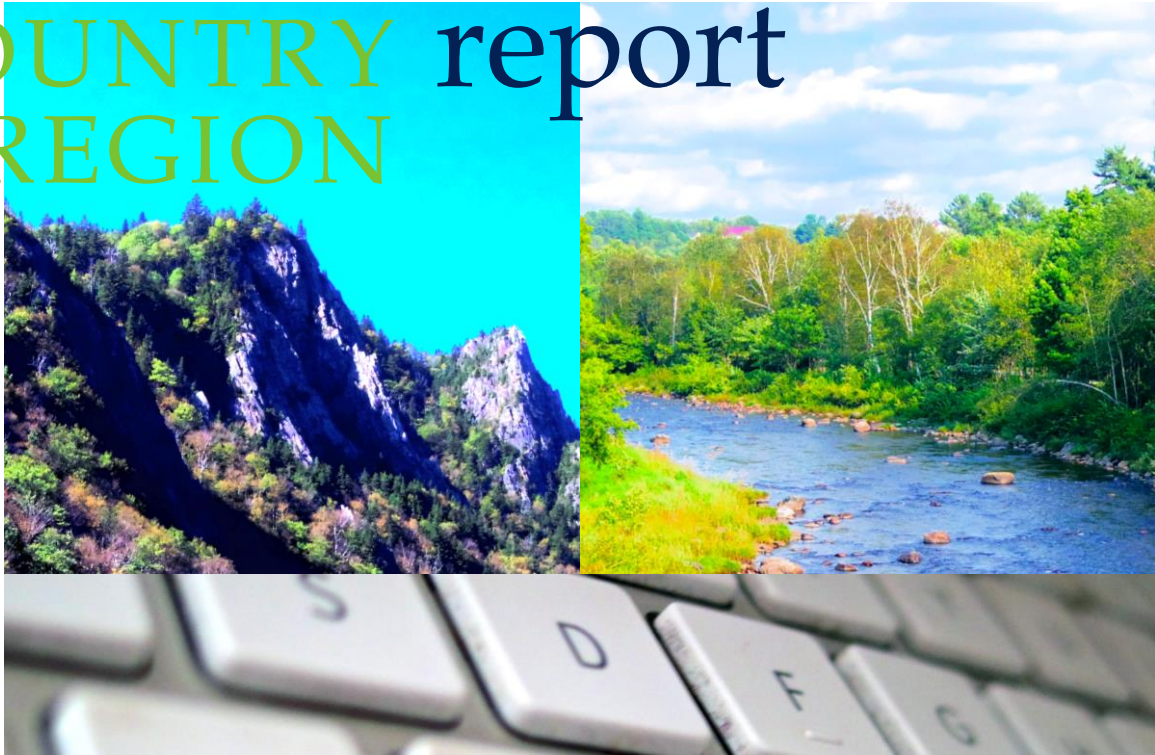


NORTH COUNTRY REGION broadband report



October 2014

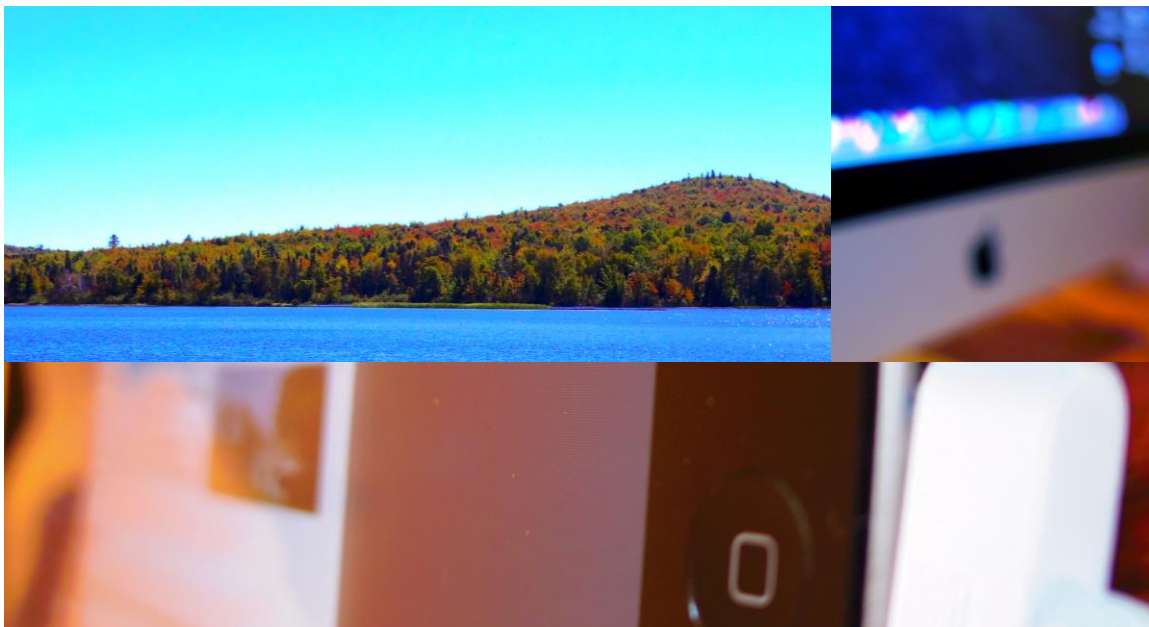


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North Country Region Broadband Report

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I. Executive Summary

Infrastructure needs of communities today are many, and the North Country is no exception. From roads to bridges to education and Internet access, infrastructure helps support communities in social and economic development. This Report will discuss one of those infrastructure needs, Internet access, more specifically, broadband (Internet) access.

Broadband access has become ubiquitous with many of our daily activities. We use it to check and pay bills, contact people, watch television and movies, shop for gifts and everyday things, even printing photos from your vacation—and that is just scratching the surface. Beyond these activities, broadband is used to support education, medicine, emergency services, and public works, and is intimately tied to a community's economic growth. Like roads, broadband is limited by its capacity to handle Internet traffic. Without sufficient capacity, user functionality is reduced, and ultimately, social and economic development is hindered. Development of the region's broadband infrastructure should focus on providing sufficient capacity to develop and use the Internet unhindered—to allow users to not only consume content, i.e. watch movies, email photos, shop online, but also step beyond the role of a consumer to that of a creator, i.e. build and host websites, share documents, video conference, and conduct business.

Broadband is officially defined by the National Telecommunications and Information Administration (NTIA) as 768 Kbps minimum download. However, this minimum is limited in use. For example, a download speed of 3 Mbps (over 3 times the 768 Kbps minimum) can allow a user to access email, send and receive small to medium-sized documents, and browse the web, but the operation of multiple functions at once may cause slowness. Furthermore, its value to business and education is limited due to their high capacity demands (multiple users sharing the same service simultaneously). To become a creator

of content, a significant increase in speed is necessary. For example, a minimum of 6 Mbps to 10 Mbps download, and 3 Mbps to 6 Mbps upload speed, is necessary to send and receive large files, and to access a company's network while traveling or working from home with a speed of operation similar to being at the office. High definition video and interactive conferencing, as well as telehealth activities, require a minimum of 10 Mbps to 25 Mbps download and 6 to 10 Mbps upload speed.

Generally speaking, the cost of broadband is tied to a tiered pay system: the faster the speed, the higher the cost of service. Rural areas often pay more for the same or similar service in suburban and urban locales. Cost has significant impact to the adoption of high speed broadband.

According to the New Hampshire Broadband Mapping and Planning Program (NHBMPP), as of September 2013, although portions of the North Country are serviced by a maximum advertised speed between 3 Mbps and 6 Mbps download and 1.5 Mbps to 3 Mbps upload, these areas are generally limited to the southern portion of the region. More striking is that there are no portions of the region serviced by a maximum advertised speed greater than 10 Mbps download and 6 Mbps upload. Meaning, it is difficult for users in the region to become creators of content, and therefore are generally limited to a consumer role. As the name implies these advertised speeds are "maximum" and may not reflect the typical speed experienced by a user.

Fortunately, part of the answer to the North Country's limited broadband capacity may just be on the horizon. As part of the Network New Hampshire Now (NNHN) project, an extensive fiber backbone network reaching as far north as Guildhall and Berlin was recently completed. Fiber has the ability to provide almost limitless capacity and speed. The next step will be to string additional fiber from this backbone to residents and businesses, and



then to entice service providers to offer service. As it stands, there are no advertised providers of fiber broadband in the region.

In southwest New Hampshire, a program called NH FastRoads (part of NNHN) is doing just that. NH FastRoads has been able to build an approximately 250-mile fiber network, known as a fiber-to-the-Premises (FTTP) network. Currently, the project brings fiber to homes and businesses in over 20 rural southwest New Hampshire communities. Benefits of the FTTP network are not limited to high speed broadband, but are also comparatively low in cost for service. As one NH FastRoads user, Tim Wessels noted, he used to spend \$130 per month for a satellite and two DSL lines, for a combined speed of just over 3 Mbps. Now he pays \$70 per month for one service provider and 20 Mbps of symmetrical service (symmetrical means the same upload and download speed, a factor critical to business productivity).¹

It should be mentioned, although NH FastRoads is not in the North Country, getting fiber service is not impossible. However, because fiber has not yet been laid to residents and businesses it can be costly to initiate. In North Country Council's own attempt to get high speed broadband service, we were offered a combined 50 Mbps symmetrical service fiber connection for \$1,000 per month, which is a cost 5.5 times more per Mbps than the price the NH FastRoads user (mentioned above) pays.

Although NH FastRoads is not currently in the North Country, they or another public-private partnership could provide a similar buildout for the region.

Broadband infrastructure is not free, but it is an economic game changer. It can connect rural communities to the global market, and can attract, develop and promote businesses in new and innovative ways. Broadband can even have a positive impact on secondary economic factors like education, medicine, emergency services, and public works. For example, according to the Coös County Business & Worker Opinion Survey,

conducted in 2009, one in four respondents indicated that they wished to continue their education. With affordable high speed broadband, these members of the workforce could be empowered to develop their professional careers through programs online, without leaving their home or local library.

Some may argue that fast broadband is unnecessary, especially in the North Country, but that simply is not true. Broadband can improve the livelihood of communities and provide additional tools for economic development. It is crucial that the North Country support the growth of broadband infrastructure to ensure the success of the region well into the future.

This Report will review these and other topics through the lens of three surveys: the 2013 Granite State Future (GSF) survey, and the NHBMP's availability and speed surveys. **Appendix E** contains the GSF survey Technical Report, detailing how respondents were selected, response rates, weighting of data and sampling error. Based on the information provided in the Technical Report, the North Country GSF survey for the 600 completed surveys has a sampling error of +/- 4 percent. **Appendix B** contains the NHBMP's mapping protocol, detailing the data collection, management and mapping methodologies used in the NHBMP surveys and maps.

This Report will end with a regional action plan, designed to identify issues and goals for broadband access and availability.

Generally, this Report concludes that regional penetration of broadband, as defined by the NTIA, is substantial due to DSL and mobile wireless service. However, as mentioned earlier, this level of service may not be best for stepping beyond the role of a consumer of content. Furthermore, there are still some, albeit not many, areas without broadband service.

This Report provides recommended implementation measures to develop overall broadband infrastructure and adoption rates. These measures include education of



broadband value to residents and businesses, increased cable broadband penetration, continued maintenance of existing copper wire infrastructure, and, in the interest of public safety, the continued improvement of mobile phone service. Long term infrastructure improvements should focus on the development of fiber network capacity in the region. However, how this fiber is developed and implemented will be, in part, determined by legislation currently under consideration at the state level.

Please note, this Report was developed in collaboration with the UNH and the NHBMP. Some of the Report’s chapters were authored or partially contributed by the UNH and the NHBMP, while others were authored by NCC. Chapters authored or partially contributed to by the UNH and/or the NHBMP are noted throughout the Report, generally in the chapter heading.

Citations

1. Mulhere, Kaitlin, The Keene Sentinel, Broadband access could be improved in NH through new bill, (February 28, 2014, accessed March 27, 2014), http://www.sentinelsource.com/news/local/broadband-access-could-be-improved-in-nh-through-new-bill/article_d25345da-5245-5566-9a1b-23b44608f2f9.html.



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II. Introduction*

*Content for this chapter was provided by UNH through the NH Broadband Mapping & Planning Program.

A. Project Background.

The New Hampshire Broadband Mapping and Planning Program (NHBMPP) is a comprehensive, multi-year initiative that began in 2010 with the goal of understanding where broadband is currently available in New Hampshire, how it can be made more widely available in the future, and how to encourage increased levels of broadband adoption and usage. Funded through the National Telecommunications and Information Administration (NTIA), the NHBMPP is part of a national effort to expand broadband access and adoption.

B. Program Components & Objectives.

The NHBMPP is managed by the GRANIT (Geographically Referenced Analysis and Information Transfer) System within the Earth Systems Research Center at the University of New Hampshire (UNH), and is a collaboration of multiple partners. These include: the NH Office of Energy and Planning (OEP), NH Department of Resources and Economic Development (DRED), UNH Cooperative Extension (UNHCE), UNH Information Technology (UNHIT), and the state's nine regional planning commissions (RPCs).

The NHBMPP is comprised of several components, including a broadband availability inventory and mapping effort and a suite of planning and technical assistance initiatives. Following are brief descriptions of these components as well as an overview of the broadband planning initiative.

1. Mapping.

In 2010, UNH GRANIT, the RPCs, and other partners began an inventory and mapping effort aimed at better understanding the current availability of broadband throughout the state through several projects and activities, which include:

- Collecting data semi-annually from the public and commercial entities that provide broadband services in New Hampshire on the location, type and speed of broadband technology available;
- Refining the information collected on broadband availability by initiating a series of verification efforts, including map verification with community collaborators, online speed tests and user surveys, a statewide cell phone reception study, and other related activities;
- Surveying and mapping broadband availability at community anchor institutions (CAIs) such as schools, libraries, hospitals, public safety facilities, and municipal buildings;
- Developing the first public master address file of households located in rural census blocks;
- Collecting and hosting a statewide inventory of cable franchise agreements; and,
- Sharing information and data on broadband availability with the NTIA and the Federal Communications Commission (FCC) on a semi-annual basis for inclusion in the National Broadband Map.

2. Technical Assistance and Training.

UNHCE has taken the lead on developing and administering technical assistance and training opportunities to help businesses, local governments, organizations and individuals better understand the importance of and applications for broadband in today's world.

The activities undertaken by UNHCE through the NHBMPP include:

- Assessing the broadband training and technical needs of stakeholder groups including educational institutions, small business, municipalities, healthcare



providers and organizations to determine topics stakeholders would like to receive training on and applications that would be of use to stakeholders;

- Developing tools and learning modules on topics related to broadband utilization and adoption such as “Leveraging Broadband to Promote Economic Development”, “Putting your Business on the Digital Map”, and “Three Free Ways to Promote Your City/Town/School via the Web”; and,
- Delivering workshops, training and technical assistance to broadband stakeholder groups to support increased broadband adoption and use.

3. Capacity Building.

A third component of the NHBMPP, capacity building, is focused on the development of tools and resources necessary to implement broadband projects within communities and regions across the State. The Director of Broadband Technology, (DRED), and project staff from UNHCE and UNHIT, are working together to enhance broadband capacity by:

- Encouraging collaboration to establish best practices in policy management, financial resources, and advocacy for business and residential broadband;
- Tracking and reviewing legislation related to broadband and telecommunications;
- Working with the NH Telecommunications Advisory Board, to analyze and assess the State’s broadband infrastructure and promote access to affordable and reliable advanced telecommunications services;
- Researching successful community broadband solutions and funding options, including and aggregating them into a toolkit on broadband solutions and funding for NH; and,
- Establishing a Resource Team, who will work with RPCs and broadband stakeholder groups (BSGs) to identify communities prepared to initiate their broadband plans and provide assistance with community broadband decision-making.

4. Planning.

In 2011, NHBMPP partners engaged in a four-year effort aimed at incorporating the information and momentum gained during the mapping activities to better understand current broadband availability in New Hampshire and plan for increased broadband adoption and utilization through outreach, community engagement, and surveying activities.

As part of an effort to gain a better understanding of broadband at the regional level, each RPC developed a broadband stakeholder group (BSG), comprised of individuals representing a wide range of sectors, which met quarterly. The BSGs have played a vital role in assisting RPCs in assessing the need for improved broadband capability, availability, and affordability. The BSGs helped the RPCs develop a list of broadband needs and barriers to broadband adoption and utilization. They also assisted with developing goals, objectives, and strategies to overcome barriers in each region.

A major undertaking of the broadband planning component was a sector-based analysis. This activity involved developing and facilitating focus group meetings, structured interviews, and other methods to identify broadband needs and challenges specific to various sectors, including healthcare, education, local government, economic development, and public safety.

Each RPC conducted focus groups or interviews with representatives from these sectors to better understand the importance of broadband accessibility to each sector.

Additionally, each RPC held public forums throughout the course of the project. These forums were an opportunity to share information regarding ongoing broadband efforts in the region, progress of the NHBMPP, and to receive feedback from community members regarding broadband availability.

Information gathered from the activities described above led to the development of nine regional broadband plans in NH. Each



RPC reviewed and analyzed data collected through the mapping efforts, outreach activities, sector-based analysis, as well as public forums to develop comprehensive documents that highlight the current landscape of broadband availability in the State and identify ways to increase broadband adoption and utilization. The regional broadband plans serve as guidance documents for communities, policy makers, businesses, institutions, and residents to better understand the availability and need for and utility of broadband now and into the future. All nine plans are to be compiled into a Statewide broadband planning document by the NH OEP.



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III. Understanding Broadband*

*Content for this chapter was provided by UNH through the NH Broadband Mapping & Planning Program.

A. Broadband Explained.

Broadband, also called ‘high-speed Internet,’ is the umbrella term referring to Internet access that is always on and is faster than dial-up Internet access. The National Telecommunications and Information Administration (NTIA) defines broadband as, “advanced communications systems capable of providing high-speed transmission of services such as data, voice, video, complex graphics, and other data-rich information over the Internet and other networks.”² As our technology capabilities are continually changing, it is important to define what broadband is so that stakeholders can determine where broadband is currently available, and how it can be made more widely available to more people.

Broadband is defined in terms of how fast the user’s computer can download and upload information from the Internet. Download speed is the rate that a computer receives data from the Internet while upload speed is the rate a computer can send data. The speed at which information can be transmitted depends on bandwidth. Bandwidth is the transmission capacity of an electronic pathway. That capacity can be described in terms of how much data, measured in bits, can be transmitted per second, and is reported in kilobits (Kbps), megabits (Mbps), and gigabits (Gbps). NTIA defines broadband as providing a minimum speed of 768 Kbps download and 200 Kbps upload. Most broadband technologies have different downloading and uploading speeds, with upload speed typically being more limited. As technology and applications continually change, there are many different types of broadband services as well as resulting speeds and functions while using the Internet.

Although NTIA defines broadband at a 768 Kbps minimum download threshold, download speeds up to 3 Mbps have limited

functionality. At up to 3 Mbps Internet users are able to use web-based email, send and receive small to medium-sized documents, and browse the web. However, operating multiple functions may cause potential slowness, making it difficult to conduct necessary business and education operations. Today, in order to use many Internet applications successfully, a minimum download speed of 3 Mbps is required. From 3 Mbps to 6 Mbps download speed, and 1.5 Mbps to 3 Mbps upload speed, users can send and receive photos and word documents through email, conduct multiple functions simultaneously, and access small window videoconferencing, such as Skype. At 6 Mbps to 10 Mbps download and 3 Mbps to 6 Mbps upload, users can send and receive large documents and files, such as small videos, and can access their company’s network while traveling or working from home with a speed of operation that is similar to being in the office. Also, higher quality videoconferencing can be conducted allowing businesses to communicate with clients, partners, and employees. At 10 Mbps to 25 Mbps download and 6 to 10 Mbps upload, telemedicine and telehealth applications are possible and remote education, professional development, and workshops can occur in high definition (HD) quality. At 25+ Mbps download and 10+ Mbps upload, real time HD medical imaging and consultation can occur.³ As Internet technology and applications continuously emerge and evolve it takes much more than the minimum broadband threshold to operate successful businesses, and provide relevant education and quality medical care.

The New Hampshire Broadband Mapping and Planning Program (NHBMPP) developed a matrix to assist stakeholders in understanding the many levels of broadband available in the state of New Hampshire today, and the typical functions a user might be able to perform



within a range of download and upload speed tiers. Using these tiers, the NHBMP has established broadband availability categories (“un-served,” “underserved,” and “served”) to describe access to broadband service. The table below is a condensed version of the NHBMP matrix. See Table 1.

B. How It Works.

Broadband infrastructure consists of the Internet “backbone” which is hosted by large commercial, government, academic, and other high-capacity network centers. The “middle mile” refers to the segment linking a network operator’s core network to the local network

Table 1. NHBMP Broadband Speed Tiers.

Category	Download Speed	Upload Speed	Typical Functions/Use (functions additive to level above)
Un-served	< 768 Kbps	< 200 Kbps	<ul style="list-style-type: none"> Email (Client/Server-based; POP)
Underserved	768 Kbps to < 6 Mbps	200 Kbps to < 1.5 Mbps	Minimum Download Speed: 768 Kbps Minimum Upload Speed: 200 Kbps
			<ul style="list-style-type: none"> Web-based email Limited web browsing and shopping Minimal social media use Sending/receiving small documents/files (photos, word processing, invoices) Use of internet not integrated in daily life function Single user internet device
			Minimum Download Speed: 1.5 Mbps Minimum Upload Speed: 768 Kbps
Underserved	768 Kbps to < 6 Mbps	200 Kbps to < 1.5 Mbps	<ul style="list-style-type: none"> Web browsing and shopping Medium social media use Sending/receiving medium-sized documents/files (photos, word processing) Limited streaming content; buffering a concern Standard Definition (SD) content VPN access possible, but speed of operation not critical to job function Internet integrated in daily life, and “always” connected 1-3 simultaneous internet devices possible Multiple functions working simultaneously possible (e.g. web browsing, streaming video/music, downloading content). Not concerned with speed of transmission. VoIP (Voice over IP, i.e. telephone over the Internet)
			Minimum Download Speed: 3 Mbps Minimum Upload Speed: 768 Kbps
			<ul style="list-style-type: none"> Medium to high social media use Sending/receiving medium to large-sized documents or files (photos, word processing) Streaming SD content; buffering not a concern; downloading High Definition (HD) content (movies, video) 3-5 internet devices possible VPN access needed, speed of operation important but not critical to job function Multiple functions performed simultaneously required (e.g. web browsing, streaming video/music, downloading content), but not concerned with speed of downloads Low quality, small window frame videoconferencing (Skype) Cloud-based computing and data storage
Served	6 Mbps to 25+ Mbps	1.5 Mbps to 6+ Mbps	Minimum Download Speed: 6 Mbps Minimum Upload Speed: 1.5 Mbps
			<ul style="list-style-type: none"> Heavy social media use Sending/receiving large documents or files (photos, word processing, small videos) Streaming HD content (movies, video); buffering not a concern 5+ internet devices possible VPN access needed, speed of operation critical to job junction Higher quality, codec-based videoconferencing Multi-player online gaming
			Minimum Download Speed: 10 Mbps Minimum Upload Speed: 3 Mbps
			<ul style="list-style-type: none"> Sending/receiving large files and small to medium-sized databases HD quality, codec-based, large frame videoconferencing; multiple (bridged) sites/users Remote synchronous education, professional development, workshops, etc., facilitated simultaneously at multiple classrooms and/or other locations Telehealth/telemedicine applications possible
Served	6 Mbps to 25+ Mbps	1.5 Mbps to 6+ Mbps	Minimum Download Speed: 25+ Mbps Minimum Upload Speed: 6+ Mbps
			<ul style="list-style-type: none"> Sending/receiving medium to large-sized databases HD quality, codec-based, large frame videoconferencing (Telepresence) connecting multiple (bridged) sites/users High speed end to end network and business to business applications Telemetry-based applications (rely critically on the ability of broadband to continuously monitor and multiplex data, i.e. remote patient monitoring, sensing systems, etc.) Real-time HD medical imaging and consultation (remote dermatology, etc.) “Internet 2” connectivity and applications

plant. In order to transport the Internet to homes and businesses, known as the “last mile,” it can be most cost-effective to increase the reach of the “middle mile” through community anchor institutions. Community anchor institutions are typically municipal libraries and Town offices, hospitals and schools, emergency services and public safety operations, and large businesses that have the means and capacity to access broadband-based services.

The majority of home and small business users rely on the last mile hosts, Internet service providers (ISPs), to obtain broadband services.³

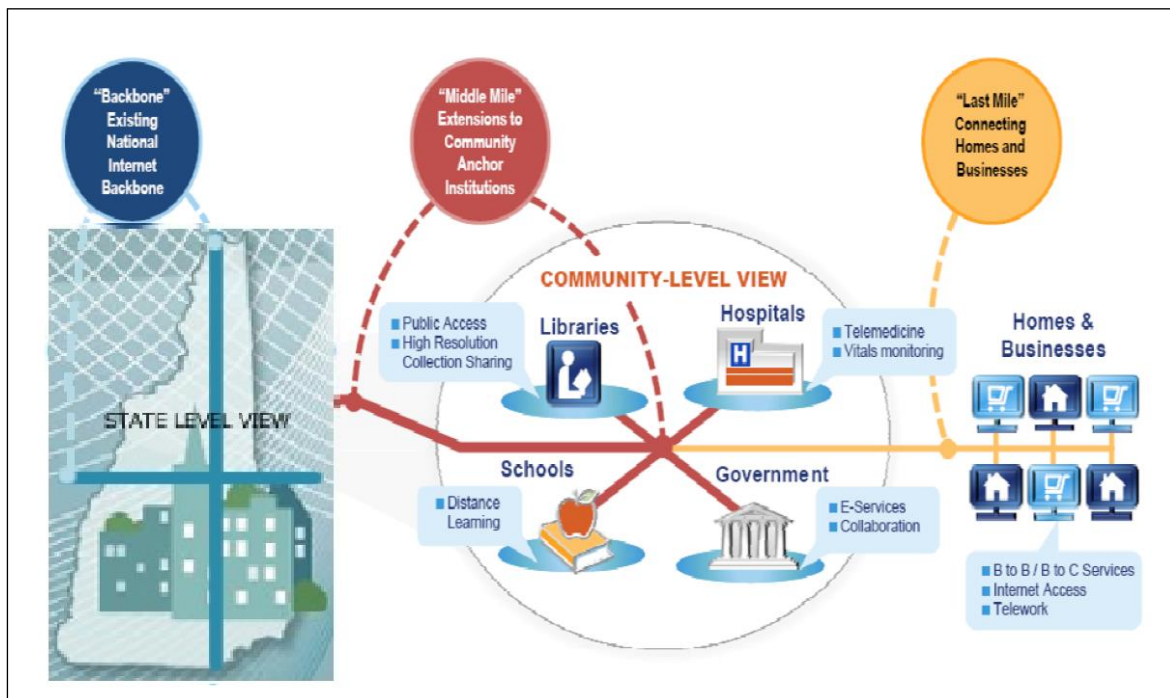
There are many different broadband delivery technologies. These technologies can be separated into two major categories of wired and wireless broadband. Wired technologies include Digital Subscriber Lines (DSL), Cable Modem, Fiber Optics, Leased Lines (T1), and Broadband over Powerline (BPL). Wireless technologies include mobile wireless (3G, 4G, LTE, WiMax), Wi-Fi, satellite, and Wireless Internet Service Providers (WISP).⁴ Wired broadband technologies bring a wire connection to the home or business. Often, a

Wi-Fi router is used by the subscriber to share the Internet connection wirelessly among different devices within the home, such as a laptop computer or tablet.

Digital Subscriber Lines (DSL) and Cable Modem are wired technologies commonly used by residential and small businesses. DSL uses copper phone lines to deliver direct, one-on-one connections to the Internet, allowing users to not have to share bandwidth with neighbors. Users must be located within 18,000 feet (3.4 miles) of a phone company’s central office, which means service is often unavailable in rural areas.⁵ The most common DSL connections are asymmetric, with networks offering more bandwidth and faster speeds for download compared to upload, since residential users predominately are downloading more information from the Internet than uploading. Symmetric types of DSL provide equal bandwidth for uploading and downloading speeds, which is sometimes marketed as “Business DSL” as companies often have greater needs for uploading, or transmitting data.

Cable Modem, which is typically faster than a common, asymmetric DSL connection, uses the

Figure 1. Broadband Overview.



Source: <http://www.whitehouse.gov/sites/default/files/20091217-recovery-act-investments-broadband.pdf>.

cable network to deliver broadband to users. Cable networks are a shared connection, so speeds can slow during peak usage times due to congestion when people in the same neighborhood are online. Fiber optic systems use lasers across very thin strands of glass creating reliable, resilient technology that has an extremely high capacity for speeds and data transmission. There is a high cost associated with laying out the fiber network but once in place the system can be easily upgraded and maintained, with lower operating costs than DSL, cable, or wireless networks.⁶

Building out the fiber network is currently the most effective means to provide the highest capacity broadband Internet.

Wireless broadband is available through many technologies, including mobile wireless (3G, 4G, LTE), Wi-Fi, satellite, and Wireless Internet Service Providers (WISP). Unlike wired technologies, which bring wires directly to a location, wireless technologies use radio frequencies through transmitters and receivers to deliver broadband. Wireless broadband can be categorized as wireless networks or satellite. Cell phones, and other mobile devices, use mobile wireless licensed technologies such as 3G, 4G, LTE, WiMax, and other networks. Wi-Fi or 'hotspots' are designed to broadcast the Internet for several hundred feet. They are used by public and private networks, including businesses for their employees or retailers for their customers, who connect to the Internet using built-in Wi-Fi cards in their mobile devices (e.g. laptops, tablets, or cell phones, etc).

Wireless Internet Service Providers (WISP) are designed to cover large areas using point-to-multipoint networks to broadcast wireless data up to 20 miles. A signal is broadcast from a base station and is received by a fixed wireless antenna mounted on a customer's premises. A combination of a Wi-Fi Hotspot and a WISP can enable a Neighborhood Internet Service Provider (NISP) or a Wi-Fi Hotzone. A Wi-Fi Hotzone can cover an area such as a neighborhood, shopping mall, or campground.⁷ WISP networks can provide "last mile" solutions and broadband

availability to rural areas where it is often cost-prohibitive to build wired networks.

Satellite Internet users send and receive information via small dishes installed on the premises to a satellite in space which retransmits the signal to a network operation center that is connected to the Internet. Satellite-based Internet connection can be interrupted by objects and weather, and broadband upload speeds are typically slower than wired or other wireless networks.⁸ While wireless broadband can offer mobility and access for rural locations, wireless connections are unlikely to overtake the wired network which is likely to maintain higher speeds and lower costs, especially when compared to a ubiquitous fiber network. Wireless and wired broadband networks can be thought to complement each other to create available broadband Internet connections.⁹

C. Why Broadband Is Important.

Broadband is in 2014 what electricity was to New Hampshire in the 1930's—a necessity. As a predominantly rural state, the availability of high-speed Internet is one of the most significant factors that will impact the ability of communities to achieve economic growth and maintain quality of life. In a relatively short period of time, fast and reliable broadband has become essential for economic and community development and is critical infrastructure for public safety, education, health care, business and government operations.¹⁰

Communities today face many challenges: a competitive global marketplace; an aging population; the need for a better-educated and better-prepared workforce; and, access to health care. These issues are magnified in rural areas as the distance between households and services makes it difficult to access certain resources and opportunities. The financial resources traditionally available to overcome these challenges are often unavailable to rural communities and regions. New solutions are required. Broadband can help community leaders find innovative solutions to these challenges.



There is no doubt that we live in an information society, and broadband connects us to opportunities and services. Whether this is training for a new skill, a new language, or completing an online course - broadband facilitates the access of information in many different forms.¹¹ In 2010, it was estimated that there were almost 200 million Americans with access to broadband at home, up from 8 million in 2000.¹² While this is an impressive increase, there are still many Americans with insufficient access to broadband services. In New Hampshire, access varies from good coverage and availability in denser areas of the state to areas of un-served and under-served communities in the northern, western and eastern parts of the state. This variability can lead to disparities in economic opportunity, education, community vitality, public health and safety, and quality of life.

D. Broadband Importance by Sector.

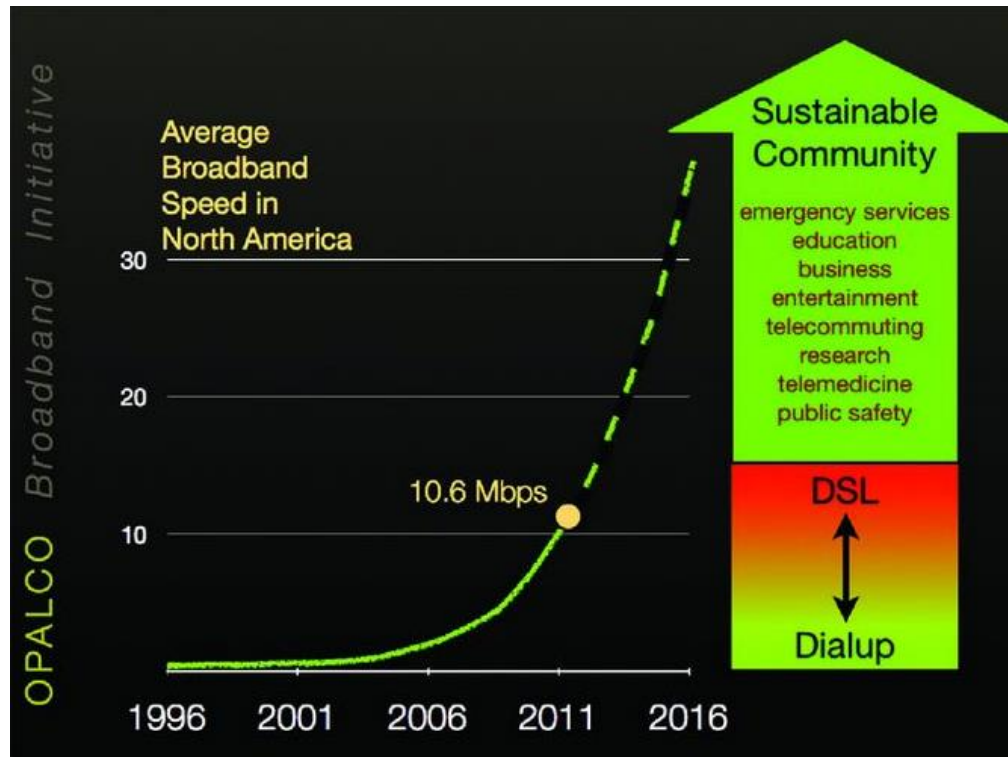
1. Education.

Broadband is an important tool to enhance access to and improve the quality of education at all levels in New Hampshire and beyond. Broadband-enabled teaching and learning has

the potential to extend learning beyond the limits of the classroom, provide more customized learning opportunities, and increase the efficiency of school systems.¹³ The availability of a wide range of Internet based resources such as distance learning programs, online learning modules, and digital textbooks allows students to engage in multimedia lessons, take virtual trips, and communicate with classrooms in other parts of the world. These tools offer educators a platform to share curricula and provide adult learners easy access to professional development or educational opportunities online.

However, as teaching and broadband technology become increasingly intertwined, students lacking access to adequate broadband both in school and at home will be unable to keep up with educational trends and potentially, be less prepared than their peers in more 'connected' areas. The state Educational Technology Directors Association recommends that K-12 schools have access to broadband speeds of 100 megabits per second for every 1,000 students and staff by the year 2014 and 1 gigabyte per second by 2017.¹⁴

Figure 2. Broadband Initiative.



Source: <http://www.opalco.com/broadband/do-we-really-need-faster-internet-service-2013-05-01/>.

Although most schools provide some level of Internet access, too often the speeds of these connections fall short of what is considered appropriate or necessary.¹⁵ This need for improved broadband connections in schools will only increase over time; especially, as educators transition to web-based content and resources and more states require online assessments and testing.

Not only does the availability of reliable broadband technology offer advances in education, it is imperative to the economic welfare and long-term success of our state and nation.¹⁶ Participation and competition in the global economy is increasingly dependent on twenty-first century skills, including the ability to effectively use technology and navigate the digital world.¹⁷ Providing access to learning opportunities that address these skills can help empower students to actively engage in an increasingly technology-driven and digital culture.

2. Health.

With increasing and changing health needs, ranging from rising health care costs, to managing chronic illnesses, to meeting the needs of an aging population, and a shortage of specialists in rural locations, broadband Internet plays an important role in how these issues are addressed. Many emerging technologies and approaches to health care are dependent on broadband connections to improve health care outcomes while also controlling costs and extending the reach of health care providers.¹⁸ Individual patients, providers, and the overall public health of a community benefit from more efficient, innovative, and informed health care systems as new technologies are adopted.

Telehealth, the broader term incorporating telemedicine, is the transfer of electronic medical data (images, sounds, live video and patient records) from one location to another. It includes the use of electronic information and telecommunications technologies to support long distance clinical care, patient and professional health related education, public health, and health administration.¹⁹ New Hampshire, with rural geography, scarcity of

local specialty medical services, and high percentage of elderly residents, can benefit from telehealth systems.²⁰ Broadband Internet is necessary to continue supporting current and emerging telehealth applications for patients, providers, hospitals, and health care businesses.

Electronic medical records systems enable providers to collaborate in patient care by accessing treatment information from different locations. Patients can have better access to their medical records and information in an effort to better engage patients and families in managing their health. Video conferencing allows physicians to conduct video consultation and monitor treatment of patients remotely.

It also increases the reach of specialized physicians and research.²¹ Broadband Internet connection plays an essential role in the ability to incorporate the latest health technologies that benefit patients, health providers, and health industry businesses.

3. Community Support / Government.

From providing a displaced community member with food and shelter to organizing community initiatives, local governments and community support organizations in New Hampshire deliver a wide variety of valuable services to their constituents. Demands for services are constantly increasing, yet organizational budgets rarely follow that same trend. Broadband connectivity provides the capacity to more efficiently and cost-effectively deliver services while opening up possibilities for new services and facilitating more robust public participation.

Undoubtedly, certain matters will always be best handled through face-to-face contact and technology should augment New Hampshire's tradition of accessibility to the public process. But citizens have come to desire, and sometimes expect, a certain level of online interactivity with government and community support organizations. Most towns in New Hampshire currently host websites providing immediate, remote access to public notices, event calendars, applications, forms,



ordinances and regulations. While constituents benefit from easy access to the information they need, governments and community support organizations save time, money and resources when routine requests are handled online.

Equal in value to the administrative efficiencies associated with broadband technology are the accessibility opportunities broadband creates. Online meetings, surveys, blogs and other modules offer new ways for a larger percentage of the population to watch and participate in community decision-making processes. Similarly, technologies utilized by community support organizations now enable them to administer one-on-one services without travelling.

While new applications allowing for improved public sector interaction and transparency will continually surface, their reliance on perpetually maintained broadband infrastructure will remain a constant.

4. Public Safety.

New Hampshire is a predominantly rural state, where firefighters, law enforcement and emergency medical personnel cover wide geographic areas. These public safety officials are often required to quickly make potentially life-saving decisions in the field, despite the challenges of rugged terrain and natural and man-made disasters. Public safety personnel need the ability to quickly communicate with each other, access online resources (via a PC or mobile device), connect to networks, and quickly transfer important video and data files during emergencies. Broadband access through a combination of wired and wireless technologies can enhance public safety by enabling first responders to make informed decisions and allowing them to communicate with one another effectively, usually resulting in reduced loss of life and property.

5. Business / Economic Development.

The total economic impact of broadband in New Hampshire was estimated at \$634 million in 2010 and in 2011, 11,000 net new jobs were created as a result of expanded broadband.²² Broadband and economic development are

connected in that, as we progress into the future, both are needed for each to be successful. The use of broadband for economic development improves the ability to retain and recruit businesses, increases business profitability, attracts highly skilled workers, improves the efficiency of municipal services, enhances access to healthcare, and contributes to stronger educational attainment. All are key ingredients to a successful economic development strategy.

Jobs depending on broadband and information and communications technology will grow by 25% between 2008 and 2018 or at a rate of 2.5% faster than the average for other occupations and industries.²³ To say that broadband technology has not changed the way we do business is to deny the tremendous impact that computers have had on our lives worldwide. In 2011, 73% of New Hampshire households and businesses had access to broadband and, nationally in 2012, 66% of adults have broadband at home, which is up from 3% in 2000.²⁴ Investment in broadband is showing benefits for small businesses and local economies, as well. A Connect Iowa study of the state's small businesses found that Iowa small businesses generate \$1.9 billion in online sales and that small businesses with a broadband connection have revenues that are \$200,000 higher annually than those which do not.²⁵

Broadband and broadband-dependent applications allow small businesses to increase efficiency, improve market access, reduce costs and increase the speed of both transactions and interactions. By using Web-based technology tools, 68% of businesses surveyed boosted the speed of their access to knowledge, 54% saw reduced communications costs and 52% saw increased marketing effectiveness.²⁶ The use of broadband by small businesses has proven to be an efficient and cost effective tool. Business statistics have shown that small businesses have consistently been the backbone for job and wealth creation in the US economy. The use of broadband has truly served to enrich that position into the 21st century.



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IV. North Country’s Broadband Need

A. Introduction

1. Regional Vision.

In 2005, the New Hampshire Rural Development Council (“NHRDC”) released the first section of the three part Technology and Telecommunications Master Plan (“2005 Master Plan”) intended to be the North Country’s regional broadband master plan. Completed in 2007, the plan sought to evaluate the region’s broadband infrastructure and

In 2010, the New Hampshire Broadband Mapping and Planning Program (NHBMPP) began researching and mapping broadband availability. Through this program, NHBMPP can provide regional/local planners and concerned citizens the opportunity to compare the availability of broadband resources across the state.

North Country Region Vision Statement: “To make broadband available to all North Country residents through collaboration with public and private partners. To support communities and encourage them to work together. To encourage enhancements to broadband infrastructure and ensure affordability, adoption, and capacity to meet the needs of the future. To accept responsibility to benchmark, track, and promote broadband initiatives that will support enhanced economic development and educational opportunities, which in turn will help guide the knowledge and creative economies in fully realizing the economic and educational value of broadband.” September 2013.

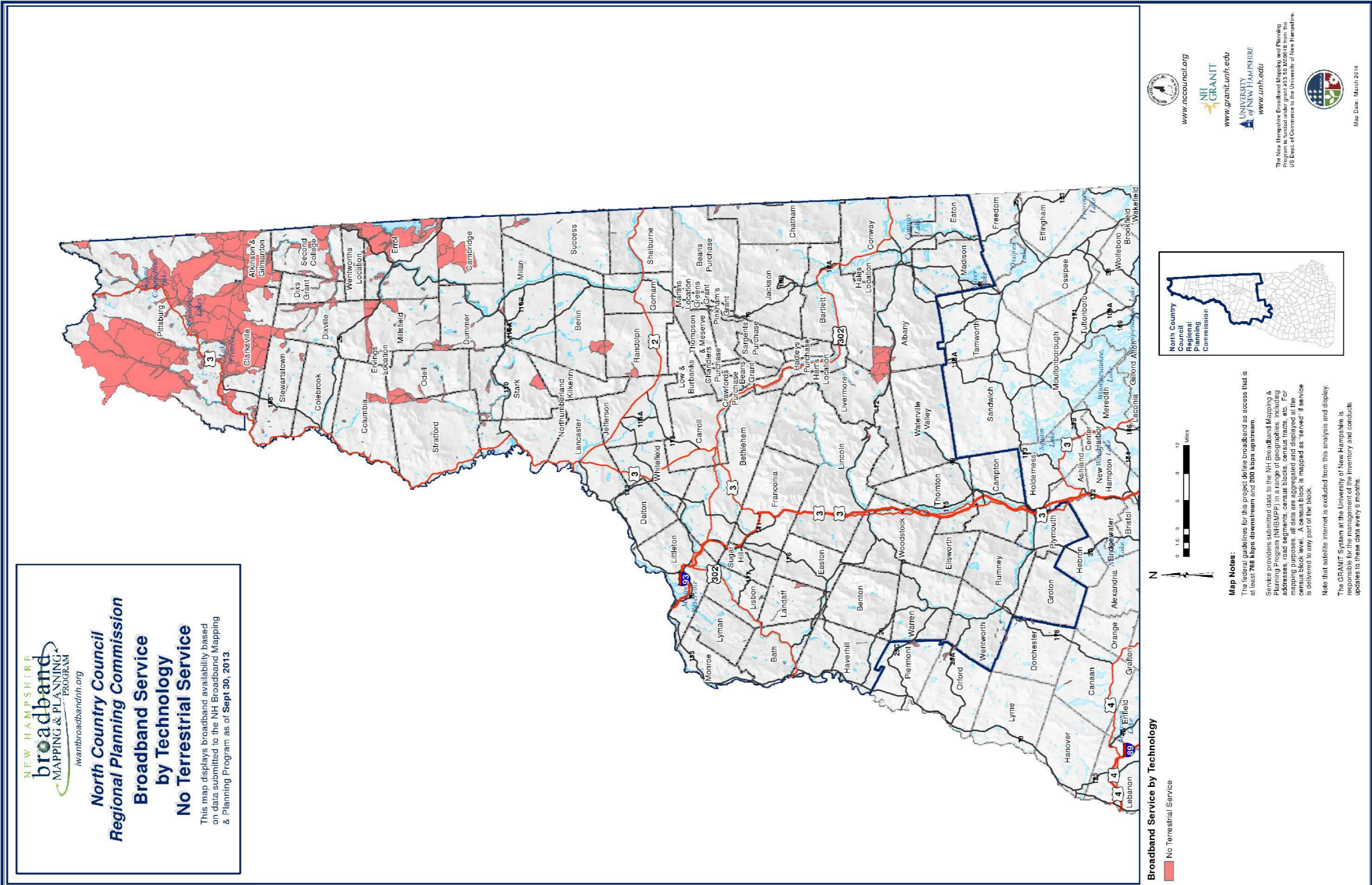
provide guidance based on the region’s current and future needs.

Since 2005, the regional broadband infrastructure has greatly expanded. DSL, cable and wireless broadband service is now available across the region, and satellite (non-terrestrial broadband) is available everywhere. However, there still remain a few pockets in the region that are unserved by a terrestrial provider. **See Map 1.** According to the NHBMPP survey, that figure is less than half a percent (0.3 percent) of the total population in the North Country. Comparatively, the recent Granite State Future (GSF) survey found around 2 percent (1.6 percent) of North Country residents say they do not have Internet because it is unavailable. This discrepancy should be investigated in future surveys.

In 2012, the North Country’s Broadband Stakeholder Group (BSG) was formed to provide feedback and information related to broadband. Since then, the BSG has met quarterly to develop a Regional Vision Statement, discuss broadband-related issues, and listen to experts on a wide range of technology-related topics.

This statement encapsulates the current and future needs of the region and how it can achieve those goals. Key to effectuating the North Country’s broadband vision will rest with the continued investment and reevaluation of the broadband infrastructure and willingness to work together.





Map 1. Broadband Service by Technology No Terrestrial Service.

Table 2.

Organizations and Carriers Involved in the 2005 Master Plan			
North Country Council	Business and Economic Development Corp.	Techlink NH	North Country Health Consortium
Coös Economic Development Council	Plymouth State University	North Country Internet Access	NH Community Technical College – Berlin
Town of Colebrook	Mt. Washington Valley Economic Council	Mt. Washington Observatory	Northern NH Foundation
NH Division of Economic Development Telecommunications Advisory Board (TAB)	NH Rural Development Council	NH Division of Economic Development	NH Chartable Foundation
Northern Community Investment Corp.	North Country Education Services	Notch Net	BEDCO
White Mt. Cable	CTC Communications Corp.	Time Warner	Verizon
Adelphia	MCI	Charter Communications	NCIA
NHEC	segNET Technologies	G4 Communications	PAETEC
Comcast	Great AUK Wireless		

2. History of Broadband Planning Efforts in the Region.

In 2005, the NHRDC in conjunction with a number regional planning and economic development leaders, technology leaders, business leaders, and education and health leaders, published the first part of the North Country’s Technology and Telecommunications Master Plan. **See Table 2.** Completed in 2007, the goal of the Plan was to evaluate the region’s current broadband resources and provide information on how to increase broadband penetration.

In 2010, the NHBMPP began a statewide project to research and map the current broadband resources available. In collaboration with the NH Office of Energy and Planning, NH Department of Resources and Economic Development, UNH Cooperative Extension, and the state’s nine RPCs, the NHBMPP will put together a collection of Regional Broadband Reports, each evaluating the current state of broadband resources in their respective region.

As part of this process, the NHBMPP tasked the Regional Planning Commissions with

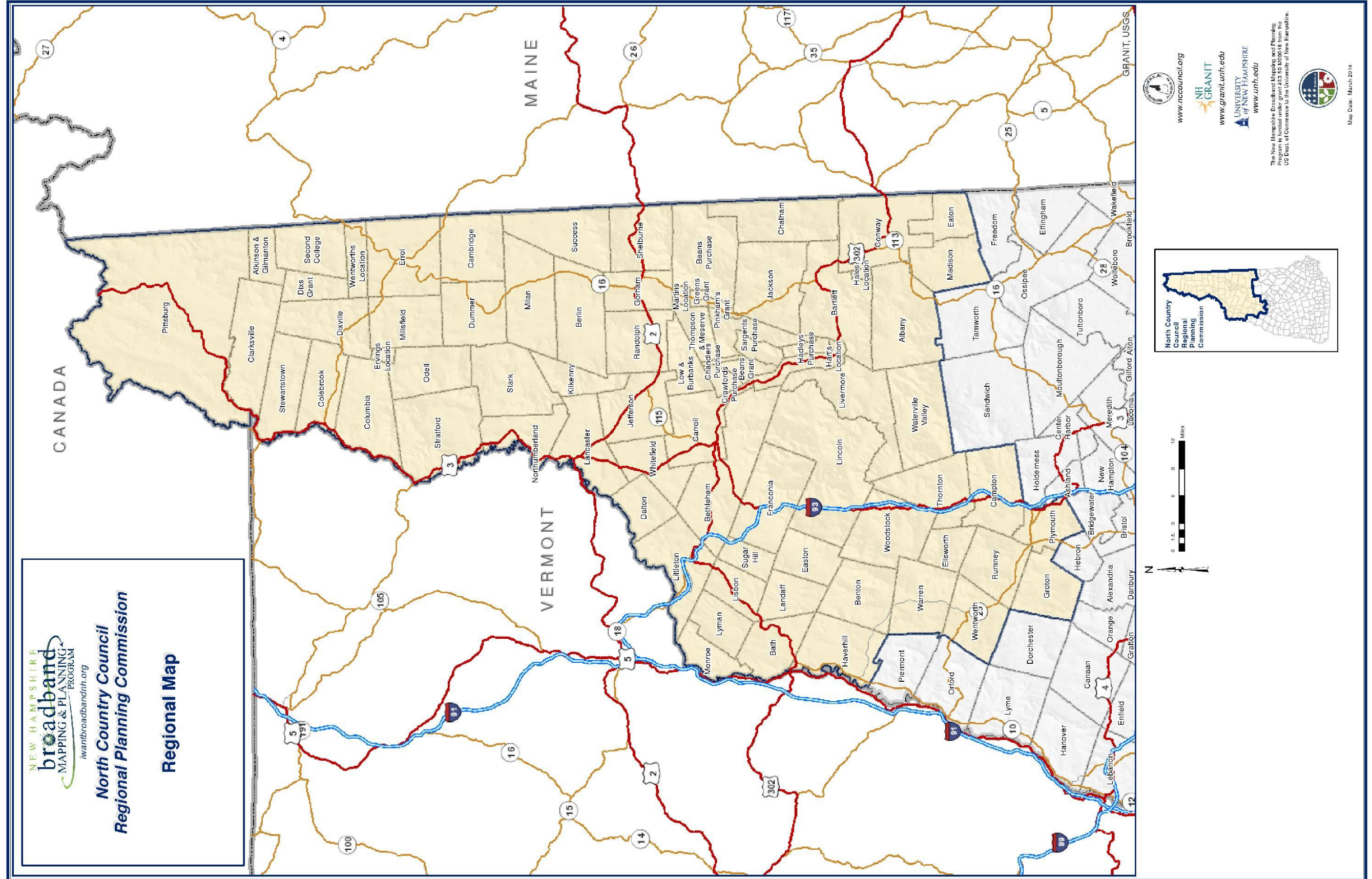
collecting regional broadband data and developing a Regional Broadband Report. This Report is a result of those efforts.

A. Regional Overview.

The North Country Council (NCC) planning region is the largest planning region by area in the State of New Hampshire. Totalling 3,418 square miles, the region shares two state borders, to the west with Vermont and to the east with Maine. **See Map 2.** The region also shares an international border to the north with Canada. The region contains 50 towns, 1 city and 25 unincorporated areas. **See Map 3.** In Carroll County, the region covers the communities of Albany, Bartlett, Chatham, Conway, Eaton, Effingham, Hale’s Location, Hart’s Location, Jackson and Madison. In Coös County, the region covers the communities of Atkinson & Gilmanton, Academy Grant, Beans Grant, Beans Purchase, Berlin, Cambridge, Carroll, Chandlers Purchase, Clarksville, Colebrook, Columbia, Crawford’s Purchase, Cutts Grant, Dalton, Dix’s Grant, Dixville, Dummer, Errol, Ervings, Gorham, Green’s Grant, Hadley’s Purchase, Jefferson, Kilkenny, Lancaster, Low & Burba-

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Map 2. North Country and surrounding region.

nks Grant, Martin's Location, Milan, Millsfield, Northumberland, Odell, Pinkham's Grant, Pittsburg, Randolph, Sargent's Purchase, Second College Grant, Shelburne, Stark, Stewartstown, Stratford, Success, Thompson & Meserves Purchase, Wentworth and Whitefield. In Grafton County, the region covers the communities of Bath, Benton, Bethlehem, Campton, Easton, Ellsworth, Franconia, Gorham, Haverhill, Landaff, Lincoln, Lisbon, Littleton, Livermore, Lyman, Monroe, Plymouth, Rumney, Sugar Hill, Thornton, Warren, Waterville Valley, Wentworth and Woodstock.

includes Mount Washington, which is nearly a mile high and has held the record for the fastest reported wind speeds in the world. Numerous other smaller mountain ranges criss-cross the region, creating geography replete with peaks, valleys, mountain passes, rivers and streams.

In addition, there are 45 recreational parks, wayside areas and forests under state auspices in the North Country, which contain over 60,000 acres. Some of these major conservation areas include Nash Stream State Forest, Crawford and Franconia Notch State Parks,

“Over half the land mass of many of our municipalities and unincorporated locations are located in the National Forest.”

With the exception of the city of Berlin in Coös County, Littleton, Plymouth and Haverhill in Grafton County, and Conway in Carroll County much of the region remains lightly populated, retaining its rural New England character.

1. Geography and Physical Landscape.²⁷

Mountains and tree coverage most simply describe the geography and physical landscape of the North Country. It is part of the Great Northern Forest, which extends from northern Maine through Vermont into the Adirondacks of New York State. The Appalachian Trail, which leads from northern Maine to Georgia, also passes through the center of the region. The North Country contains large tracts of federal, state, and privately held conservation lands. These lands provide numerous opportunities for the outdoor recreation and the tourism industries.

The White Mountain National Forest encompasses nearly a third of the region with over 800,000 acres of wilderness and multi-use lands. Over half the land mass of many of our municipalities and unincorporated locations are located in the National Forest. The Presidential Range, the section of the White Mountains with the highest altitude,

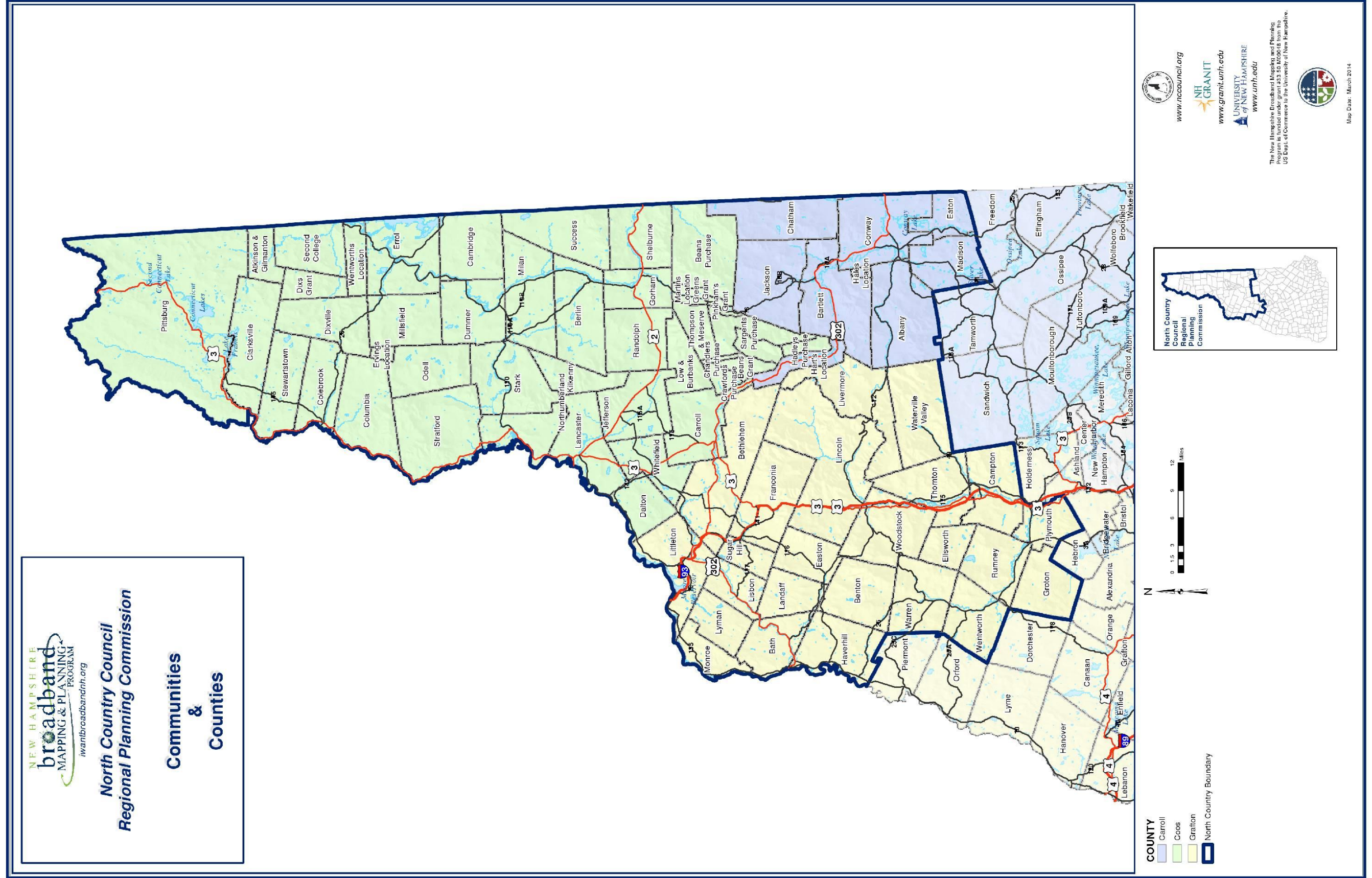
Pondicherry Wildlife Refuge, and the Lake Umbagog Conservation Area.

The North Country is home to the headwaters of three large New England waterways. The Connecticut River creates a natural border between New Hampshire and Vermont from its confluence high in the Connecticut Lakes of Coös County to the Long Island Sound in Connecticut and New York State. The Androscoggin River, home to paper mill activity in several locations, also originates in Coös County from Lake Umbagog on the NH-Maine border and flows southeast to the Maine coast. The Saco River begins at Saco Lake near the southern end of the Presidential Range and flows through Mount Washington Valley also emptying into Maine's coast.



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Map 3. North Country Communities & Counties.

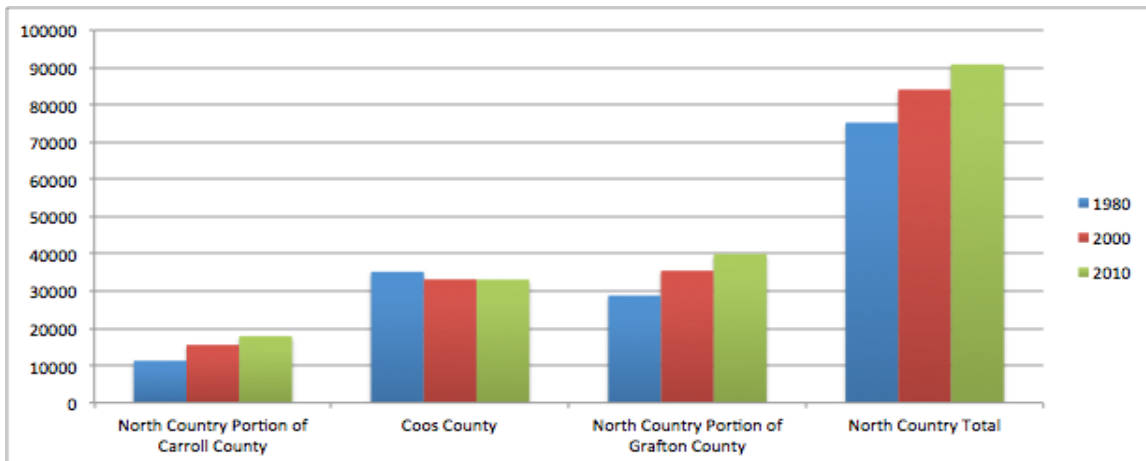
2. Population Characteristics.^{28, 29 & 30.}

Around 92,158 people call the 3,418 square miles of the North Country home. Comparatively, the rest of New Hampshire, approximately 9,350 square miles, is home to 1,224,312 people. That means folks living in the North Country, about 7 percent of the state population, occupy over a third of the state. As you can imagine, that means the North Country has a very low population density – in the North Country, there are about 26.6 persons per square mile. In Southern New Hampshire, that number increases by a factor of about 7.6 times to 206.4 persons per square mile. Looking further, we reveal a bit more of the North Country story. When considering Coös County, the population density sits at around 18 persons per square mile, while the population density of the southern portion of the North Country is about 36.4 persons per square mile. This southern portion of the region occupies less than half of the area (approximately 46 percent), but accounts for almost two-thirds (approximately 64 percent) of the population. Population change since 1980 tells a similar story. **See Figure 3.** Coös County has lost about 6 percent of its population since 1980, a trend that seems to follow the loss of the timber and pulp mill industry. **See Table 5.** Conversely, since 1980, the population of the North Country portion of Carroll County has grown 58.3 percent, and the North Country portion of Grafton County has experienced growth of about 38.7 percent. **See Table 3 & 4.**

Snapshot of the North Country		
	North Country	NH
Area in square miles	3,418	9,350
Towns	51	221
Unincorporated Towns	25	25
Population	90,813	1,316,470
Population change since 1980	20.8%	43.0%
NC Portion of Carroll County	62.7%	
Coös County	-6.0%	
NC Portion of Grafton County	38.7%	
Over 65	21.3%	13.5%
NC Portion of Carroll County	18.5%	
Coös County	19.4%	
NC Portion of Grafton County	24.2%	
Self-identified as		
White	96.9%	93.9%
Of color	3.1%	6.1%
Gender		
Male	50.3%	49.3%
Female	49.7%	50.7%
Unemployed	6.2%	5.9%
Living Below the Poverty Level	6.7%	5.0%

Sources: U.S. Census Bureau, 2005-2010 American Community Survey, 5-Year Estimates, (2011).
 U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).
 New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Figure 3. North Country Population Overview.



New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Table 3.

Carroll County Population Overview			
Name	2010	2000	1980
Albany	735	654	383
Bartlett	2,788	2,705	1,566
Chatham	337	260	189
Conway	10,115	8,604	7,158
Eaton	393	375	256
Hale's Location	120	58	2
Hart's Location	41	37	27
Jackson	816	835	642
Madison	2,502	1,984	1,051
NC Portion of Carroll County	17,847	15,512	11,274

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Table 4.

Grafton County Population Overview			
Name	2010	2000	1980
Bath	1,077	893	761
Benton	364	314	333
Bethlehem	2,526	2,199	1,784
Campton	3,333	2,719	1,694
Easton	254	256	124
Ellsworth	83	87	53
Franconia	1,104	924	743
Groton	593	456	255
Haverhill	4,697	4,416	3,445
Landaff	415	378	266
Lincoln	1,662	1,271	1,313
Lisbon	1,595	1,587	1,517
Littleton	5,928	5,845	5,558
Livermore	0	3	0
Lyman	533	487	281
Monroe	788	759	619
Plymouth	6,990	5,892	5,094
Rumney	1,480	1,480	1,212
Sugar Hill	563	563	397
Thornton	2,490	1,843	952
Warren	904	873	650
Waterville Valley	247	257	180
Wentworth	911	798	527
Woodstock	1,374	1,139	1,008
NC Portion of Grafton County	39,911	35,439	28,766

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).



Table 5.

Coös County Population Overview			
Name	2010	2000	1980
Atkinson & Gilmanton Academy Grant	0	12	0
Beans Grant	0	0	0
Beans Purchase	0	4	0
Berlin	10,051	10,331	13,084
Cambridge	8	10	5
Carroll	763	663	647
Chandlers Purchase	0	0	0
Clarksville	265	294	262
Colebrook	2,301	2,321	2,459
Columbia	757	750	673
Crawford's Purchase	0	0	0
Cutts Grant	0	0	0
Dalton	979	927	672
Dix's Grant	1	0	0
Dixville	12	75	36
Dummer	304	309	390
Errol	291	298	313
Erving's	0	1	0
Gorham	2,848	2,895	3,322
Green's Grant	1	0	0
Hadley's Purchase	0	0	0
Jefferson	1,107	1,006	803
Kilkenny	0	0	0
Lancaster	3,507	3,280	3,401
Low & Burbanks Grant	0	0	1
Martin's Location	0	0	0
Milan	1,337	1,331	1,013
Millsfield	23	22	7
Northumberland	2,288	2,438	2,520
Odell	4	5	0
Pinkham's Grant	9	0	30
Pittsburg	869	867	780
Randolph	310	339	274
Sargent's Purchase	3	0	1
Second College Grant	0	0	2
Shelburne	372	379	318
Stark	556	516	470
Stewartstown	1,004	1,012	943
Stratford	746	942	989
Success	0	2	0
Thompson & Meserves Purchase	0	0	2
Wentworth	33	44	49
Whitefield	2,306	2,038	1,681
Coös County	33,055	33,111	35,147

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

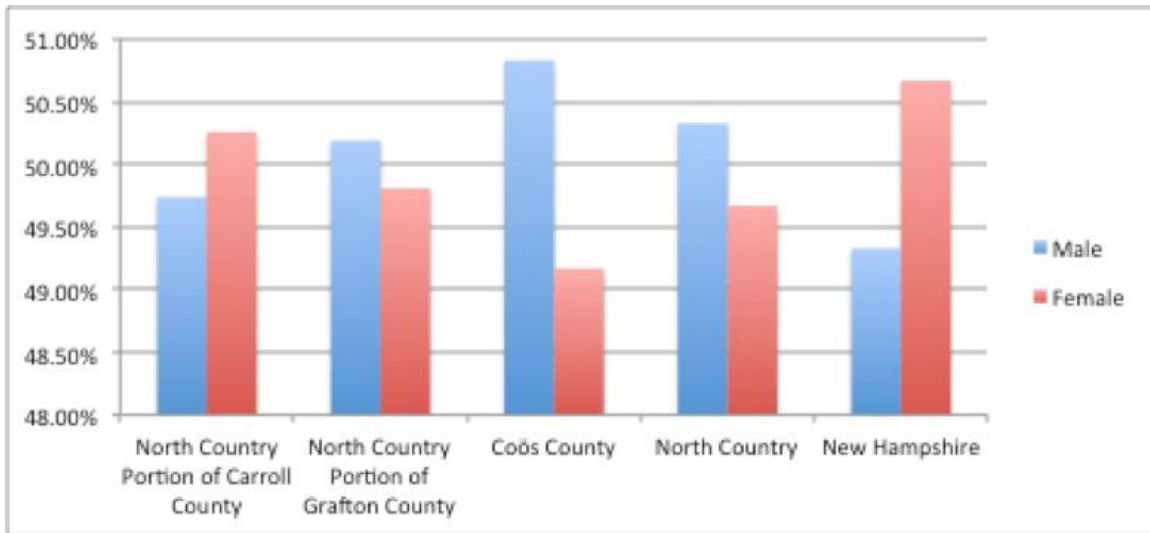


Unlike the rest of the state, the North Country is home to slightly more men than women. See **Figure 4**. This could be attributed to the traditional job sectors offered in the North Country. Sectors such as forestry, mining, manufacturing and construction, have traditionally been male-dominated.

The population of the North Country is aging. In 2010 persons 65 years of age and over represented 21.3 percent of the region's population, which is 7.8 percent higher than the state average. See **Figure 5**. Moreover, for the North Country portion of Grafton County, the percent of persons 65

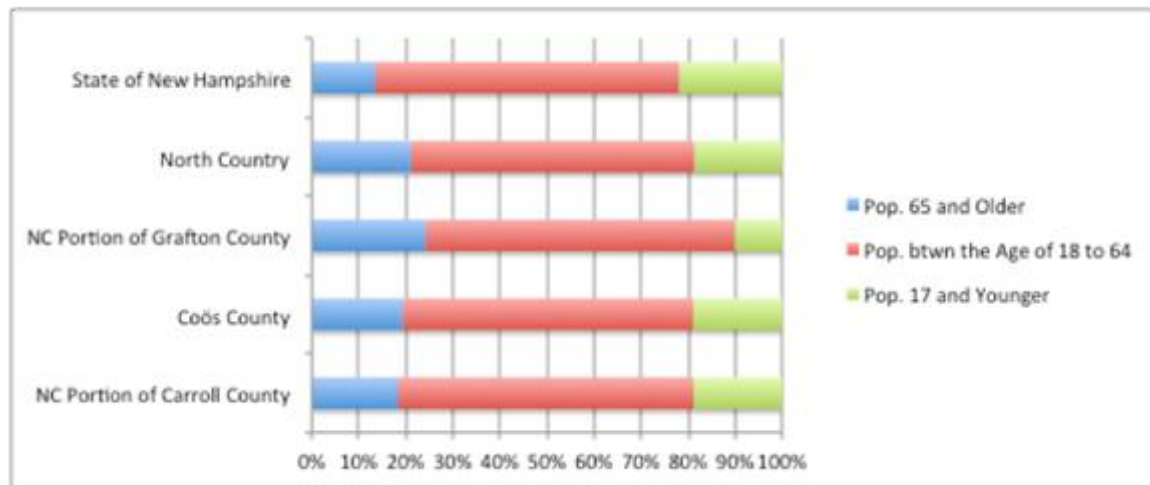
and over is almost twice that of the state average (24.2 percent v. 13.5 percent). See **Table 7, see also Table 6 & 8**. In 2000, the greater Grafton County had the lowest percentage of total population age 65 years and over at 13.4 percent. Today, that percent has increased to 15.5 percent, again, if we look at just the North Country portion of Grafton, we see that this increase is likely due to that older population residing in the North Country (24.2 percent of the North Country portion of Grafton County is aged 65 years and older).

Figure 4. Gender Demographics of the North Country.



New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Figure 5. North Country Population by Age.



New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Table 6.

Carroll County Age Demographics			
Name	Population 2010	Percent of Population between the Age of 18 to 64	Percent of Population 65 and Older
Albany	735	63.9	17.6
Bartlett	2,788	62.1	20.5
Chatham	337	63.8	16.6
Conway	10,115	63.1	17.2
Eaton	393	67.4	21.6
Hale's Location	120	33.3	64.2
Hart's Location	41	65.9	19.5
Jackson	816	60.4	26.6
Madison	2,502	63.1	16.9
NC Portion of Carroll County	17,847	62.8	18.5

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Table 7.

Grafton County Age Demographics			
Name	Population 2010	Percent of Population between the Age of 18 to 64	Percent of Population 65 and Older
Bath	1,077	62.5	17.5
Benton	364	58.8	27.5
Bethlehem	2,526	65.7	13.4
Campton	3,333	65.4	14.3
Easton	254	59.8	26.0
Ellsworth	83	56.6	27.7
Franconia	1,104	56.8	27.8
Groton	593	64.2	19.2
Haverhill	4,697	62.0	18.7
Landaff	415	63.6	18.1
Lincoln	1,662	61.0	20.4
Lisbon	1,595	62.8	14.3
Littleton	5,928	61.0	17.6
Livermore	0	-	-
Lyman	533	64.7	19.7
Monroe	788	59.4	20.4
Plymouth	6,990	80.0	8.0
Rumney	1,480	62.4	17.4
Sugar Hill	563	61.3	20.4
Thornton	2,490	67.0	14.2
Warren	904	62.2	17.1
Waterville Valley	247	57.1	26.7
Wentworth	911	61.5	19.9
Woodstock	1,374	64.3	16.4
NC Portion of Grafton County	39,911	65.7	24.2

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).



Table 8.

Coös County Age Demographics			
Name	Population 2010	Percent of Population between the Age of 18 to 64	Percent of Population 65 and Older
Atkinson & Gilmanton Academy Grant	0	-	-
Beans Grant	0	-	-
Beans Purchase	0	-	-
Berlin	10,051	61.6	20.0
Cambridge	8	75.0	-
Carroll	763	65.6	19.1
Chandlers Purchase	0	-	-
Clarksville	265	60.8	25.7
Colebrook	2,301	61.0	19.6
Columbia	757	60.8	20.8
Crawford's Purchase	0	-	-
Cutts Grant	0	-	-
Dalton	979	63.2	17.9
Dix's Grant	1	100.0	-
Dixville	12	66.7	25.0
Dummer	304	62.8	19.7
Errol	291	66.0	25.1
Erving's	0	-	-
Gorham	2,848	61.8	18.8
Green's Grant	1	100.0	-
Hadley's Purchase	0	-	-
Jefferson	1,107	64	17.5
Kilkenny	0	-	-
Lancaster	3,507	58.7	19.4
Low & Burbanks Grant	0	-	-
Martin's Location	0	-	-
Milan	1,337	67.9	13.8
Millsfield	23	69.6	4.3
Northumberland	2,288	62.0	16.9
Odell	4	75.0	-
Pinkham's Grant	9	100.0	-
Pittsburg	869	56.5	28.0
Randolph	310	67.4	22.3
Sargent's Purchase	3	100	-
Second College Grant	0	-	-
Shelburne	372	65.9	20.2
Stark	556	62.4	19.6
Stewartstown	1,004	58.5	21.4
Stratford	746	62.7	18.6
Success	0	-	-
Thompson & Meserves Purchase	0	-	-
Wentworth	33	81.8	12.1
Whitefield	2,306	61.2	18.0
Coös County	33,055	61.7	19.4

New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).



In terms of diversity, the North Country remains about half (about 3 percent) as racially diverse as the state average (about 6 percent). See Figure 6. Compared to the national average, the State of New Hampshire remains below the 27 percent racially diverse nation. However, when compared to New Hampshire’s east and west neighbors, Maine (just under 5 percent) and Vermont (just under 5 percent), New Hampshire is about as diverse. When compared to the southern New England, all three states, Maine, Vermont and New Hampshire fall behind Massachusetts at 20 percent and Connecticut 22 percent.

3. Major Employment Sectors.^{31 & 32}

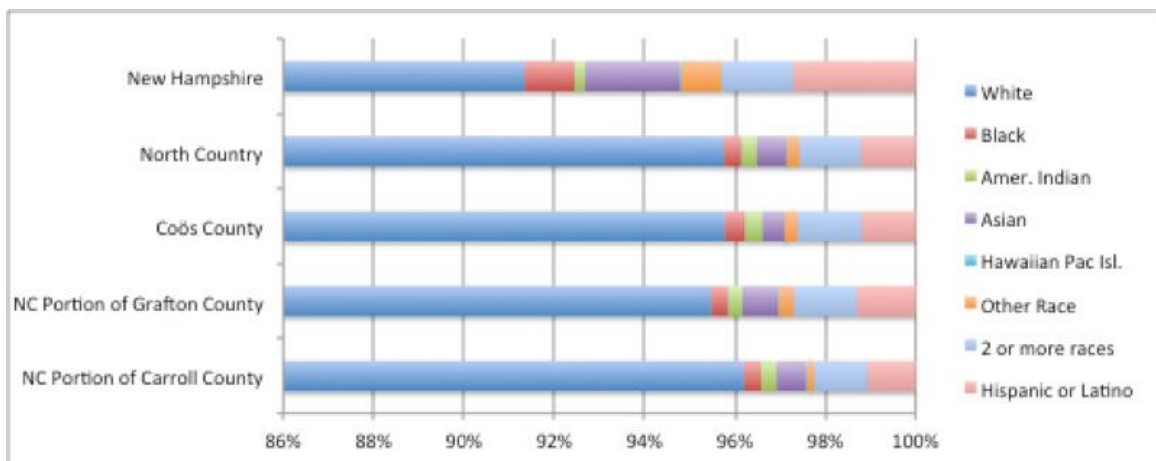
General descriptions of employment for the North Country were borrowed from the North Country Council, *USDA Rural Economic Partnership Program North Country, New Hampshire*.³³ A summary of employment by sector in the North Country as it compares to the State of New Hampshire can be found in Figure 7, 8, 9 & 10.

The construction industry is sometimes referred to as a leading economic indicator because building helps to spur activity in many of the other industries including retail, services and manufacturing. Factors that contribute to the construction industry growth in the North Country include both business and residential growth and second home ownership. Construction employment is especially valuable to the North Country economy because it provides relatively high

wages to a workforce requiring a relatively low educational attainment level.

Unlike most other industries, manufacturing creates wealth in the regional economy by exporting products and importing financial capital as payment from outside the region. This type of export employment, called “basic employment” by economists, helps to diversify the regional economy and insulate it from lapses in local demand. Even when income pressures and other factors may undermine local demand, manufacturers are able to sell their products to other regions thereby maintaining employment opportunities and the influx of financial capital. Exports from our region include agricultural goods, apparel, forest products, rubber and plastic products, stone, clay and glass products, industrial machinery and equipment and other products. Canada is New Hampshire’s largest foreign trading partner. In 2012, New Hampshire sold an estimated \$641 million in merchandise exports and \$251 million in services exports to Canada.³⁴ Mexico is New Hampshire’s second largest receiver of exports pulling in an estimated \$473 million in merchandise exports and \$81.1 million in services exports.³⁵

Figure 6. Population Diversity of the North Country (2010).



New Hampshire Office of Energy & Planning, 2010 New Hampshire Demographic Profile, (2011).

Figure 7. Occupations Carroll County (2011).

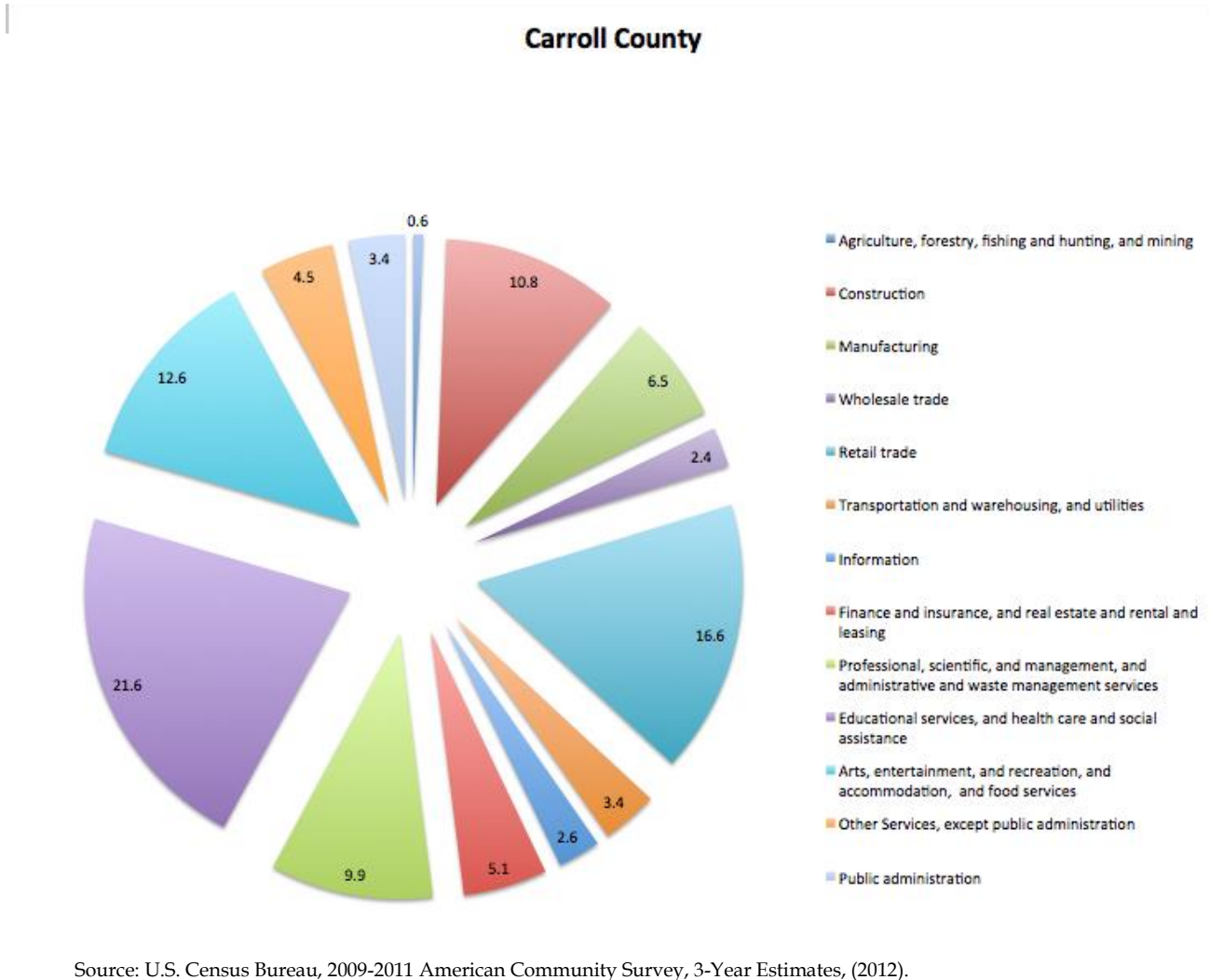
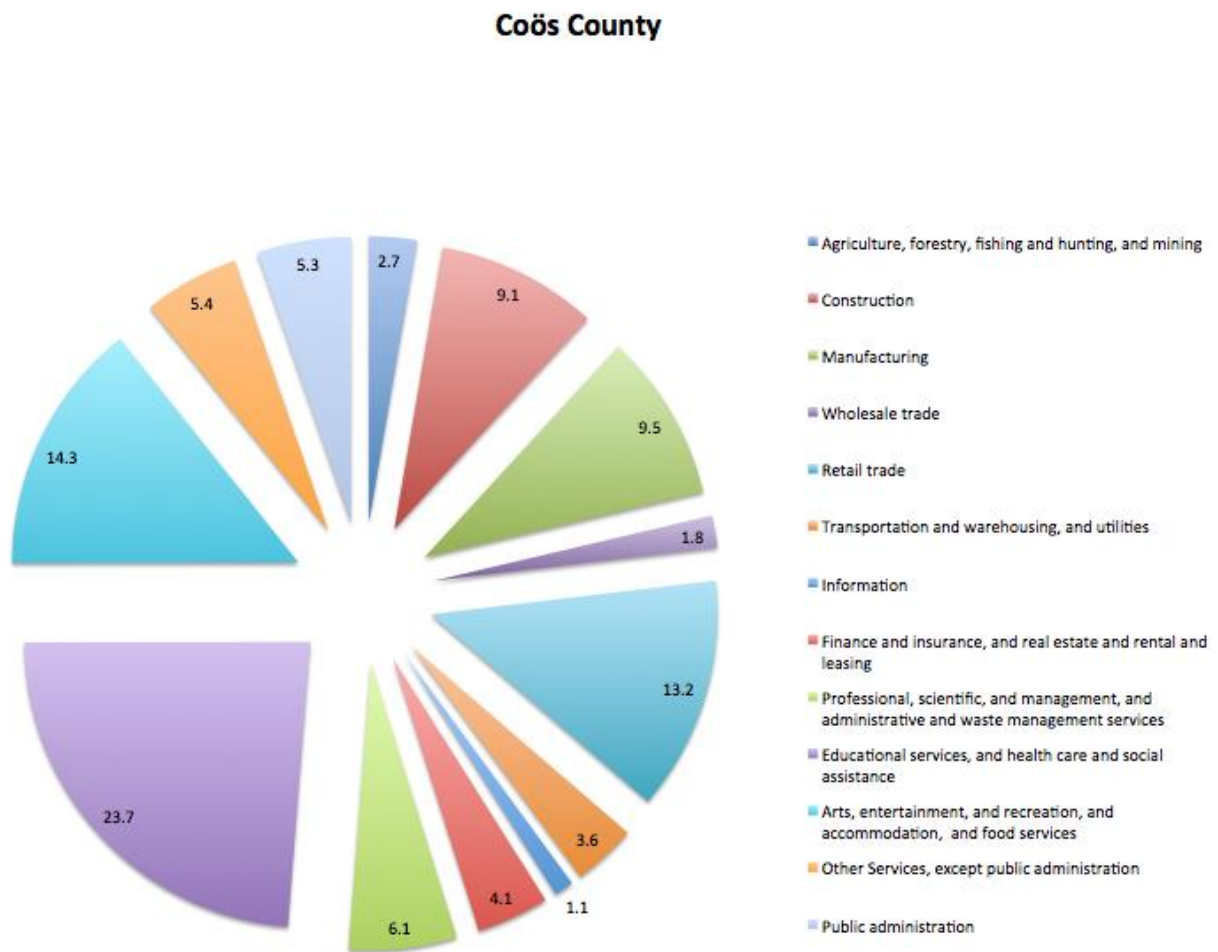
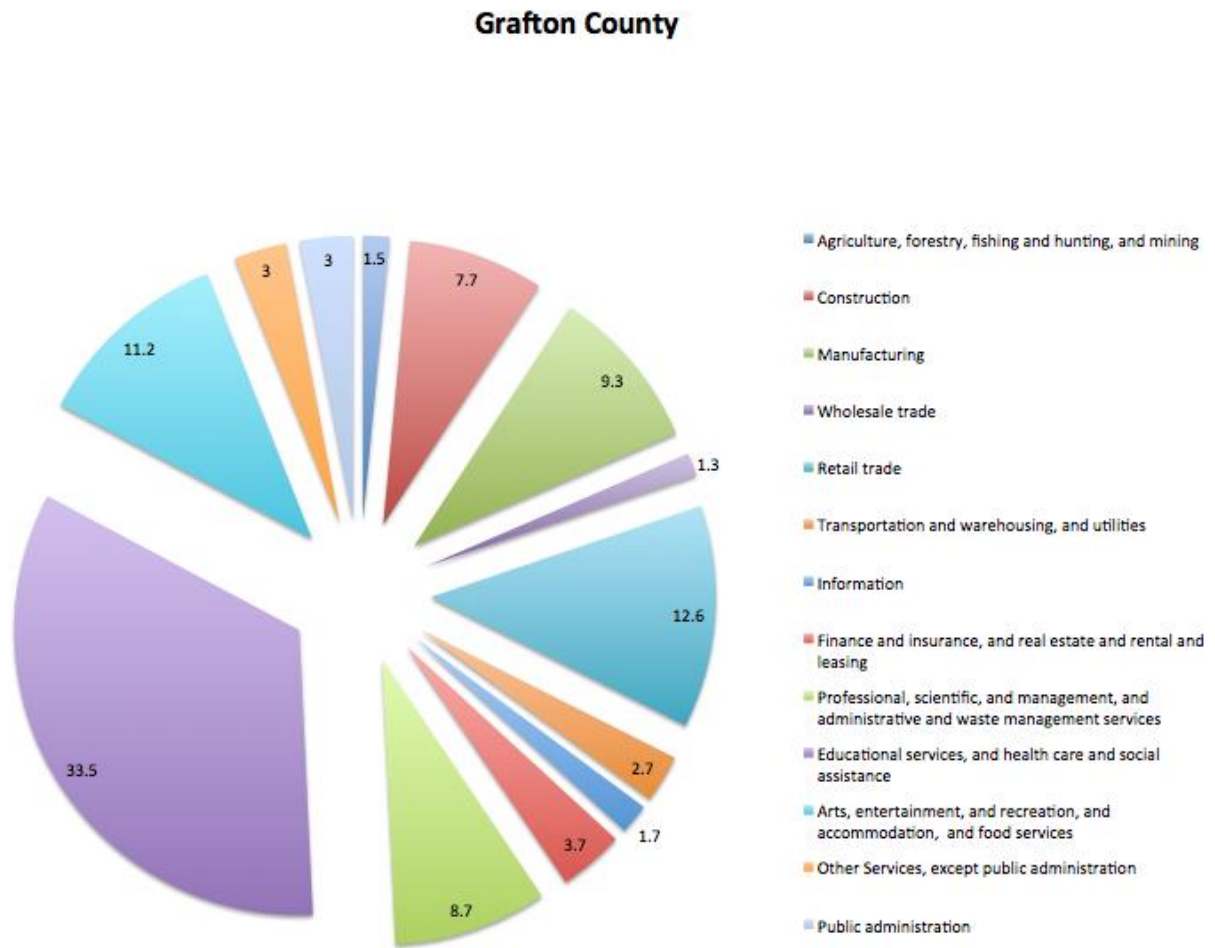


Figure 8. Occupations Coös County (2011).



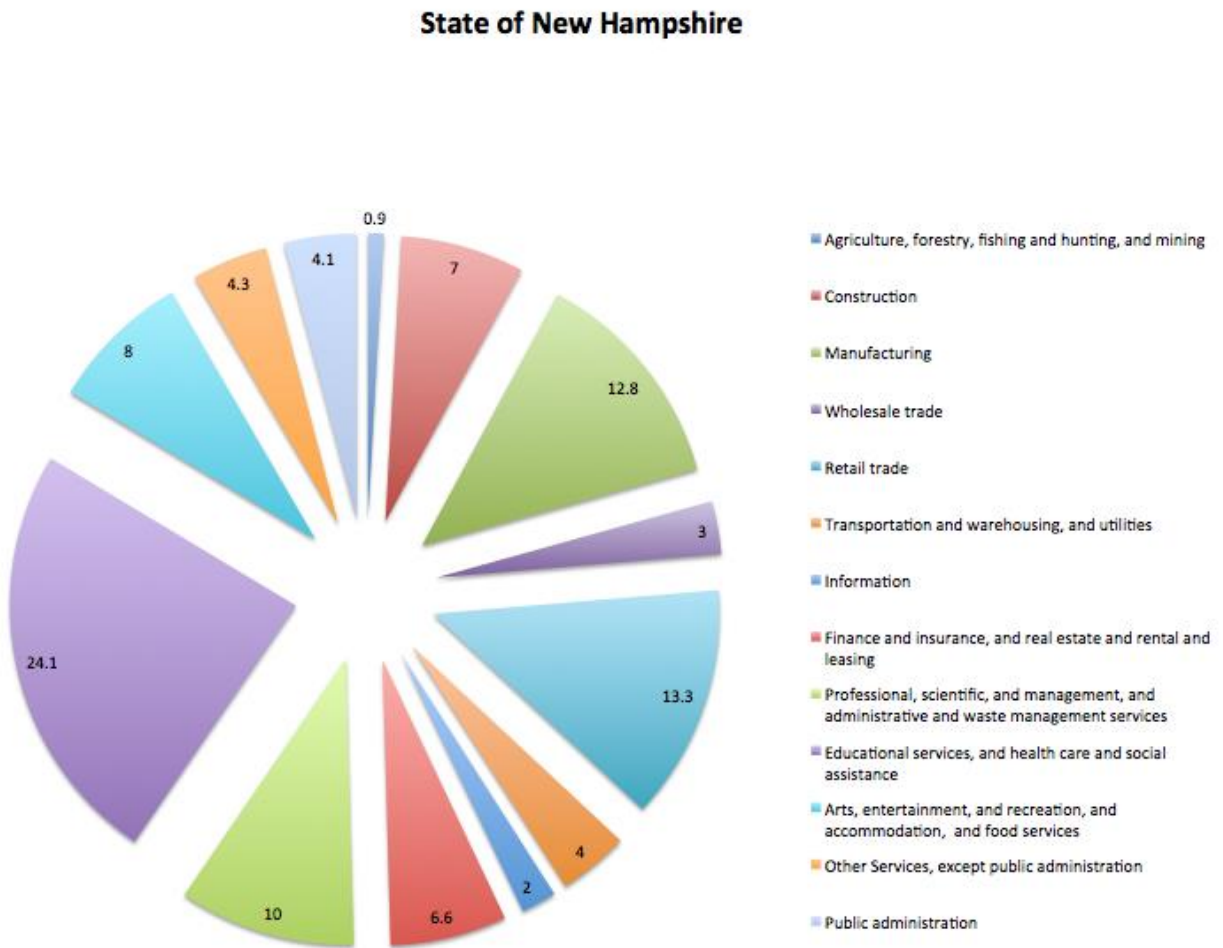
Source: U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).

Figure 9. Occupations Grafton County (2011).



Source: U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).

Figure 10. Occupations State of New Hampshire (2011).



Source: U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).

Table 9.

Employment Status of Population 16 Years and Over (2010)			
Name	Estimate	In labor force Percent	Unemployed Percent
NC Portion of Carroll County	16,030	67.1	6.2
Coös County	27,967	60.6	7.3
NC Portion of Grafton County	32,919	65.7	5.2
North Country	76,916	64.2	6.2
State of New Hampshire	1,056,843	70.0	5.9
United States	238,733,844	65.0	7.9

Source: U.S. Census Bureau, 2005-2010 American Community Survey, 5-Year Estimates, (2011).

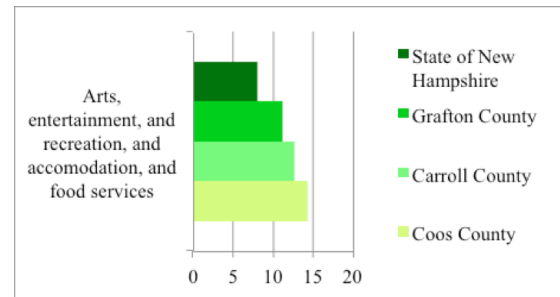
Wholesale trade is intimately linked with manufacturing employment since the goods manufactured are primarily sold at wholesale. Where manufacturing employment declines, wholesale trade is not far behind and vice-versa.

Transportation employment includes land, water, and air public and private transportation services. In the North Country most transportation employees can be found working for trucking and warehousing companies or driving a school bus.

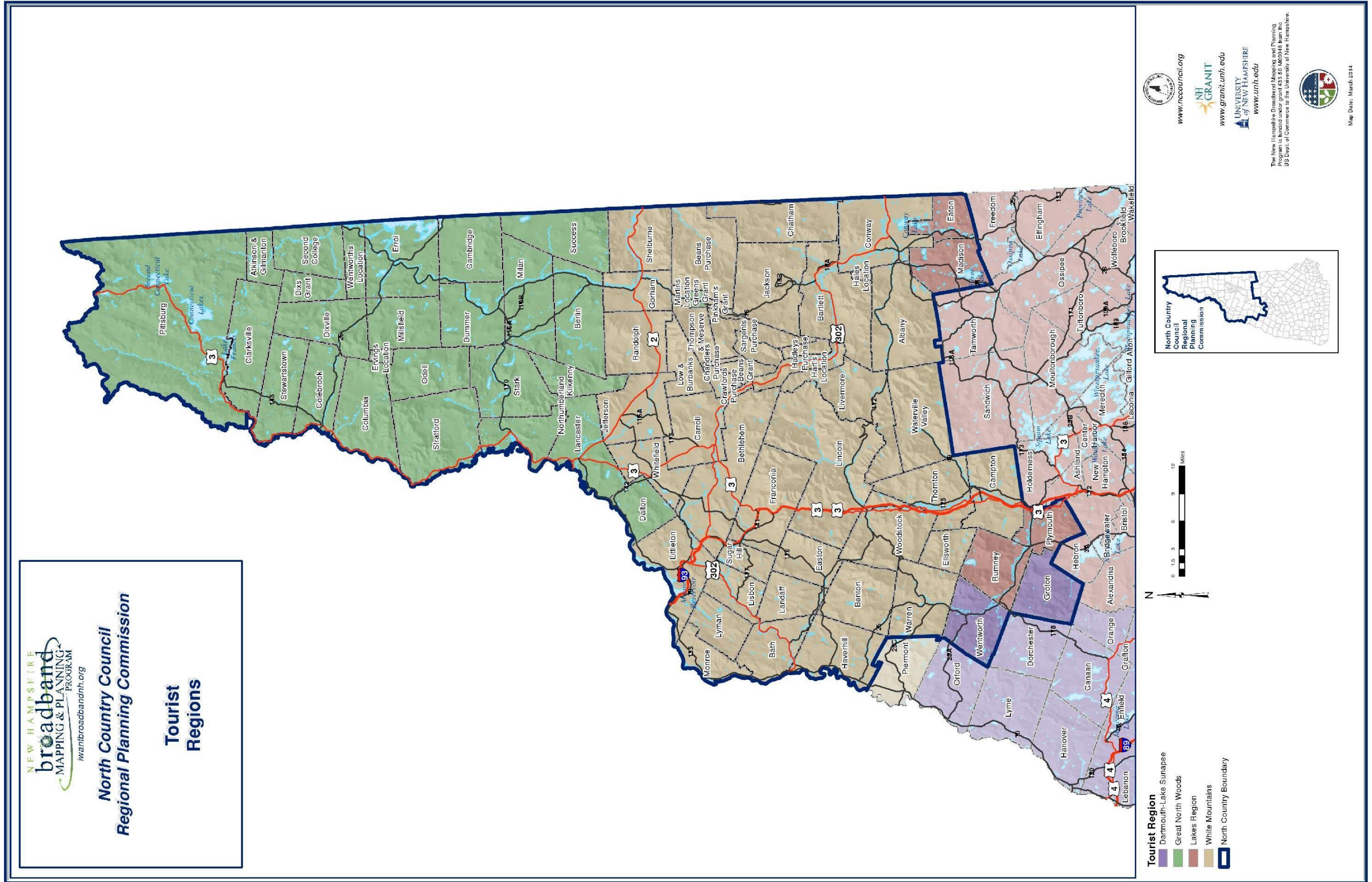
Retail trade is an important and growing part of the regional economy. Together with manufacturing and services, it is one of the three largest industries in the region. The industry provides residents and businesses with automotive, apparel, food, building supplies and other merchandise. The largest share of retail trade in the North Country is done through eating and drinking establishments, which primarily service the tourism industry. **Figure 11** shows the percent of those working in the tourism industry broken down by county.

Personal, recreation and entertainment services that are connected to the tourism industry require very little educational attainment, are often seasonal, and have below average wages, whereas professional, health, educational services very often have the opposite characteristics. There are seven tourist regions in the state, four of them, at least in part, are located in the North Country. The White Mountain Region, which includes much of Coös County, is the largest tourist destination in the state. **See Map 4.**

Figure 11. Percent of those working in arts, entertainment, recreation, accommodation and food services (2011).



Source: U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).



Map 4. North Country Tourist Regions.

Table 10.

Employment Status Percent As Related To Educational Attainment (2011)				
	New Hampshire	Carroll County	Coös County	Grafton County
Less than high school graduate				
Employed	58.0	56.6	52.0	59.9
Unemployed	6.7	6.7	5.3	2.8
Not in labor force	54.6	58.0	74.4	59.6
High school graduate				
Employed	76.2	70.1	68.7	79.8
Unemployed	4.9	7.1	5.0	2.9
Not in labor force	23.3	29.7	35.6	21.0
Some college or associate's degree				
Employed	80.7	95.9	92.7	95.5
Unemployed	4.1	4.1	7.1	4.5
Not in labor force	17.8	21.6	25.3	20.8
Bachelor's degree or higher				
Employed	84.9	98.1	96.8	98.0
Unemployed	2.4	1.9	3.2	2.0
Not in labor force	14.5	19.5	17.0	19.6

Source: U.S. Census Bureau, 2009-2011 American Community Survey, 3-Year Estimates, (2012).

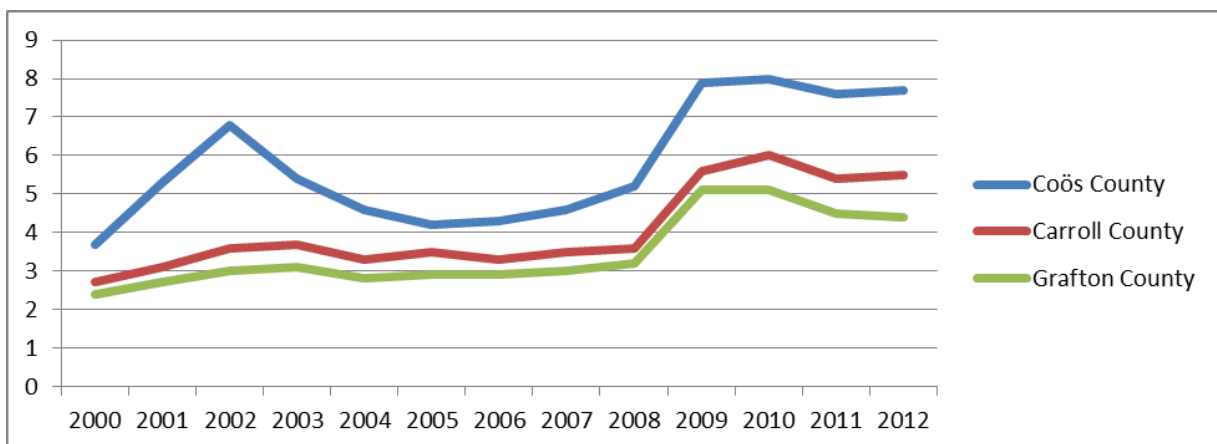
The finance, insurance, and real estate industry plays a facilitating role in the development of the regional economy. Financial institutions and real estate agents help to allocate resources to the parts of the economy that are growing the fastest. The insurance industry has few limitations on where it can locate and is sought after for its stability and good paying jobs.

During the 1980s, services replaced manufacturing as the most predominant sector of the NH and national economy both in terms of growth rates and overall employment.

Employment rates in the North Country are generally better than in the rest of the United States. However, as compared to the rest of New Hampshire, the North Country, with the exception of the North Country portion of Grafton County, has a higher than average unemployment rate. See Table 9, 10 & Figure 12.

In 2012, according to data collected by the New Hampshire Employment Security, the median annual salary for the North Country was \$30,572, which is an increase of about 25 percent from 2005.

Figure 12. Unemployment by county.



Source: New Hampshire Employment Security, Measuring New Hampshire Economic Health: A Workforce Perspective, (August 2013).

Table 11.

Estimated NH Livable Wage In The North Country (2006) ³⁶						
Wage Per Hour	Carroll County	Coös County	Grafton County	North Country	Southern NH	New Hampshire
Two parents & two children (both parents working)	\$10.83	\$9.27	\$10.65	\$10.24	\$11.81	\$11.69
Two parents & two children (one parent working)	\$16.90	\$15.09	\$16.68	\$16.21	\$17.84	\$17.72
Two parents & one child (both parent working)	\$9.33	\$7.99	\$9.24	\$8.84	\$10.21	\$10.10
Two parents & one child (one parent working)	\$15.04	\$15.23	\$14.82	\$14.35	\$15.98	\$15.86
Single person & two children	\$17.62	\$14.49	\$17.26	\$16.43	\$19.78	\$19.50
Single person & one child	\$15.31	\$12.59	\$15.13	\$14.31	\$17.81	\$16.95
Single person	\$9.77	\$8.67	\$9.54	\$9.30	\$10.52	\$10.42
Average Cost of Living³⁷	\$13.54	\$11.90	\$13.33	\$12.81	\$14.85	\$14.61
Avg Cost of Living as a Percent to Avg NH Cost	-7.3%	-18.5%	-8.7%	-12.3%	1.7%	—

Source: UNH & North Country Council, New Hampshire's Basic Needs & Livable Wage, (2006).

4. Anticipated or Significant Demographic & Economic Trends.

In 2005, the University of New Hampshire, Office of Economic Initiatives and the NCC commissioned a study on New Hampshire's Basic Needs and Livable Wage.³⁸ The study was commissioned to provide policymakers, employers, non-profits and the public with data on the cost of living in New Hampshire.

The study found it is about 10 to 16 percent less expensive to live in the North Country than in Southern New Hampshire, much of this difference was due to the lower cost of housing and childcare. See Table 11. The study found that childcare was on average 21 percent less expensive and rent and utilities to be on average 28 percent less expensive than in Southern New Hampshire.³⁹

However, with the exception of the North Country portion of Carroll County (which ties the state average at 5 percent) the rest of the North Country holds a higher percent of those living below the poverty level than the state average. See Table 12. Specifically, about 8.7 percent of Coös County falls below the poverty level, and about 5.8 percent of the North Country portion of Grafton County. As a whole, the North Country averages at about

6.7 percent. This figure is higher than the state average (5 percent), but lower than the national average (10.1 percent).

Educational attainment in the North Country varies greatly by county. In Coös County, 55.3 percent of the county has a high school degree or less, which is about a sixth (16 to 17 percent) more than Carroll and Grafton County, and the state. See Figure 13, 14, 15 & 16.

Table 12.

Percentage Of Families And People Whose Income In The Past 12 Months Is Below The Poverty Level (2010).	
Name	Percentage
United States	10.1
New Hampshire	5.0
North Country	6.7
NC Portion of Carroll County	5.0
Coös County	8.7
NC Portion of Grafton County	5.8

Source: U.S. Census Bureau, 2005-2010 American Community Survey, 5-Year Estimates, (2011).



Figure 13. Educational Attainment for Carroll County (2011).

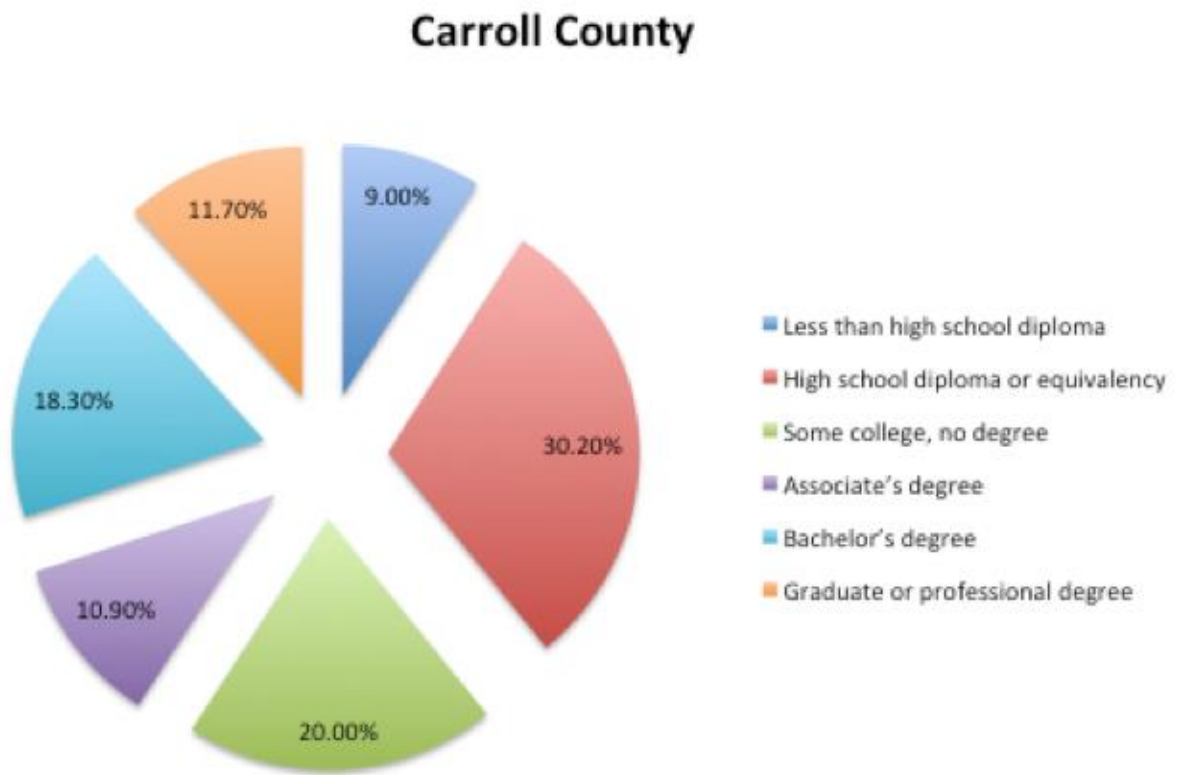


Figure 14. Educational Attainment for Coös County (2011).

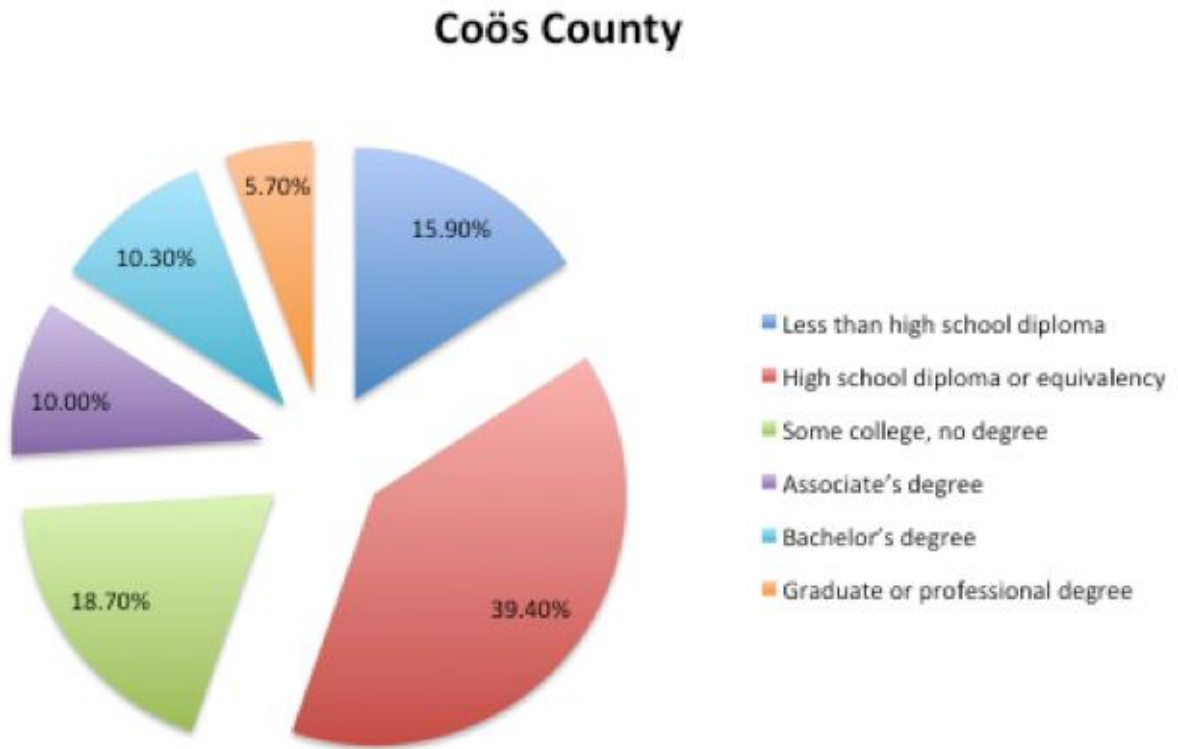


Figure 15. Educational Attainment for Grafton County (2011).

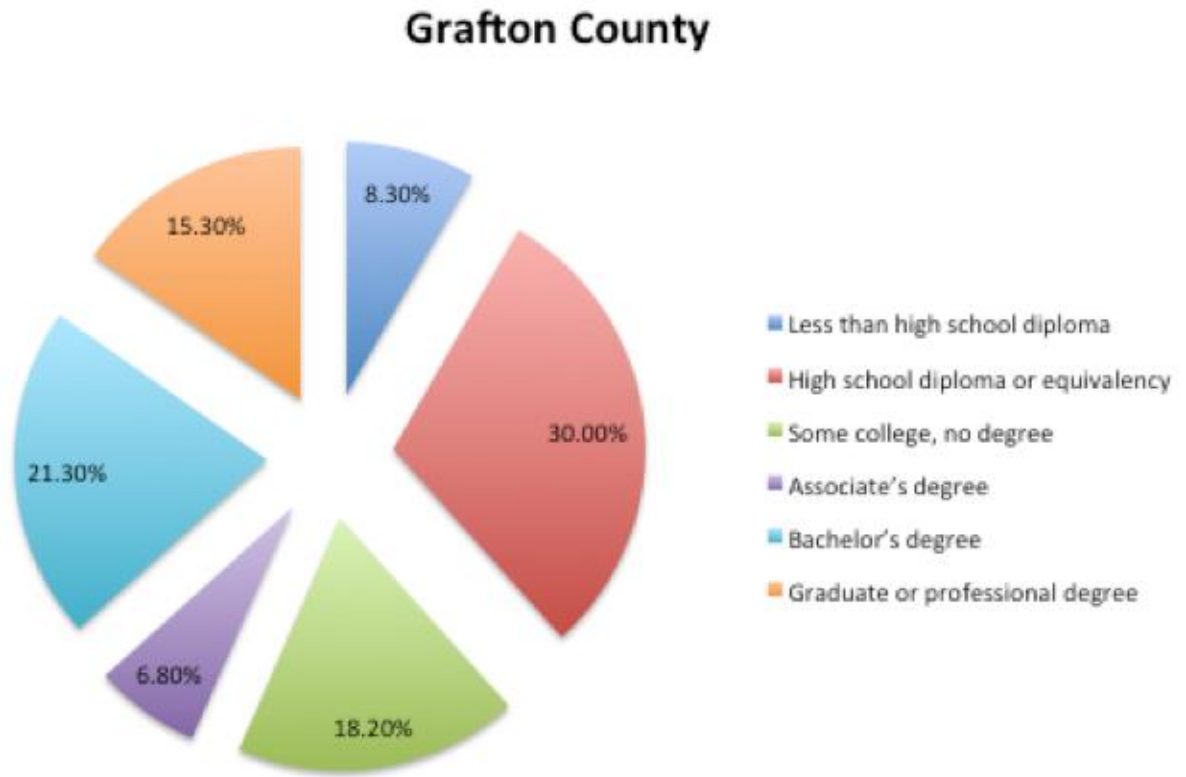
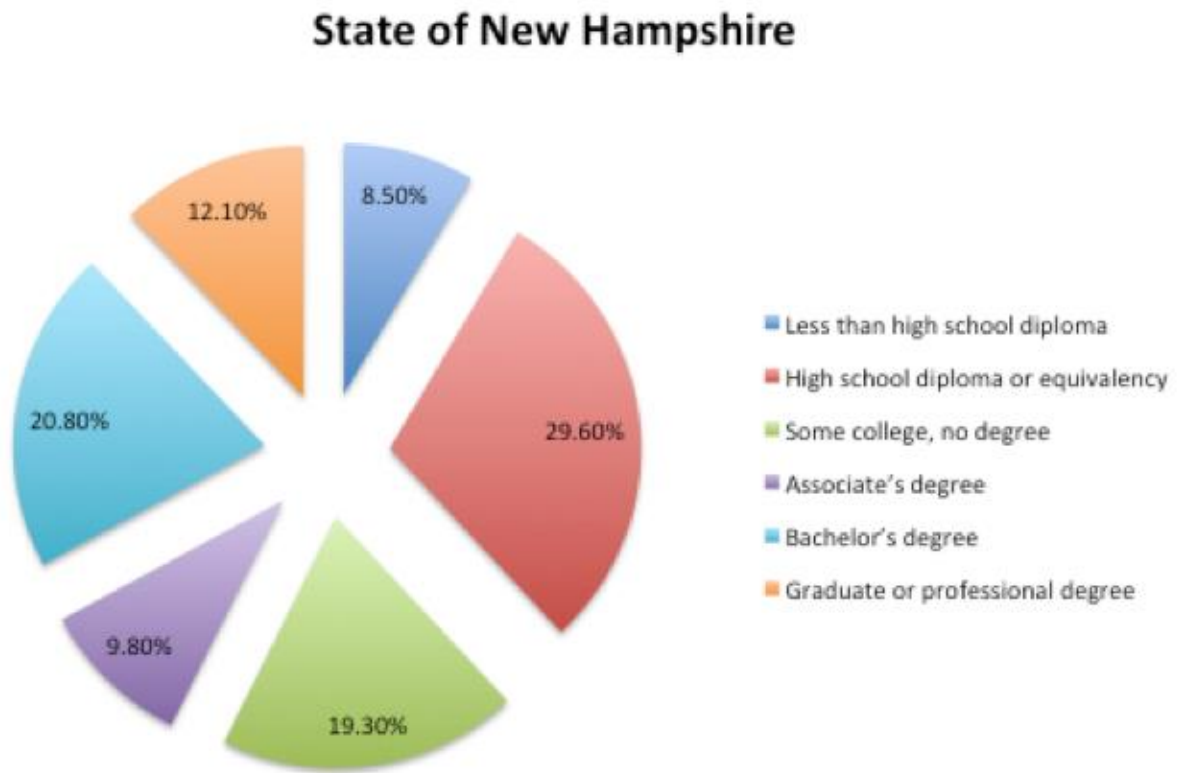


Figure 16. Educational Attainment for New Hampshire (2011).



C. Broadband Availability.*

*A Portion of the content for this chapter was provided by UNH through the NH Broadband Mapping & Planning Program.

According to the NHBMP survey, in the North Country, less than half of 1 percent (0.3 percent) of the population lacks broadband availability. It is important to note, although the survey indicates that broadband is widespread, figures related to actual home access may be more indicative of broadband adoption and value. An analysis of actual home use was conducted by the Granite State Future survey, the GSF survey found around 2 percent (1.6 percent) of North Country residents say they do not have Internet because it is unavailable. This discrepancy

Hampshire, according to the GSF survey, at least 86.5 percent of New Hampshire residents and at least 77.3 percent of North Country residents have broadband. If we look at Coös County, the figure drops to around 68.5 percent. Although 68.5 percent may sound low, it is better than the national average for rural areas (by 6.5 percent).

For educational attainment, according to the national Pew Study, 2.4 times more persons with a college degree have broadband service than those that have not completed high school (89 percent v. 37 percent). That figure shrinks slightly for those who have completed high school to a margin of 1.6 times (89 percent v. 57 percent)—still quite significant. Reflecting positively, in the North Country

“[A]t least 77.3 percent of North Country residents have broadband service.”

should be investigated in future surveys.

In 2013, the Pew Research Center published a national broadband study.⁴⁰ Together with the GSF survey, the Pew study and GSF survey tend to show a “digital divide”, both nationally and at the state-level, in regards to urbanity, education, age and race.

The term “digital divide” has been defined as, “geographic inequalities in availability or to gaps in broadband adoption owing to income,

according to the GSF survey, of those who have not completed high school and those who have completed high school but no college experience, 59 percent have broadband service, a figure that slightly out performs the national average.

As it regards age, according to the Pew Study, on a national scale, 80 percent of those between the age of 18 and 29 have broadband at home, while for those 65 and up, that number drops to 43 percent. According to the

“Even more striking is that persons 70 or older are more likely to have broadband than persons between the age of 18 and 29.”

race/ethnicity, education, or other inequalities in access if skills that affect the ability of individuals or businesses to take advantage of new technologies.”⁴¹

According to the Pew Study, nationally, as it regards urbanity, 70 percent of persons living in an urban setting have broadband service, while 62 percent of persons living in a rural setting have broadband. While in New

Granite State Future survey, 61 percent of region respondents between the age of 18 and 29 have broadband at home, while, 68 percent of respondents 70 or older have broadband.

Interestingly, although the North Country has a higher percentage of persons over the age of 70 with broadband service than the national average, the region falls behind the nation (61 percent v. 80 percent) when compared to persons between the age of 18 and 29.



Even more striking is that, in the North Country, persons 70 or older are more likely to have broadband than persons between the age of 18 and 29.

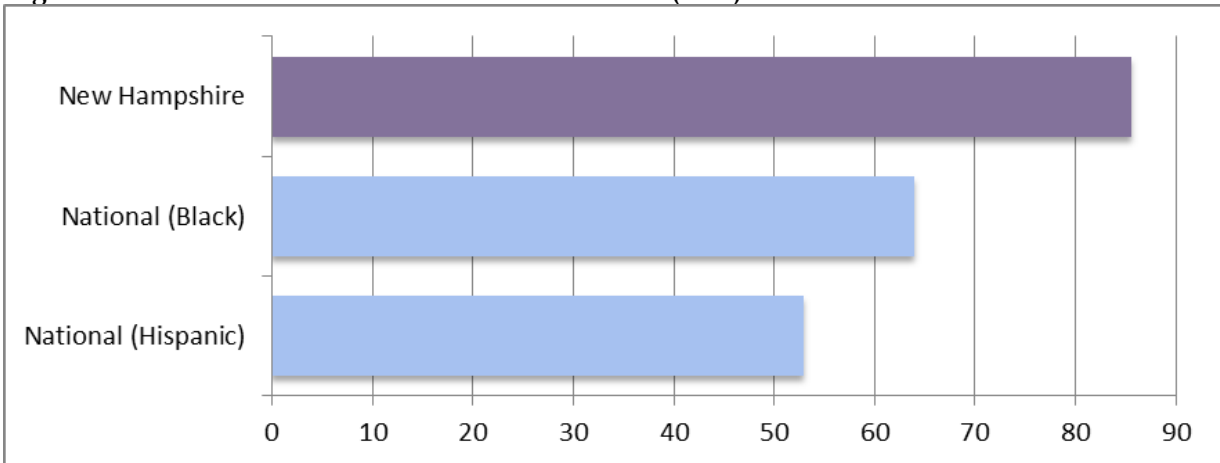
According to the Pew Study, on a national scale, perhaps the most striking difference in broadband service is when race is considered. For white, non-Hispanic persons, 74 percent have broadband at home. However for black, non-hispanic persons, that figure drops to 64 percent, and 53 percent for hispanic persons. Interestingly, the Pew study indicates that if smartphone use is included as a source of broadband, the difference between white users, black users, and hispanic users shrinks considerably, “practically eliminating the difference.”⁴² However, when considering mobile wireless as a form of broadband, it should be noted that generally, mobile wireless broadband service has a data cap while most other forms of terrestrial broadband service do not.

As Susan Crawford, Professor of Law at Cardozo School of Law in New York City, notes:⁴³

Although Verizon and AT&T both claim their 4G LTE services will have download speeds equal to a slow cable connection (say, 13 to 16 Mbps), data caps make these connections an entirely different deal. Capacity matters. If we watch a single HD movie [...] we’ll be using up to 3.5 GB of data – likely an entire monthly allowance of bits, thus running into steep overage charges for additional use...This means that people who use smartphones only will be able to do much less with their connections than those with actual high-speed, high-capacity Internet access.

Reflecting very positively, according to the GSF survey, in New Hampshire, at least 86 percent of both white and non-white respondent groups reported having broadband service. See Figure 17. Unfortunately, due to the low number of non-white respondents to the North Country GSF survey, this Report is unable to provide substantive results in that regard. Race is an important issue and should be addressed more fully in future studies.

Figure 17. Broadband at home for non-white residents (2013).



As it simply concerns Internet access, regardless of speed (both broadband and non-broadband), the GSF survey found a large majority (84 percent) of the North Country's residents have Internet access at home, while only 16 percent do not. **See Figure 18.** For those who do not have Internet access at home, a plurality (20 percent) said that they don't have it because they don't need it, followed by it is too expensive (19 percent), they don't know how to use it (13 percent), they have access at another place like their job (12 percent), they don't have an adequate computer (10 percent) and it is not available where they live (10 percent). Another 16 percent cited another reason, and 1 percent who didn't know. **See Figure 19.**

As stated earlier, according to the NHBMP survey, in the North Country, less than half of 1 percent (0.3 percent) of the population lacks broadband availability. It is important to note, the GSF survey found around 2 percent (1.6 percent) of North Country residents say they do not have Internet because it is unavailable. This discrepancy should be investigated in future surveys.

Figure 18. Do You Have Internet Access At Home (2013)?

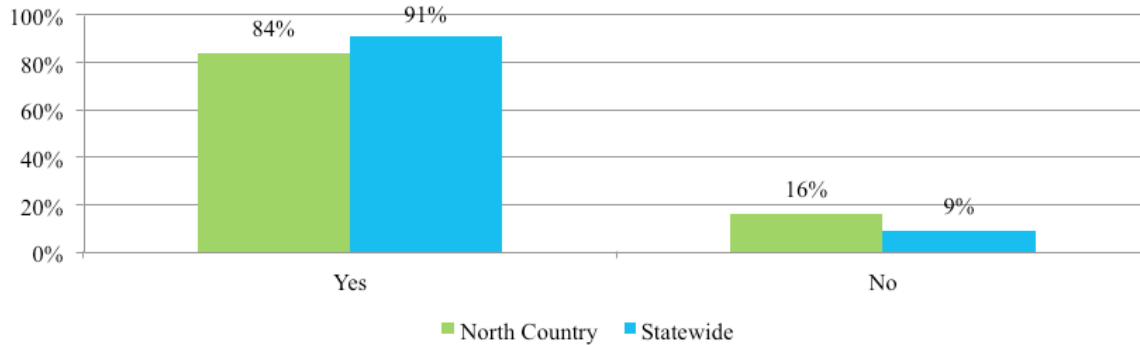
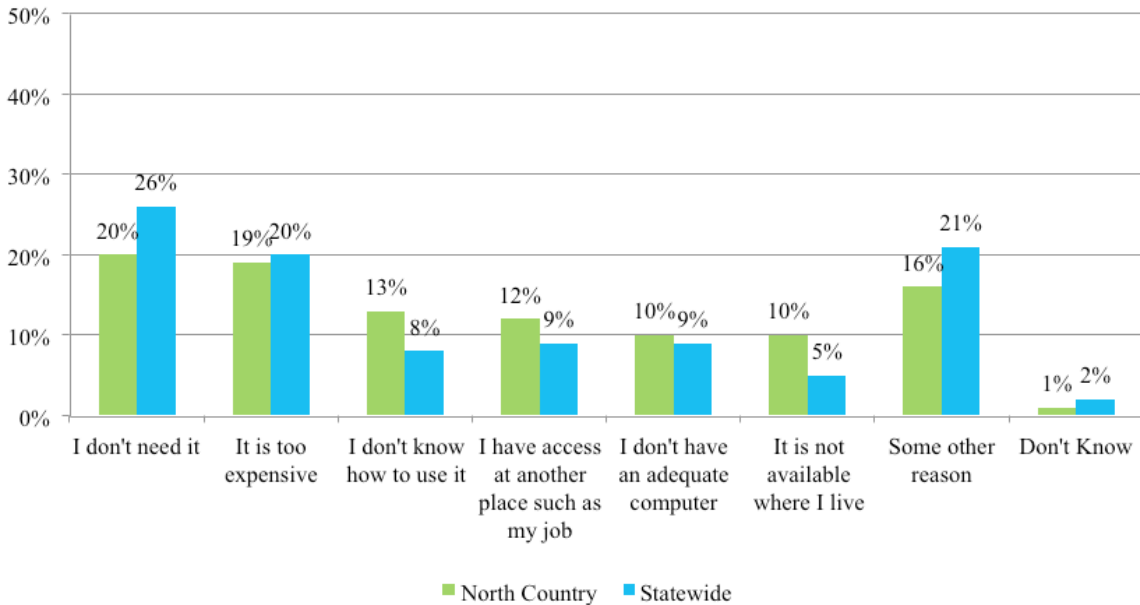


Figure 19. Most important reason why you don't have Internet access at home (2013)?



1. Results of Broadband Mapping.

The results of the NHBMP are very positive. First, much of the North Country is now served by at least one terrestrial provider (non-satellite broadband). See Map 5. It is less a question of whether people in the North Country have broadband available, and more of a question of what type of broadband is available, how fast is it, and how many providers are there. It should be noted, all areas can be served by satellite broadband.

2. Depiction of served, underserved, and unserved areas.

The NHBMP survey reveals a very positive spread of broadband throughout the region. See Map 5. Although there remain areas of no service, as a percent of total households in the North Country, they only account for less than 1 percent (0.8 percent), and as a function of total population, that figure drops below half of 1 percent (0.3 percent).

The NHBMP survey shows there are areas underserved in the North Country. These areas are predominately located in northern Coös County. However, there are small pockets of underserved areas located throughout the region. See Map 6.

Interestingly, in the recent GSF survey, when respondents from the North Country were asked whether they would favor using municipal funds to provide broadband access, a plurality (48 percent) answered in the affirmative. Moreover, respondents from the region were more likely to favor higher taxes

for broadband when compared to statewide respondents (36 percent v. 26 percent). See Figure 20.

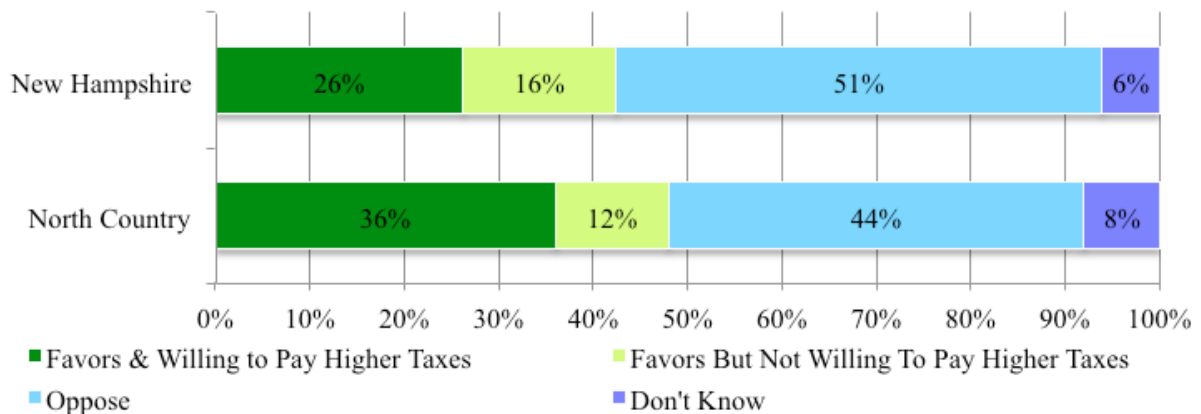
3. Delineation of modes.

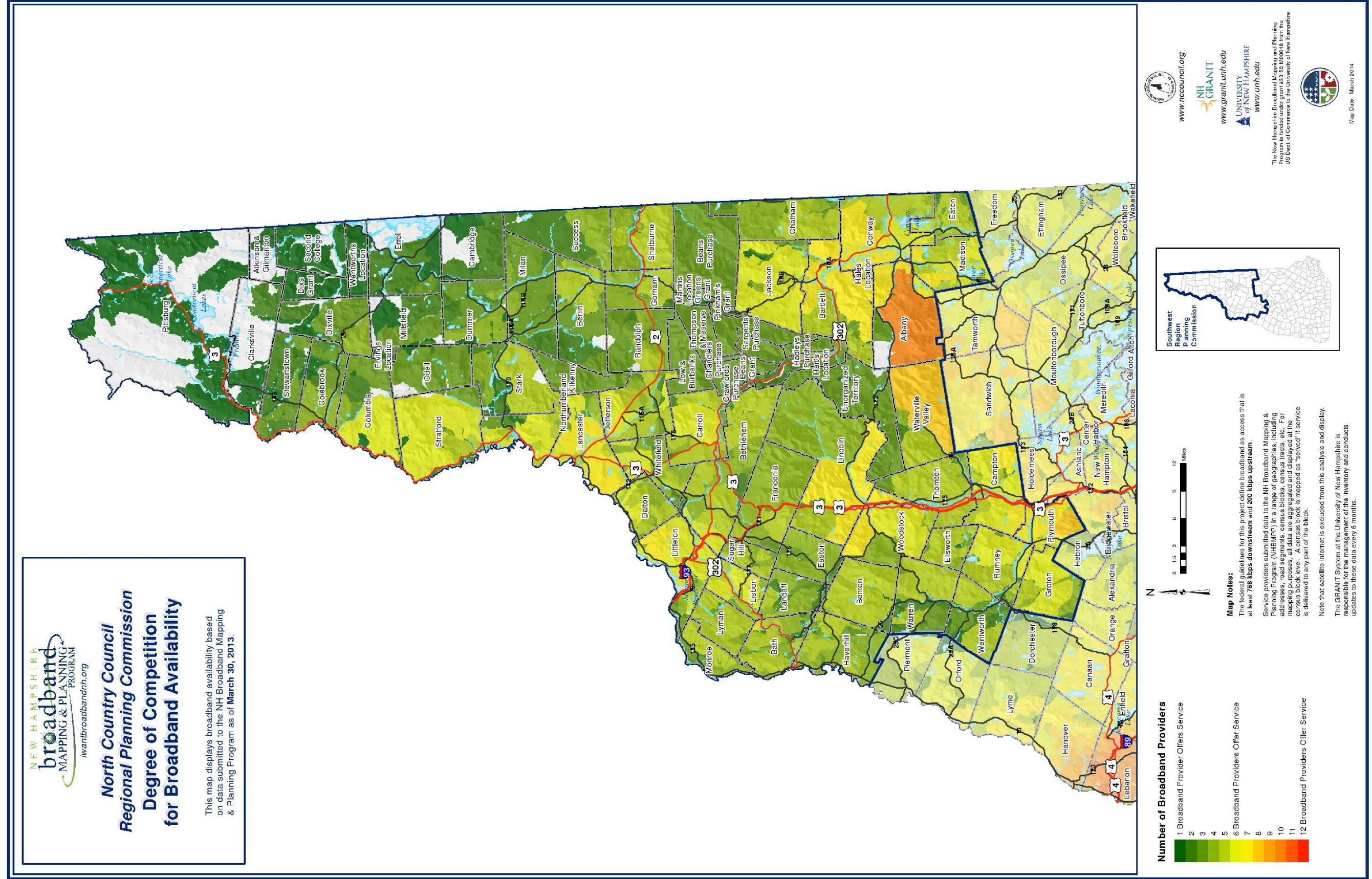
The North Country has access to a number of broadband modes. However, these modes are not available everywhere, and in many areas only one broadband provider is available. See Map 7.

According to the GSF survey, a majority of residents in the North Country (54 percent) have a cable Internet connection, than those with DSL (22 percent), fixed wireless (7 percent), satellite (5 percent) and cellular (3 percent). See Figure 21. In addition, less than 1 percent said they had fiber, 2 percent with another type of connection and 3 percent unknown. Interestingly, the GSF survey also found, residents of the North Country are less likely than statewide residents to have cable Internet, and that Coös County residents, young people (18 to 29), and households earning less than \$20,000 are less likely to have cable Internet.

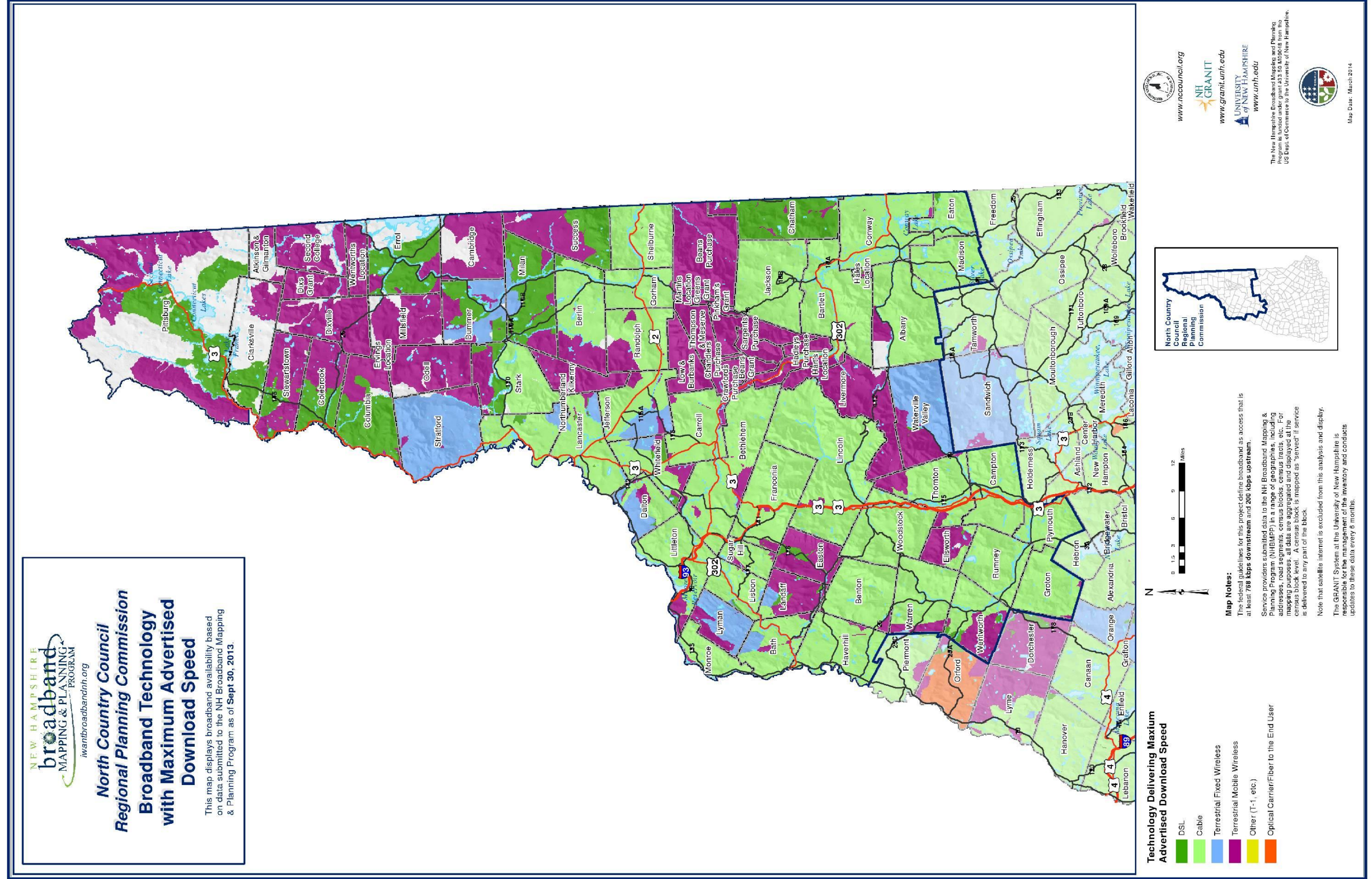
Cable broadband in the North Country is provided by Argent, Comcast, FiberCast, and Time Warner Cable. It is available in much of the southern portion of the North Country. See Map 8. However, most of Coös County remains unserved.

Figure 20. Favor or Oppose Using Municipal Funds to Provide Broadband. Development (2013).



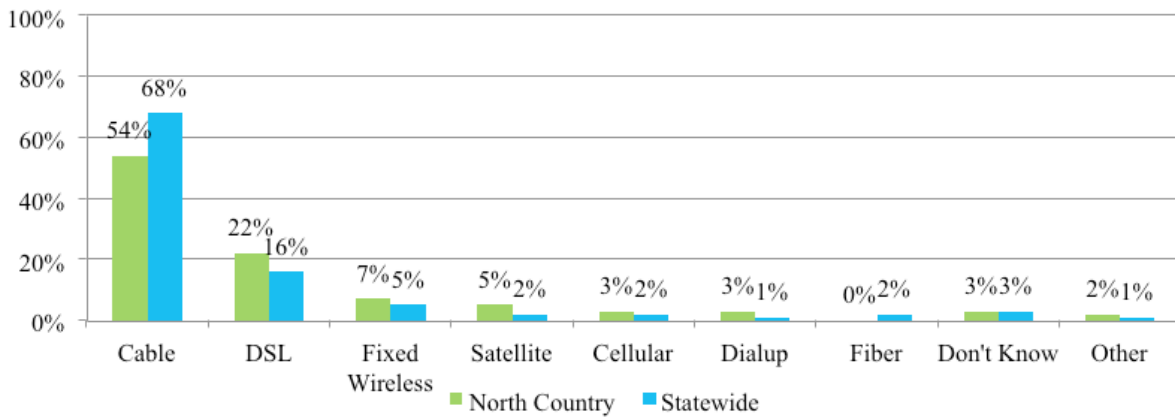


Map 5. Degree of Competition for Broadband Availability.



Map 7. Broadband Technology with Maximum Advertised Download Speed.

Figure 21. What type of Internet connection do you have at home (2013)?



FairPoint Communications provides most of DSL service to the North Country and is rapidly expanding its service to the region. Specifically, FairPoint is adding service to seven North Country towns (Albany, Conway, Dalton, Landaff, Milan, Pittsburg, and Stewartstown) that previously had low-speed connections or no broadband.⁴⁴ To complete this expansion, the FCC’s Connect America Fund Phase I Program has provided approximately \$848,000, which, as expected, has improved broadband availability in the region.

Several years ago, North Community Investment Corporation (NCIC) led a LINC project (WISP network) in efforts to bring fixed wireless broadband service to areas in the Northeast Kingdom of Vermont and New Hampshire’s North Country. Service is provided via a network of wireless broadcast sites. NCIC’s WISP network currently covers from North Stratford, New Hampshire and Brunswick, Vermont in north to Landaff, New Hampshire in south, from Barnett, Vermont in west to Jefferson, New Hampshire in east. Additional providers offer coverage to many other towns around the region including Colebrook, Errol and Waterville Valley.

All areas in the region can be served by satellite broadband. According to the Granite State Future survey, those who have a dialup or satellite connection, most (60 percent) say it is the only option available.

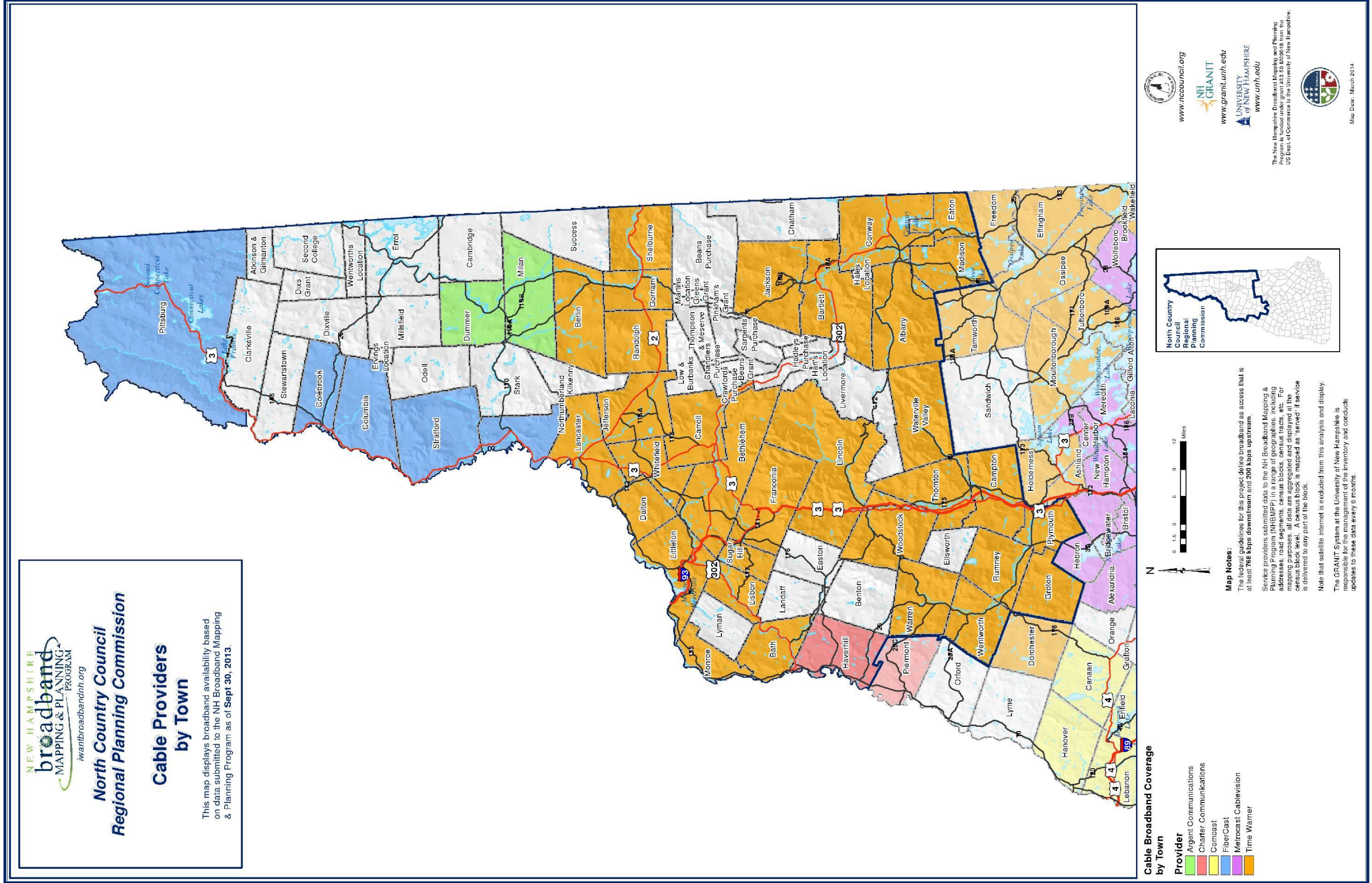
Mobile wireless broadband service is available in the North Country. However, according to the NHBMP survey, much of Coös County is underserved and there are significant areas of no service. **See Map 9.**

According to the NHBMP survey, there are no residential areas in the North Country currently serviced by fiber. Fiber can provide high speed upload and download capacity not typically available with DSL and cable connections. However, it should be noted, there are areas of fiber availability for businesses and government/public health facilities; these areas were not mapped in the NHBMP survey.

In 2013, UNH tested an experimental wireless broadband service, known as “Super Wifi”, in two areas, Durham, New Hampshire, and the the North Country.⁴⁵ This technology has a broadcasting range of around 6.3 to 9.3 miles and takes advantage of unused television “white space” otherwise known as unused/licensed broadcast spectrum.⁴⁶ The UNH project is part of the national Gigabit Libraries Network Super Wifi pilot program. It is possible this technology or other burgeoning technology could be used in the region to improve penetration and quality of service sometime in the future. However, focus should remain with current technologies and infrastructure until a better understanding of the science, economics and adoption possibilities of “Super Wifi” and other new technologies are more fully understood.

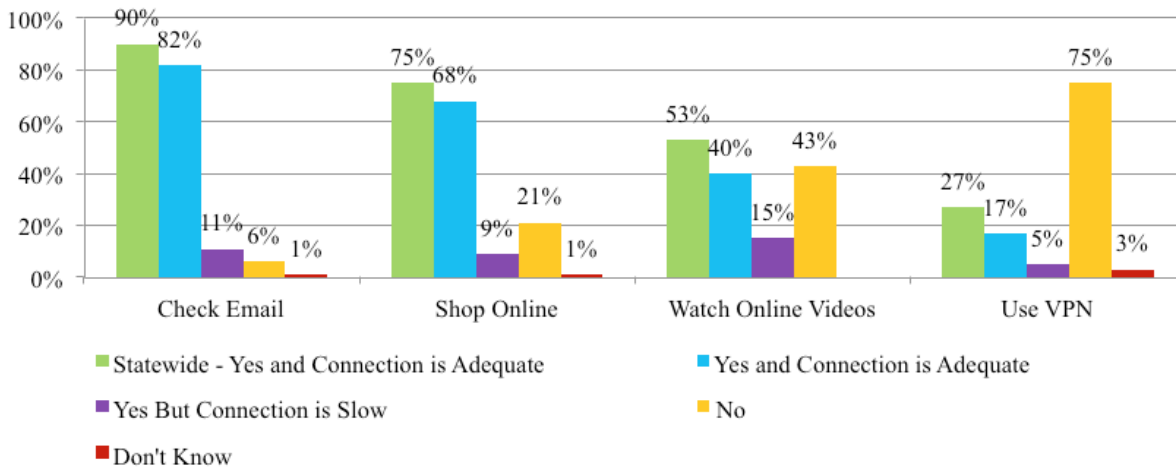
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Map 8. Cable Providers by Town.

Figure 22. What Do You Use The Internet At Home For (2013)?



The Federal 1996 Telecommunications Act increased competition between carriers by allowing additional interstate carriers, including cable companies, to offer local service. Unfortunately, companies are generally unwilling to enter into new areas if the total available customers and densities are low. As shown in **Map 5**, the current number of providers in the North Country remains relatively low as compared to the rest of the state.

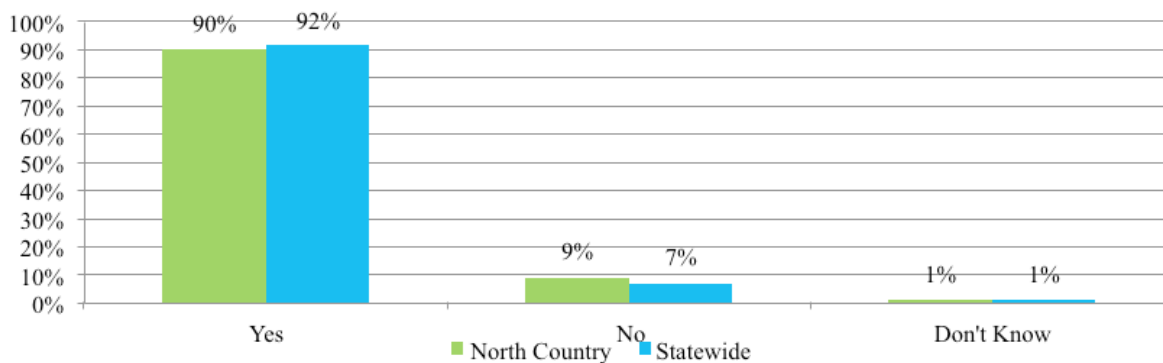
4. Broadband Speed/Quality.

The NHBMP survey collected data in regards to speed and quality. **See Map 10.** As the survey reveals, the North Country is, for the most part, well serviced at around 3 Mbps and above. However, there are pockets of lower quality service located throughout the region and northern Coös County.

According to the GSF survey, a large majority of (82 percent) residents use their home Internet to check email and their connection is adequate to do so, 68 percent shop online with an adequate connection, 40 percent watch online videos and have an adequate connection and 17 percent use VPN and have an adequate connection to do so. **See Figure 22.** In addition, the GSF survey found, North Country residents are less likely than statewide residents to have an adequate connection to watch on-line video or use a VPN at home.

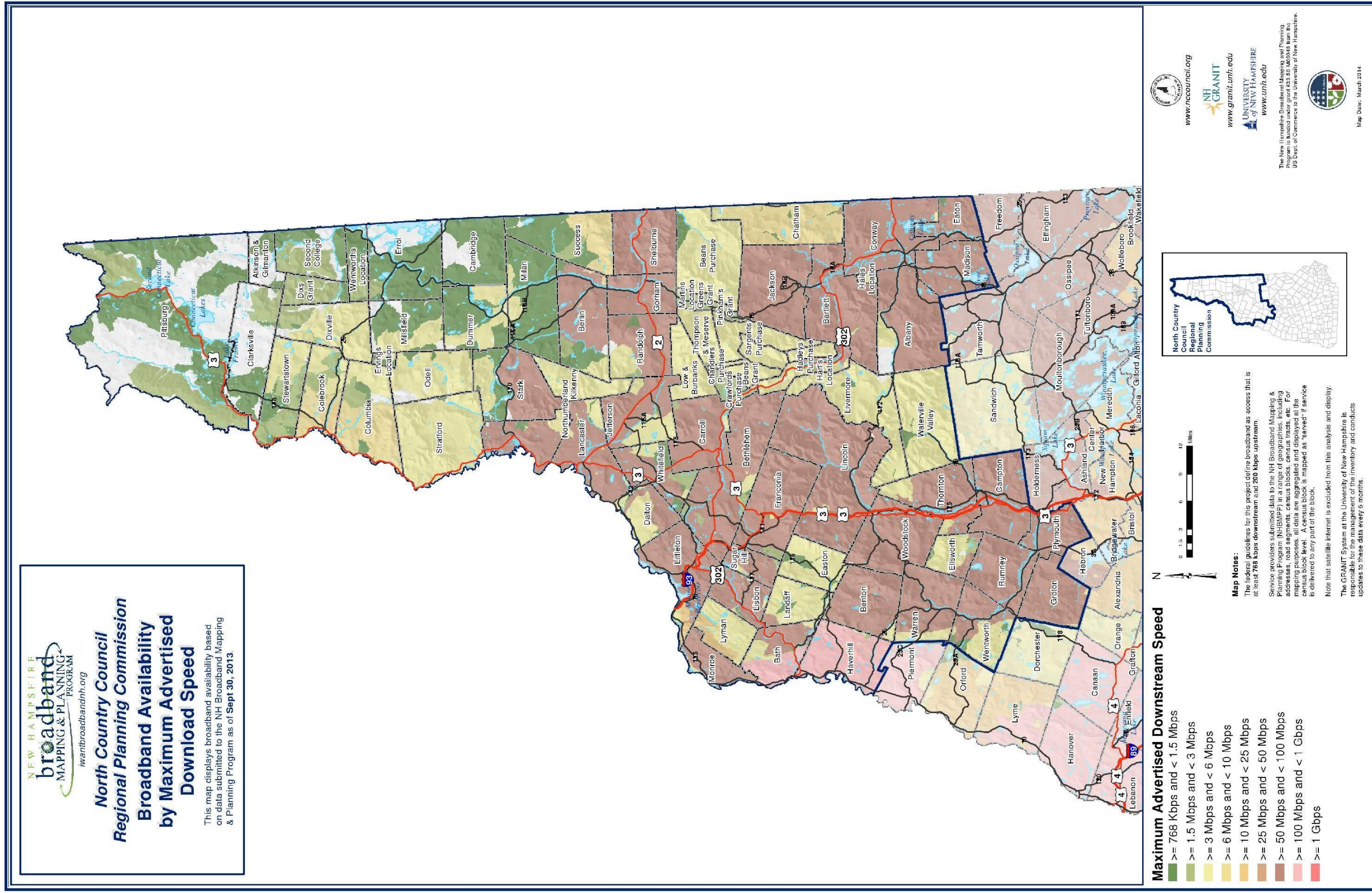
Furthermore, according to the GSF survey, nearly all (90 percent) residents state that their Internet connection is adequate for their uses, followed by 9 percent who say their connection is not adequate and 1 percent who don't know. **See Figure 23.**

Figure 23. Do you consider your Internet connection adequate for your uses (2013)?



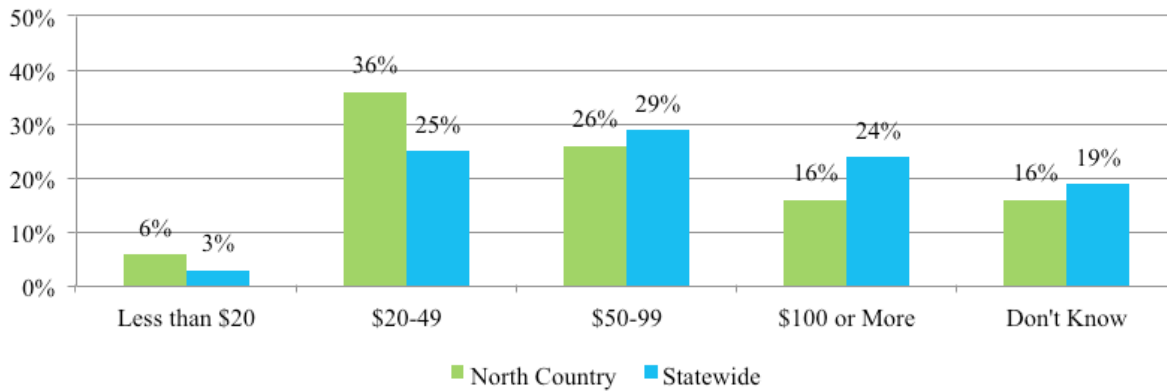
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Map 10. Broadband Availability by Maximum Advertised Download Speed.

Figure 24. What is your monthly Internet bill (2013)?



“Nearly all (90 percent) residents state that their Internet connection is adequate for their uses.”

5. Broadband Providers.

As noted earlier, although there is broadband service throughout the North Country, there are areas that lack an option of provider. These areas are predominately located in northern Coös County. However, there are additional pockets of underserved and unserved areas located throughout the region. **See Map 6 & 11.**

Of note, the GSF survey found 7 in 10 (70 percent) of North Country residents currently pay for a bundled Internet service. **See Figure 25.** In addition, the GSF survey revealed, that although the majority of North Country residents would not pay more for faster Internet speeds, 19 percent of residents would pay at least 25 percent more per month for faster service, which is 6 percent higher than the state. **See Figure 26.**

6. Broadband costs.

According to the GSF survey, only 6 percent of North Country residents say that their monthly Internet bill is less than \$20, while 36 percent pay \$20-49 per month, 26 percent pay \$50-99 per month, and 16 percent pay \$100 or more per month. **See Figure 24.** Interestingly, North Country residents are more likely than statewide residents to pay \$20-49 per month, which is less than what the plurality (29 percent) of the state pays for service. Of significant importance, the GSF survey reveals statewide, a plurality of persons 70 and older pay \$100 or more per month (36 percent North Country, 33 percent statewide)—a situation that needs further attention.

Figure 25. Do you pay for a bundled service (2013)?

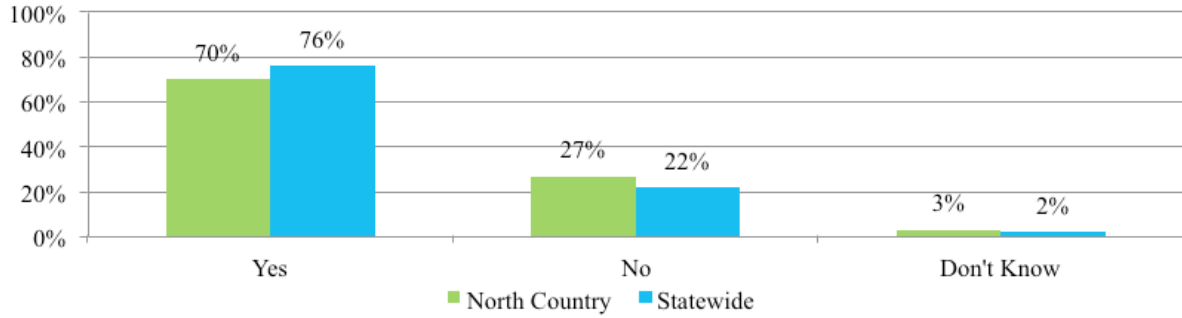
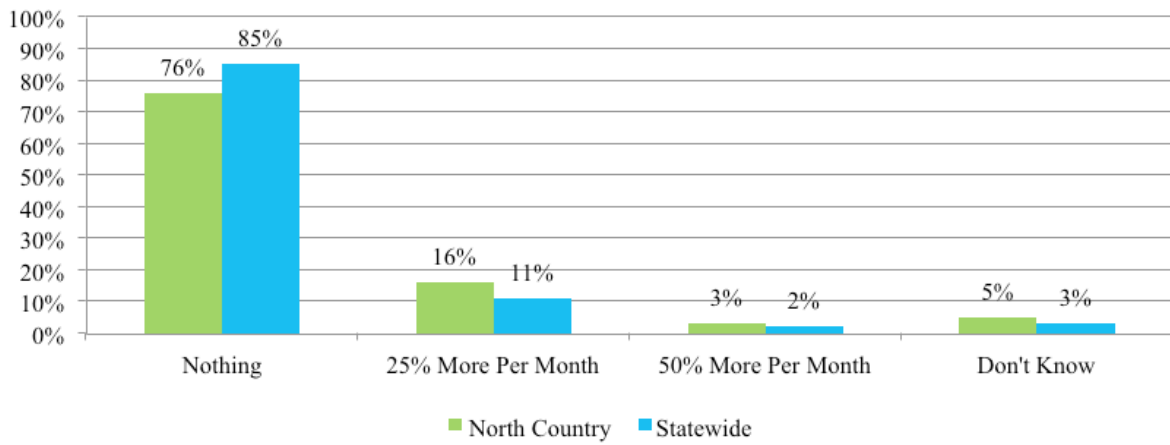
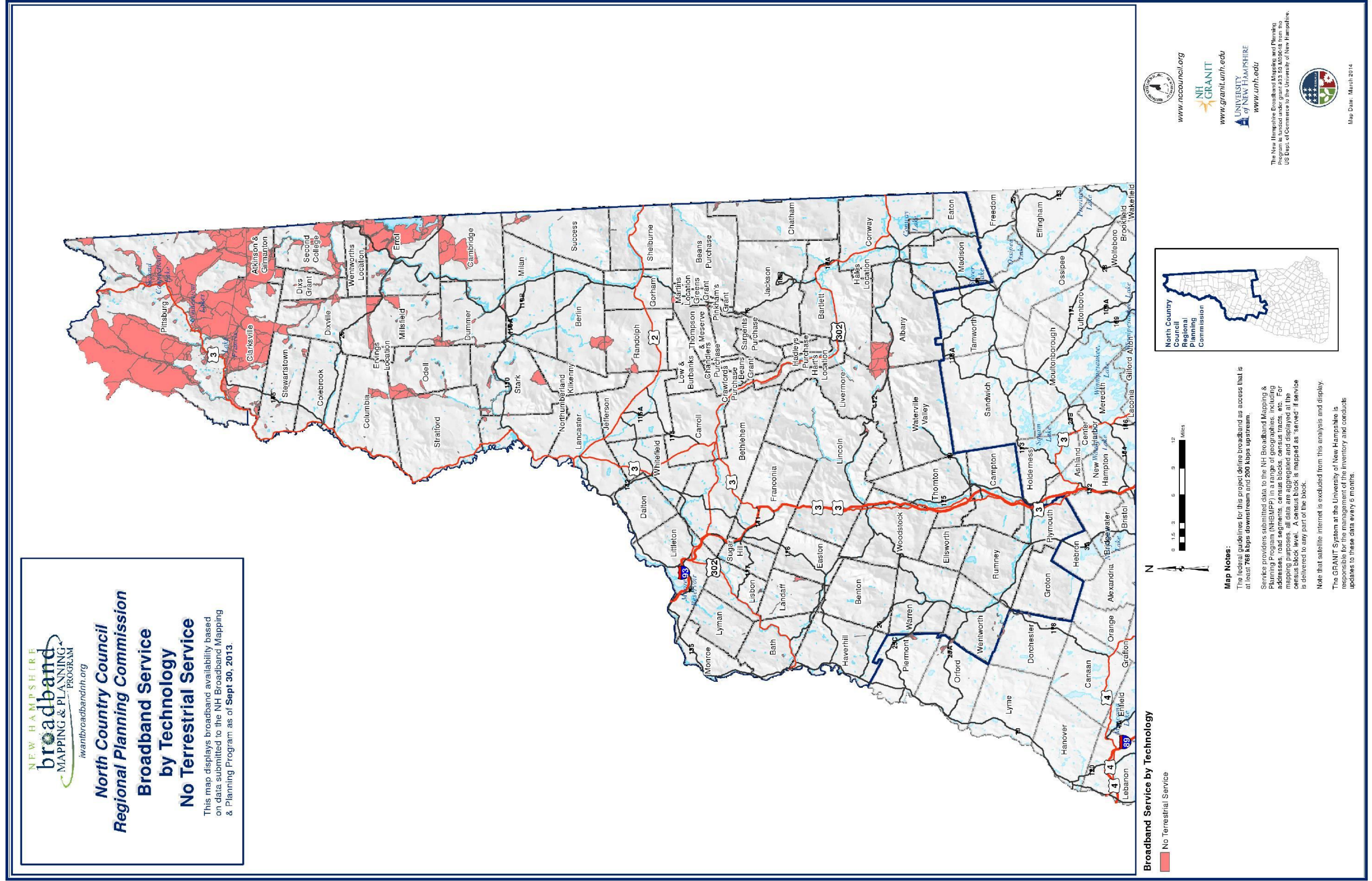


Figure 26. How much more (if any) would you be willing to pay for faster Internet speeds (2013)?





Map 11. Broadband Service by Technology No Terrestrial Service.

D. Demand for Broadband.

1. Survey / Public Forum Results.

The Demand for Broadband Survey was conducted from 2012 to present. It is an ongoing survey that focuses on broadband speed and availability across the state. In addition to providing information to the program, participants are given the opportunity to identify their current broadband speeds using the program's speed test. See <http://www.iwantbroadbandnh.org>.

Public forums were held throughout the development of this Report. The first public forum was held September 26th, 2012. Meeting time was used to build the North Country BSG membership. On March 22nd, 2013, the second public meeting was held at the White Mountains Community College in Berlin. The forum acted a public introduction to the statewide broadband initiative.

The third public forum was held at three locations, the North Country Council Conference Room in Bethlehem, the Town Hall Conference Room in Colebrook, and the Tech Village Community Room in Conway on October 2nd, 8th and 9th, 2013, respectively.

2. Sector-Based Data / Analysis.

The NHBMP survey gathered a great deal of sector-based information regarding broadband for Community Anchor Institutions (CAIs) throughout the state. For the North Country, the results show a positive change from the data in the 2005 Master Plan. A complete sector-based analysis and summary of the data is provided in **Section E** of this Chapter.

3. Quantitative and qualitative assessment based on demand, associated costs, etc.

According to the NHBMP survey broadband is available throughout much of the North Country. Although there remain some areas without service, these no service areas account for less than half of 1 percent (0.3 percent) of the region's population. However, it is important to note that these areas are predominately located in northern Coös County. In addition, there are also some other smaller areas without service located

throughout the region. Interestingly, the GSF survey found around 2 percent (1.6 percent) of North Country residents say they do not have Internet because it is unavailable. This discrepancy should be investigated in future surveys.

As compared to the rest of the nation in regards to broadband, the North Country's score is mixed. When looking at urbanity, the region (77.3 percent) does 15.3 percent better than the national average for rural areas (62 percent).

Although the region does better than the national average for rural areas, there still remains a marked difference between urban and rural broadband availability and level of service. Efforts should continue to improve and maintain the existing infrastructure.

According to the GSF survey, a plurality (36 percent) of North Country residents say their monthly Internet bill is between \$20-49 per month, which is less than what the plurality (29 percent) of the state pays for Internet. However, the survey also revealed that, 19 percent of the region's residents would pay at least 25 percent more per month for faster service, which is 6 percent higher than the state average. Going forward, it may be possible to leverage the public's willingness to pay more to improve the region's infrastructure. Also, as the recent GSF survey indicates, a plurality (48 percent) of North Country residents favor using municipal funds to provide broadband access, a plurality. Furthermore, 36 percent of residents would even favor higher taxes for broadband, which is 10 percent higher than the state average.

With the exception of the above factors, the digital divide generally falls on socioeconomic factors such as age, education, income and race. About 8.7 percent of Coös County falls below the poverty level, and about 5.8 percent of the North Country portion of Grafton County. As a whole, the North Country sits at 6.7 percent, which is higher than the state average (5 percent), but falls below the national average (10.1 percent). It is important



to engage in efforts to reduce this digital gap through affordability and public availability.

Concerning age, according to the GSF survey, although the North Country has a higher percentage of persons over the age of 70 (68 percent) with broadband service than the national average (43 percent). Interestingly, GSF survey also reveals a plurality of persons 70 and older currently pay \$100 or more per month for Internet service (36 percent North Country, 33 percent statewide), a figure that is at least twice the percent of the nearest age group (60 to 69, 18% pay \$100 or more). In 2010, persons 65 years of age and over represented 17.7 percent of the region's population. This figure is 4.2 percent higher than the state average. Moreover, for the North

Country portion of Grafton County, the percent of persons 65 and over is almost twice that of the state average (24.2 percent v. 13.5 percent). Going forward, it is important to ensure the North Country's aging population continues to have a high level of access to broadband. However, based on what the GSF survey reveals in regards to the cost associated with service for those over 70, a further investigation into the cause(s) should be conducted on a state and regional level.

In regards to persons between the age of 18 and 29, the North Country (61 percent) falls behind the nation by 19 percent. On a positive note, of those regional respondents who had not completed high school and those who had completed high school but had no college experience, 59 percent claimed to have broadband service at home, which is 2 percent better than the national average.



E. Sector-Based Analysis.

In 2012 and 2013, the NHBMP conducted a survey of broadband service in New Hampshire. This survey requested Community Anchor Institutions (CAIs) to confirm whether they had broadband service. CAIs were selected for the importance of their role in the community. These institutions were broken into six sectors: Education, Health, Other Community Support & Government, Public Safety, Business / Economic Development and Residential. Results for the North Country are positive. Many of the region's key institutions have broadband service. However, there are still some that lack broadband. **See Map 12.** There are 26 towns with CAIs that do not have broadband or public wifi on site. Of those CAIs, 13 are in public safety, two are schools, seven are libraries and 24 are community service & government related.

It should be noted, lack of service may not be due to lack of broadband availability; it is possible these CAIs have chosen not to initiate broadband service based on cost, need or other factors. In addition, there are some gaps (150 of 579 institutions) in the data in regards to CAI broadband service availability—these gaps are indicated as “Unknown” in the map legend. In addition, it is entirely possible the data presented is incorrect as of the time of reading. Therefore, it is important to understand the information presented is limited by the date of collection. Thus following, CAIs may, after collection, add or cancel broadband service. Those changes would not be reflected in this analysis. In September 2013 a telephone follow up of these institutions was conducted by North Country Council. This follow up updated some of the previously surveyed information. For example, the NCC follow up found a number of these CAIs had recently added broadband service. If NCC was able to update a CAI's information, it will be noted the analysis below. Finally, the maps presented hereafter, in regards to CAIs, are from NHBMP data-only and do not reflect information gathered during North Country Council's telephone follow up.

1. Education.

Most communities in the region have their own elementary schools but high schools are more regionally based. According to the NHBMP survey, all college and universities, and the majority of K-12 institutions in the region have broadband service. **See Map 13 & 14.** However, there still remain at least two K-12 schools without broadband service. As it concerns the North Country's library system, many of the libraries have service. However, according to the survey, there are at least seven libraries without service. However, a follow up survey conducted by NCC reveals that at least three of the libraries have recently added service and one library is no longer open. **Map 15.**

2. Health.

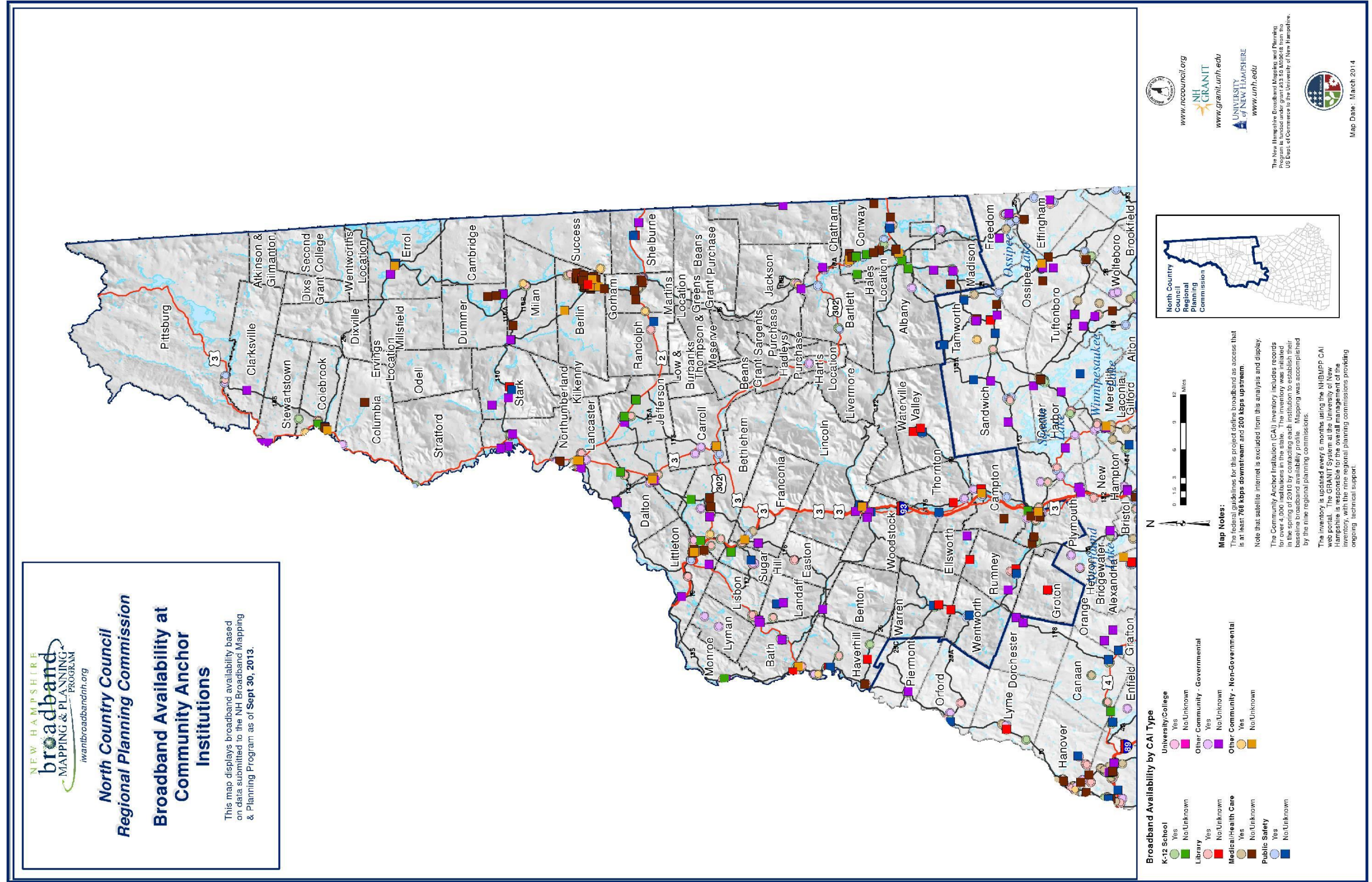
The North Country has seven major hospitals that are located in each of the region's growth centers. The NHBMP survey results are incomplete for the health-related sector. At the time of the writing of this Report, the NHBMP data continues to lack broadband data on many of the health-related institutions in the region. However, from the data acquired, *none* of the reporting institutions lack broadband. **See Map 16.** Furthermore, a follow up phone survey conducted by North Country Council reveals that many are currently serviced by fiber optic, and with recent network investments, many are, or will soon be a part of a high speed broadband network, funded in part by the NTIA.

Using a portion of the New Hampshire BTO grant from the NTIA, Network New Hampshire Now (NNHN), recently completed a middle mile and microwave network that servicing all 10 New Hampshire counties. As it relates to the healthcare sector, this network will provide high speed broadband to facilities throughout the state. High speed broadband can bring patients benefits such as remote consultations with specialists, high speed transmission of medical images and records, without leaving their community health center or, in some cases, their home.⁴⁷

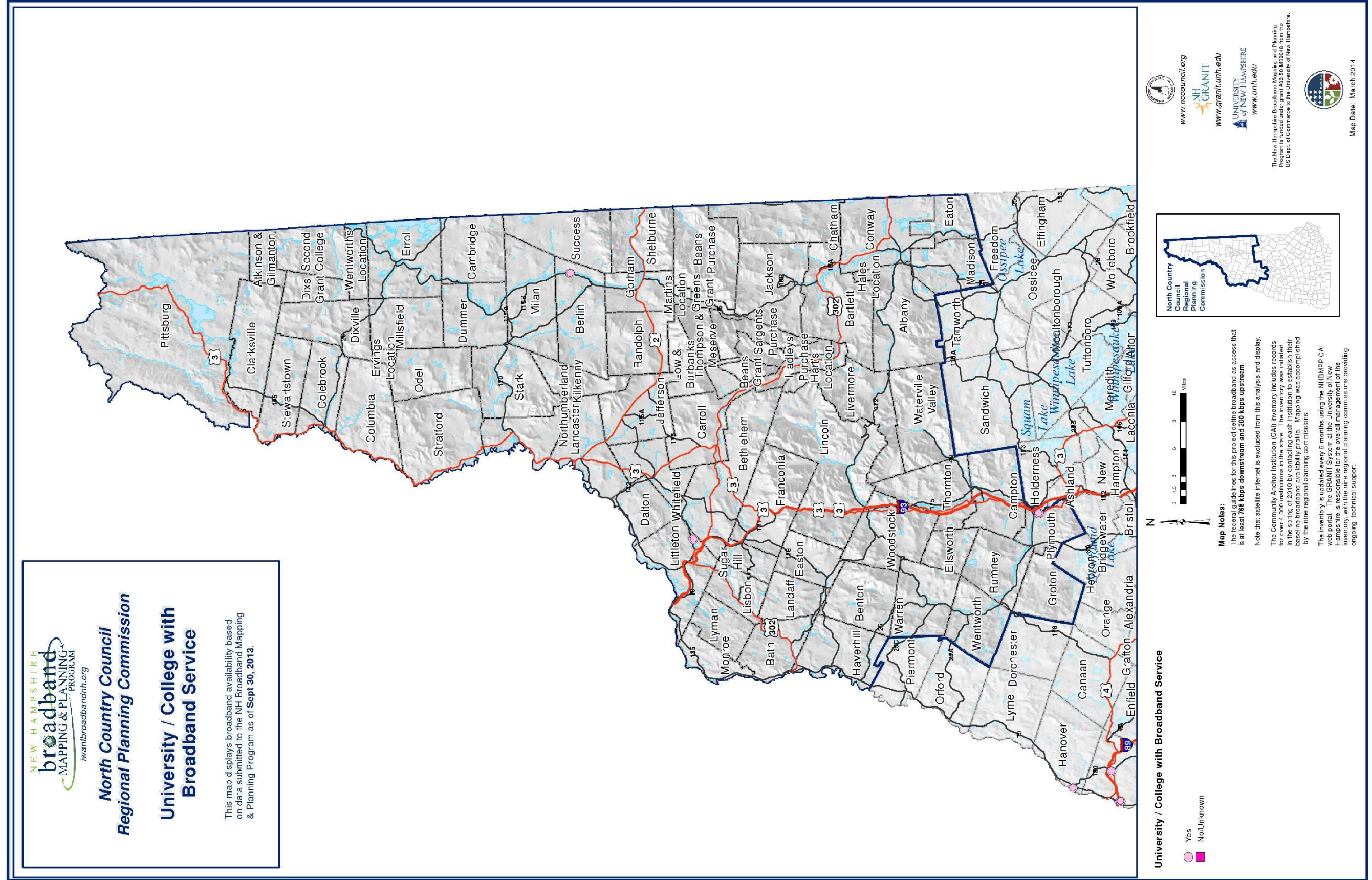


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Map 12. Broadband Availability at Community Anchor Institutions.



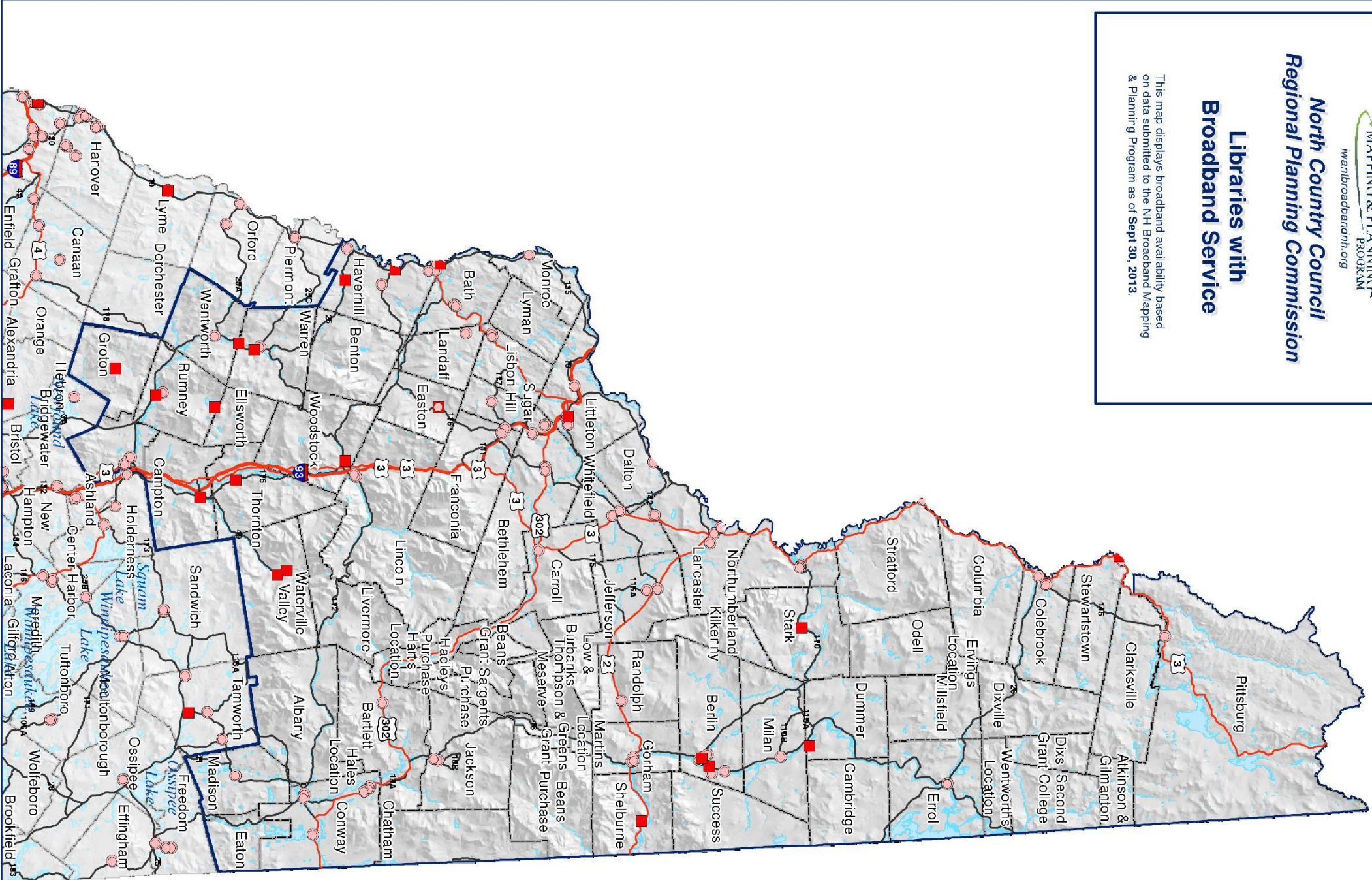
Map 14. University / College with Broadband Service.

**NEW HAMPSHIRE
broadband
MAPPING & PLANNING
PROGRAM**
www.broadbandnh.org

**North Country Council
Regional Planning Commission**

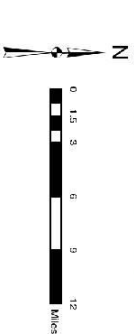
**Libraries with
Broadband Service**

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



Libraries with Broadband Service

● Yes
■ No/Unknown

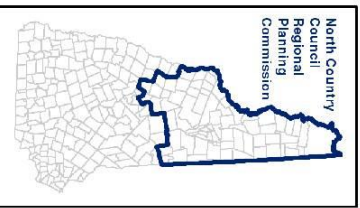


Map Notes:

The federal guidelines for this project define broadband as access that is at least **768 kbps downstream** and **200 kbps upstream**.
Note that satellite Internet is excluded from this analysis and display.

The Community Anchor Institution (CAI) inventory includes records for over 4,000 institutions in the state. The inventory was initiated in the spring of 2010 by contacting each institution to establish their baseline broadband availability profile. Mapping was accomplished by the nine regional planning commissions.

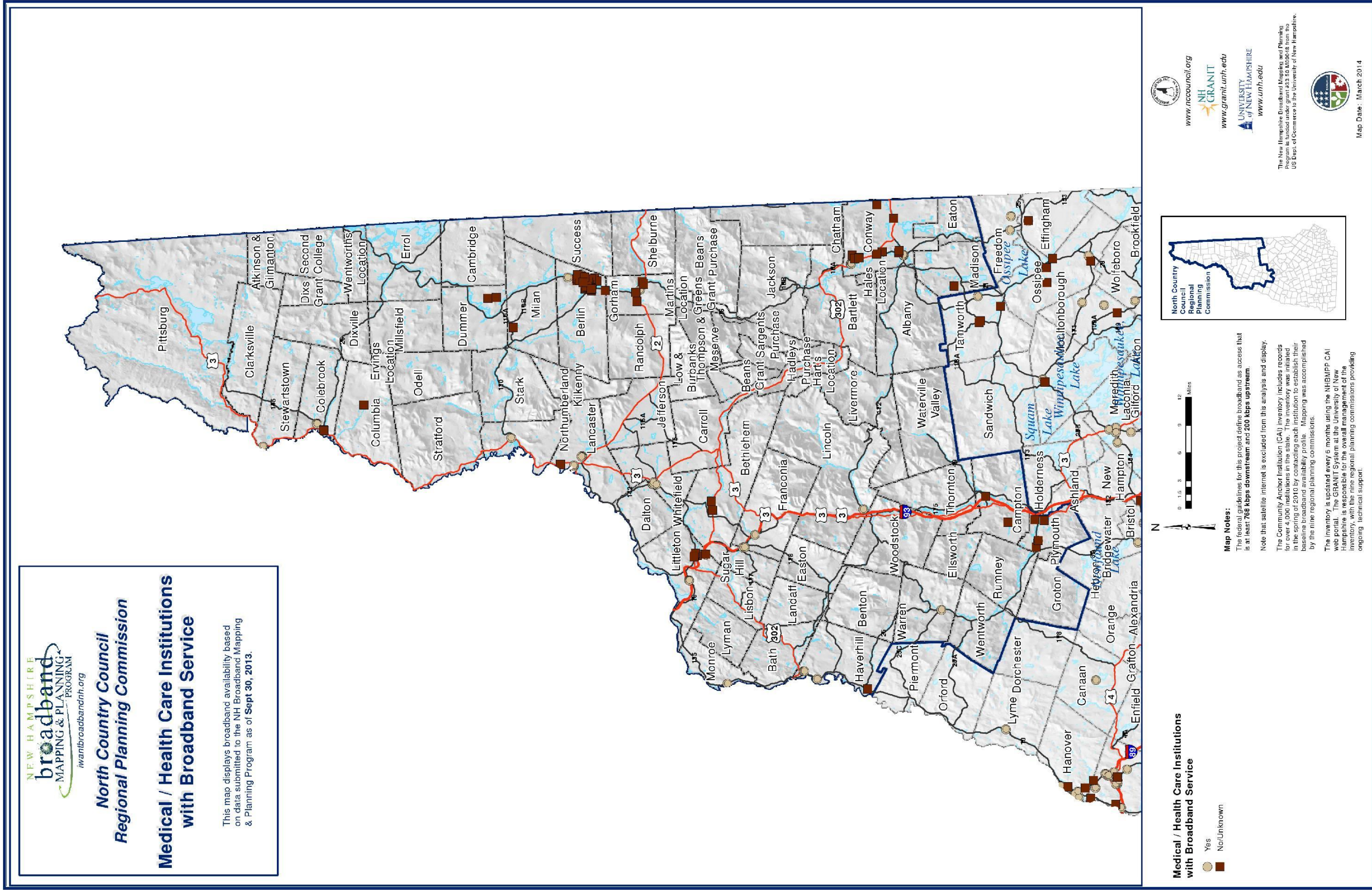
The inventory is updated every 6 months using the NH-BMP CAI web portal. The GRANIT System at the University of New Hampshire is responsible for the overall management of the inventory, with the nine regional planning commissions providing ongoing technical support.



The New Hampshire Broadband Mapping and Planning Program is funded under grant #23.60.060028 from the US Dept. of Commerce to the University of New Hampshire.



Map Date: March 2014



Map 16. Medical / Health Care Institutions with Broadband Service

3. Community Support/Government.

According to the NHBMP survey, a minority of community support and government institutions (24 of 175) lack broadband service. Five of these institutions are town halls or offices. **See Map 17.** However, a follow up phone survey conducted by North Country Council reveals that at least three of these institutions have recently added service. Furthermore, for practical reasons, some of these institutions do not need broadband service (e.g. waste transfer stations).

4. Public Safety.

The majority of public safety institutions have broadband service. However, according to the NHBMP survey there are at least 13 institutions that lack broadband service. **See Map 18.** A follow up phone survey by North Country Council reveals of those North Country Council was able to contact, at least five of these public safety institutions have recently added broadband service.

As noted earlier, using a portion of the New Hampshire BTOP grant from the NTIA, Network New Hampshire Now (NNHN), recently completed a middle mile and microwave network that servicing all 10 New Hampshire counties. As it relates to the public safety, this network will provide high speed broadband to these institutions throughout the state.

5. Business/Economic Development.

Business and economic development can be improved by the availability and speed of broadband service. **See Map 19.** A study done at the Public Policy Institute of California found areas of lower population density show a strong relationship between broadband expansion and economic growth, which the study points out is, “consistent with the theory that smaller or more isolated areas may benefit more from high-speed connections, giving businesses in these areas access to larger markets.”⁴⁸

The study found that, although not definitive, there is likely a causal relationship between broadband expansion and an increase in local employment growth.⁴⁹ Furthermore, it has

been estimated that American jobs related to the internet contributed approximately \$300 billion of economic activity to the national Gross Domestic Product.⁵⁰ As Julia Pilidini of the National League of Cities put it, “[B]roadband also helps promote local economic development, improves environmental sustainability, provides efficiencies in a variety of local government services, enhances quality of life factors through improvements to public health and public safety and increases educational opportunities for millions of Americans.”⁵¹

In a report drafted by the Institute for Local Self Reliance and the Benton Foundation, the authors propose broadband, like highways, are an essential piece of infrastructure. Without adequate service, “Much like towns bypassed by canals, rails or highways, future prospects are bleak for communities without adequate access to the Internet.”⁵² Although somewhat exaggerated, they do make an important point—broadband is likely to be the driving force behind commerce and economic development from now and into the foreseeable future. Without sufficient capacity, the potential for economic development will ultimately be hindered. Discussions of capacity are tied to upload speeds. As a policy brief by Local Progress: The National Municipal Policy Network notes, generally speaking, “existing networks suffer from much slower upload speeds than download, pushing subscribers to be consumers of content rather than creators.”⁵³

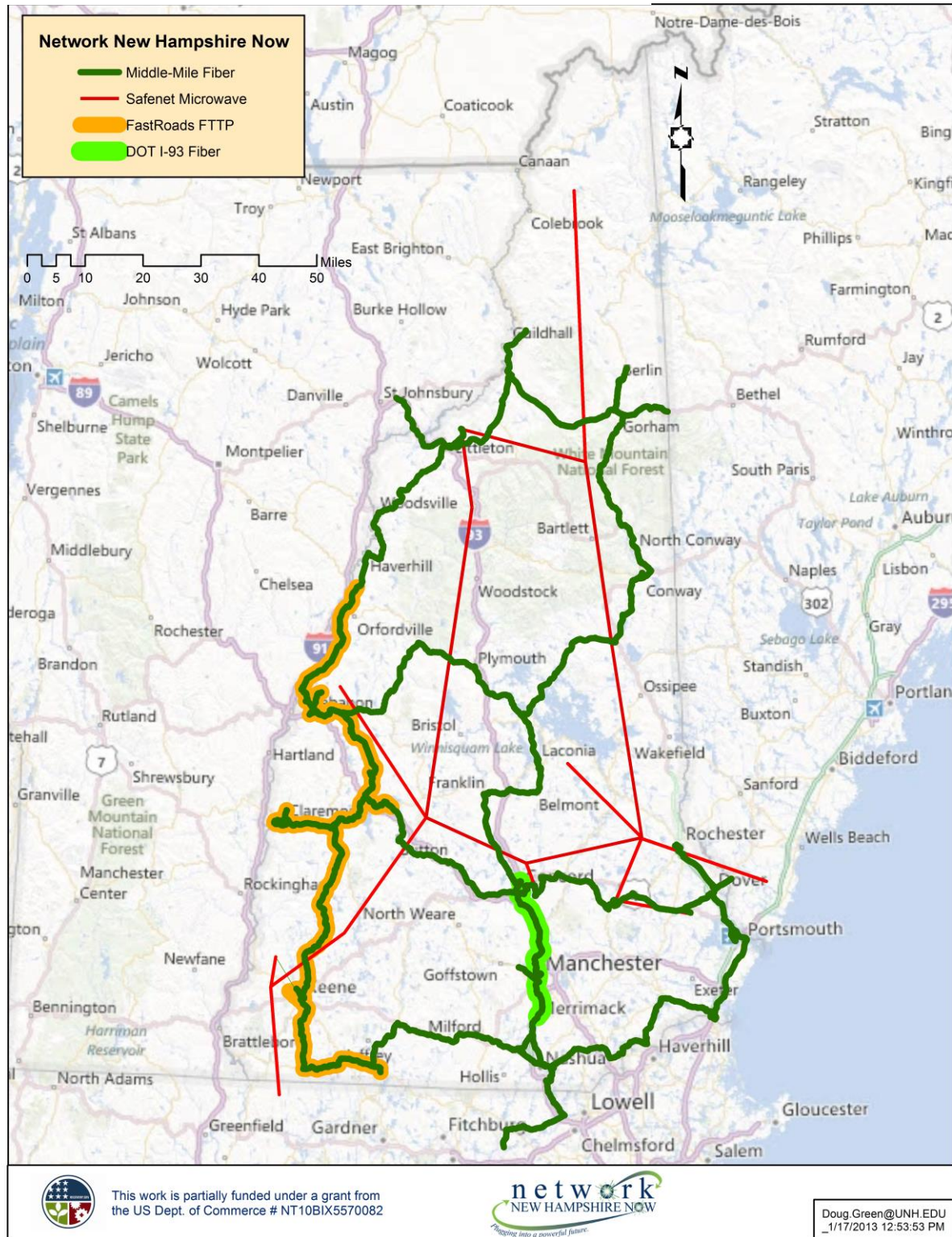
An answer to the upload concern may be on the horizon. As part of the Network New Hampshire Now (NNHN) project, an extensive fiber middle mile network reaching as far north as Guildhall and Berlin was recently completed. **See Figure 27.** Under the BTOP requirements, this middle mile fiber backbone must be open network, which means any entity authorized to provide service to end-users may purchase bandwidth wholesale from the backbone. This fiber backbone has the potential to provide blazing fast gigabit service capacity to the region—in other words, wicked fast download and upload speeds. The next step will be developing a market for third



party providers to attach to the backbone and provide businesses and their communities with high speed bandwidth. This may require further investment in middle and last mile infrastructure to stretch the backbone to more

communities—NH FastRoads (part of NNHN), has done such a project in southwest New Hampshire. Using BTOP grant funding and private sources, they have been able to build an approximately 250-mile fiber

Figure 27. NNHN Middle Mile Buildout.



network, known as a fiber-to-the-Premises (FTTP) network. This network consists mostly of middle mile fiber, but, as of February 2014, includes some last mile buildout.⁵⁴ Currently, the project brings fiber to homes and businesses in over 20 rural southwest New Hampshire communities. Although NH FastRoads is not currently in the North Country, they or another similar public-private partnership could provide similar buildout for the region.

In addition to the direct economic benefits of broadband availability, broadband also has a positive impact on secondary economic development factors, such as continuing education and job training. According to the Coös County Business & Worker Opinion Survey, conducted in 2009, one in four respondents indicated that they wished to continue their education.

Unfortunately, the majority (93.8 percent) of the respondents indicated there were factors preventing them from reaching or making it difficult to continue their education. Factors impeding progress ranged from lack of transportation to time of day course is offered to travel distance to course/training to associated costs of course/training. The survey further notes, when respondents were asked what type of training they would need to make them more proficient at their job, the second largest number of workers felt that computer training would most help them in their job performance. As a report by the United States Distance Learning Association notes, online learning is not limited to K-12 and collegiate level education, adults also use online courses for professional reasons.⁵⁵ To enable these employees to develop themselves professionally, affordable and sufficient broadband service must be available, either (preferably) at home, or at a nearby public space such as the local library.



1. Residential.

Broadband DSL service has grown tremendously since the publishing of the Region’s 2005 Technology and Telecommunications Master Plan. DSL service is rapidly expanding and is now available in much of the North Country. **See Map 21.** DSL can offer communities good downstream speeds at reasonable rates. In addition, existing phone line copper wire infrastructure can be adopted to carry broadband to remote areas. However, there are quality concerns in regards to last-mile service.

Cable broadband is now available in much of the southern portion of the North Country and parts of Coös County. **See Map 19.** Similar to DSL, cable broadband can offer communities good downstream speeds at reasonable rates. Additionally, because coaxial cable lines are able to carry more bandwidth than copper wire DSL lines they can more easily reach distant customers.

At the time of writing, DSL and cable do not have service data caps. A data cap is the limit to the amount of data a customer is allowed to use in a billing cycle under their service plan. When a customer goes over that limit, an overage charge per megabyte is generally applied.

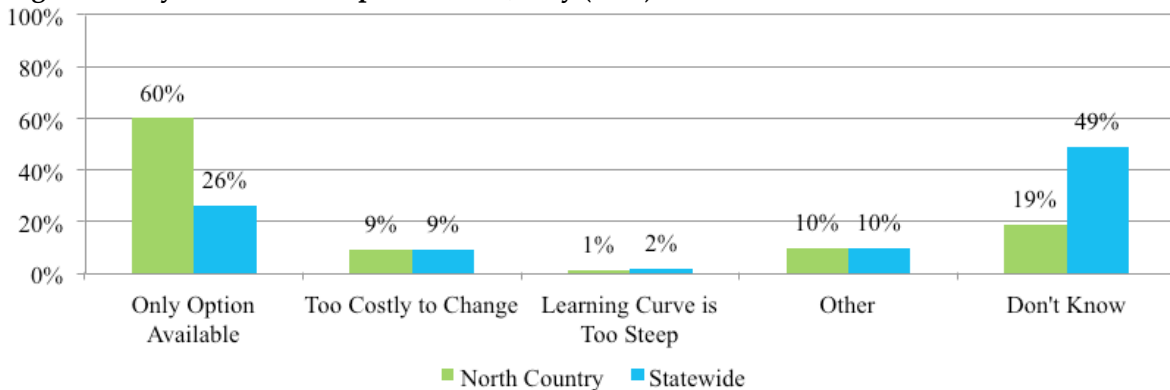
NCIC’s WISP network coverage stretches from North Stratford, New Hampshire and Brunswick, Vermont to Landaff, New Hampshire, and from Barnett, Vermont to Jefferson, New Hampshire. Additional providers offer coverage to a number of other towns around the region including Colebrook, Errol and Waterville Valley. **See Map 22.**

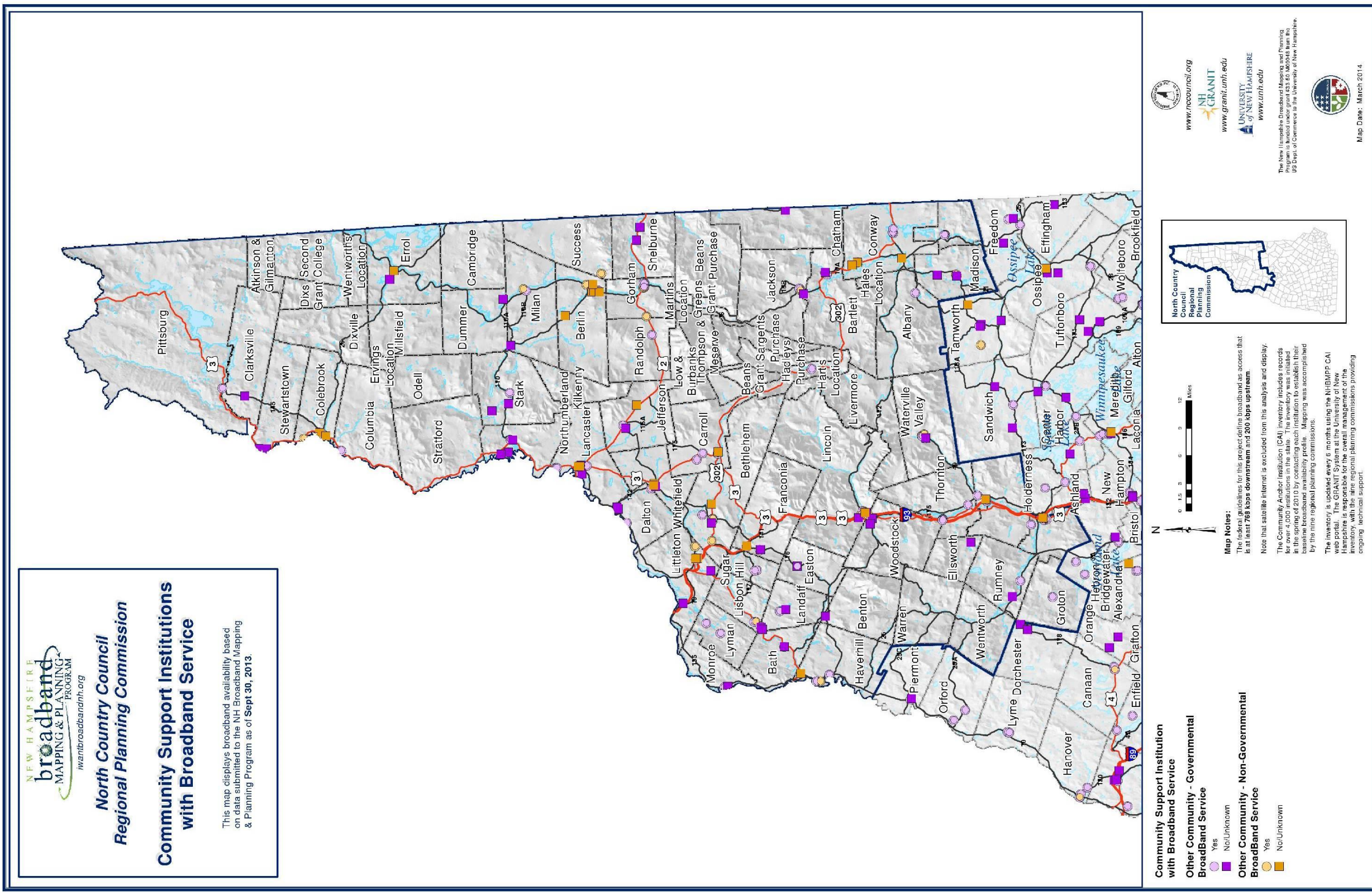
Mobile wireless broadband service is available in the North Country. However, according to the NHBMP survey, much of Coös County is underserved and there are significant areas of no service. **See Map 9.** Significant infrastructure improvements will need to be completed to reduce the area of underserved and unserved areas in the region. As of the writing of this Report, Verizon Wireless had recently added 4G cellphone and broadband service to the towns of Albany, Bartlett, Carroll, Conway, Jackson, Lancaster, Littleton, Madison, and Waterville Valley.⁵⁶

In general, mobile broadband can bring reasonable downstream speeds to underserved areas. Unfortunately, mobile broadband is often offered with a data cap. As noted earlier, means if a customer goes over their allotted amount of data, until the end of the billing period, they are charged for any additional data used. Studies have suggested that mobile broadband is not be a sufficient substitute to wireline service, generally pointing to higher associated costs, slower speeds and less reliable service.⁵⁷

Finally, all areas can be served by satellite broadband. Unfortunately, as with mobile wireless, satellite is often offered with a data cap. Again, this means if a customer goes over their allotted data, until the end of the billing period, they are charged for any additional data used. According to the Granite State Future survey, those who have a dialup or satellite connection, most (60 percent) say it is the only option available. **See Figure 28.**

Figure 28. If you are on dialup or satellite, why (2013)?





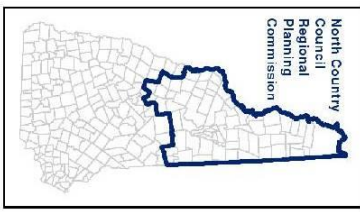
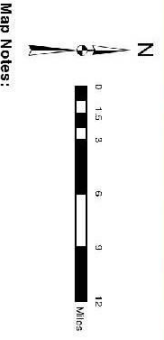
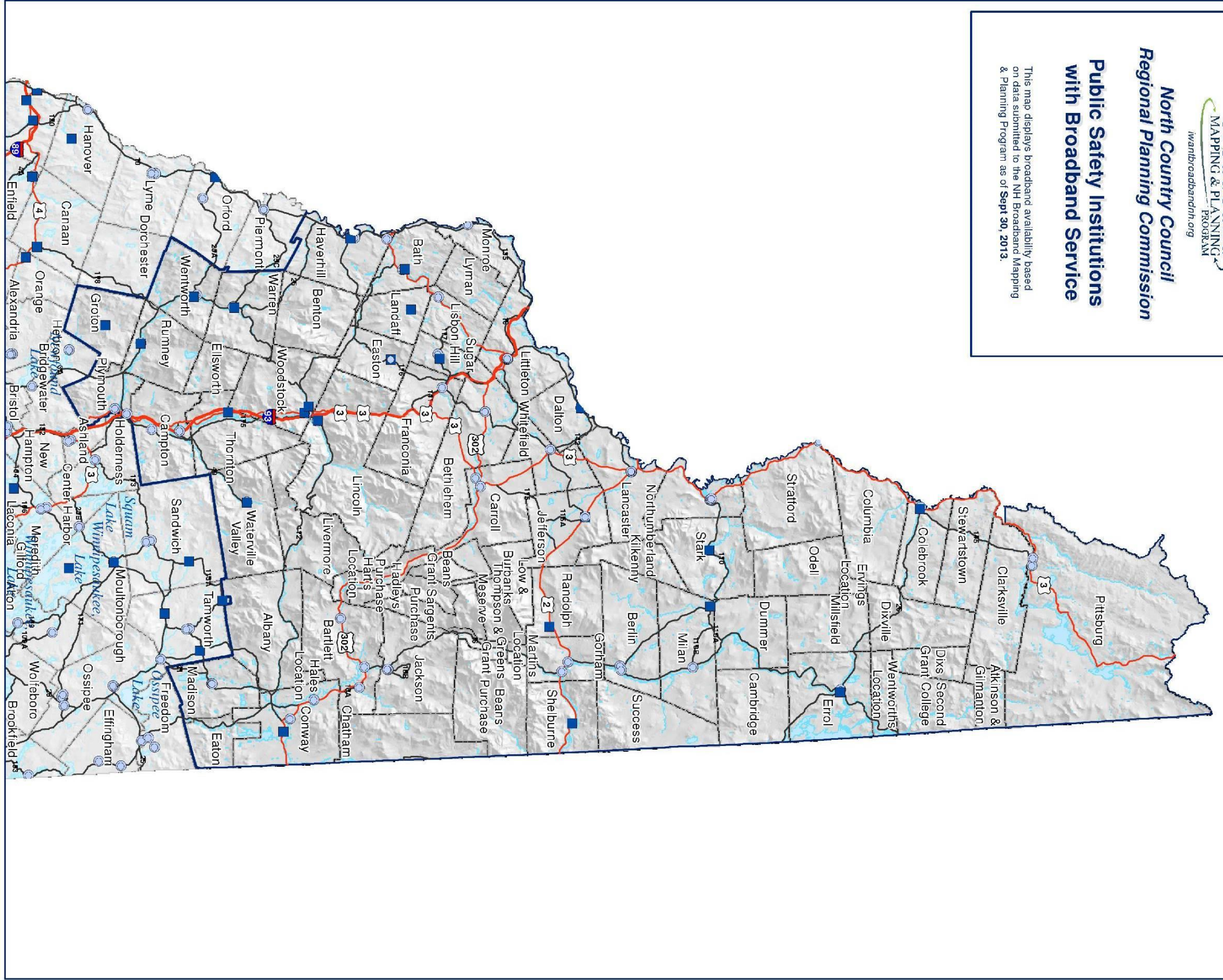
Map 17. Community Support Institutions with Broadband Service.

NEW HAMPSHIRE
broadband
MAPPING & PLANNING PROGRAM
www.broadbandnh.org

**North Country Council
Regional Planning Commission**

**Public Safety Institutions
with Broadband Service**

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



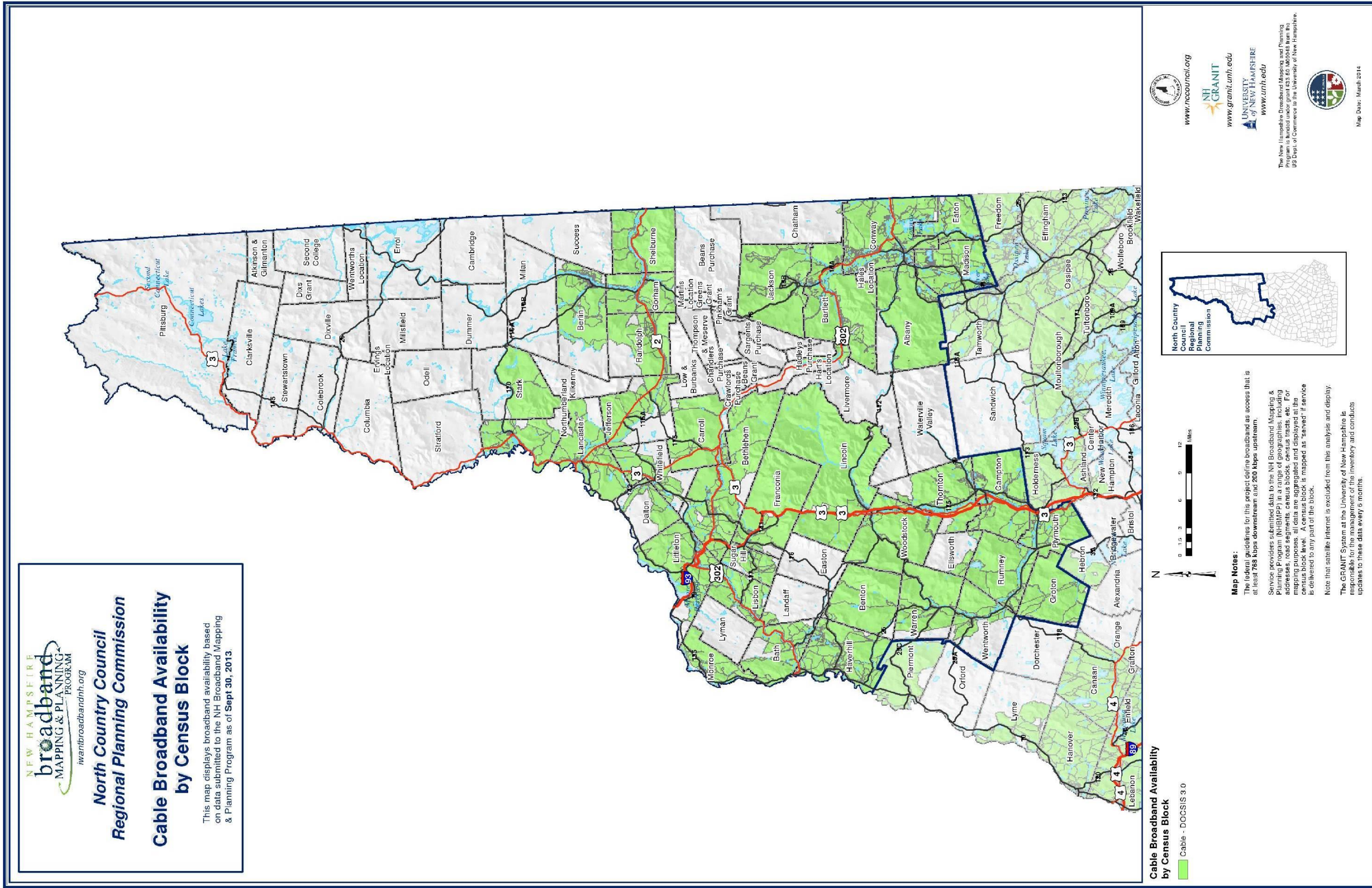
The inventory is updated every 6 months using the NHMAP CAI web portal. The GRANIT System at the University of New Hampshire is responsible for the overall management of the inventory, with the nine regional planning commissions providing ongoing technical support.

The New Hampshire Broadband Mapping and Planning Program is funded under grant #33 40 M00618 from the US Dept. of Commerce to the University of New Hampshire.

www.nccouncil.org
www.granit.org
UNIVERSITY OF NEW HAMPSHIRE
www.unh.edu



Map Date: March 2014



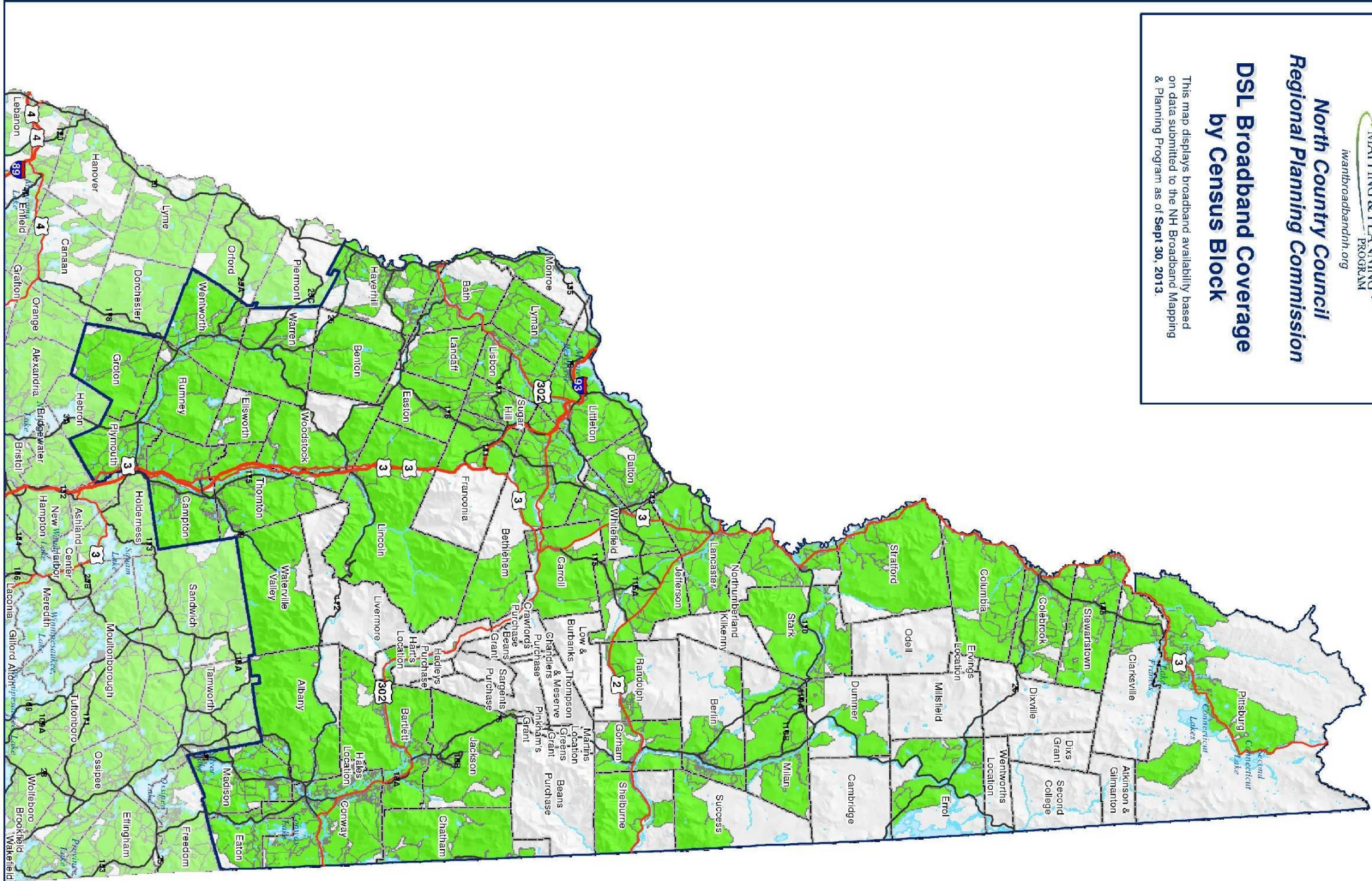
Map 19. Cable Broadband Availability by Census Block.

NEW HAMPSHIRE
broadband
MAPPING & PLANNING
PROGRAM
www.broadbandnh.org

North Country Council
Regional Planning Commission

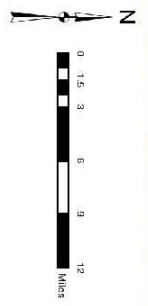
DSL Broadband Coverage
by Census Block

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



DSL Broadband Coverage by Census Block

■ DSL - Digital Subscriber Line

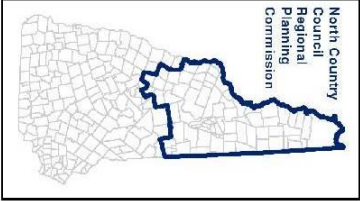


Map Notes:

The federal guidelines for this project define broadband as access that is at least 768 kbps download and 200 kbps upload.

Service providers submitted data to the NH Broadband Mapping & Planning Program (NHBMPP) in a range of geographic, including addresses, road segments, census blocks, census tracts, etc. For mapping purposes, all data are aggregated and displayed at the census block level. A census block is mapped as "served" if service is delivered to any part of the block.

Note that satellite internet is excluded from this analysis and display. The GRANIT System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.



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www.granit.unh.edu
UNIVERSITY of NEW HAMPSHIRE
www.unh.edu

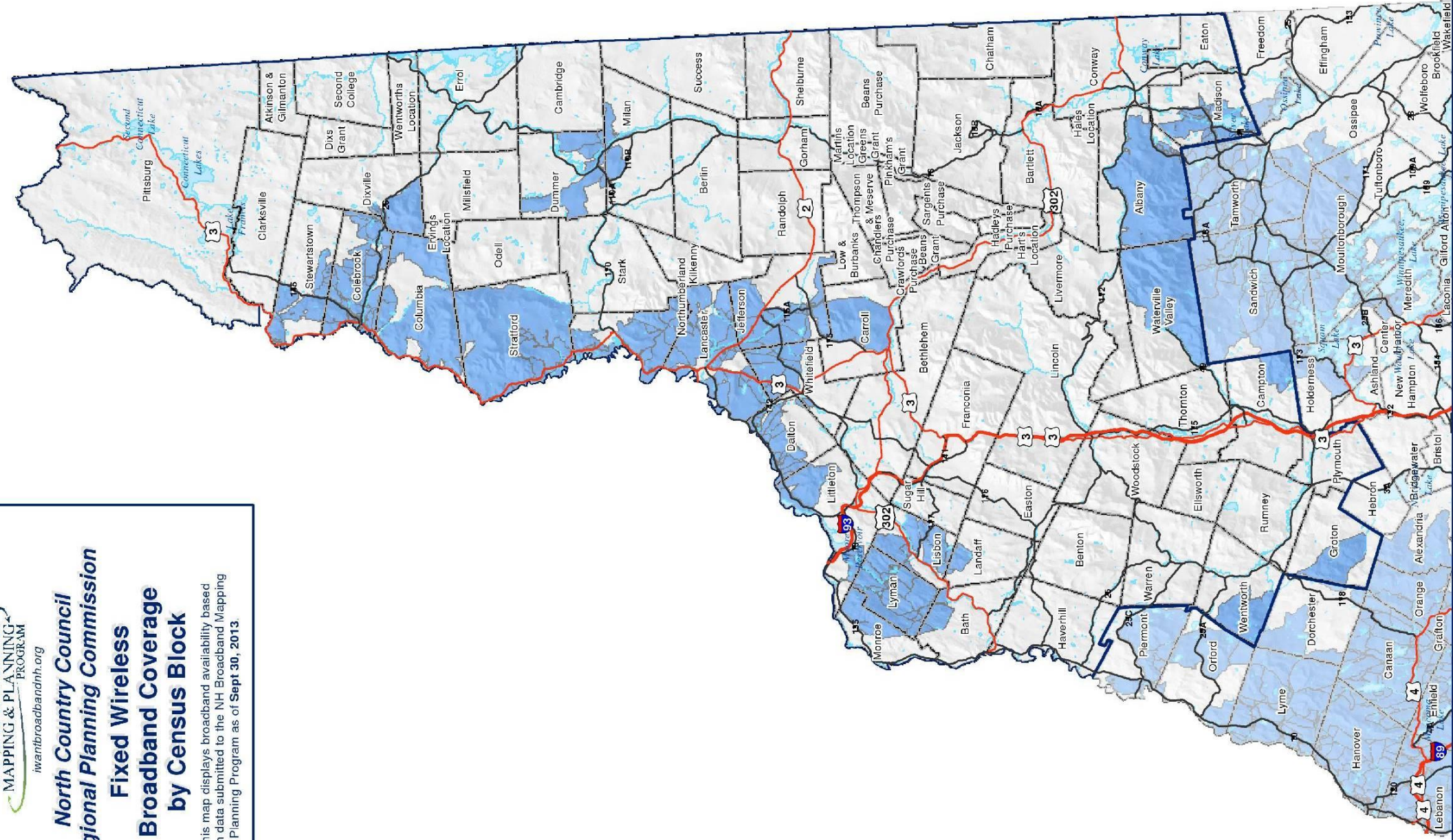
The New Hampshire Broadband Mapping and Planning Program is funded under grant #33 46 A00618 from the US Dept. of Commerce to the University of New Hampshire.

Map Date: March 2014



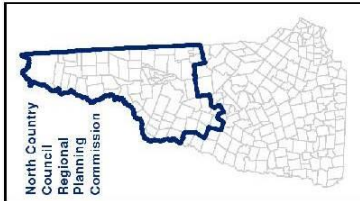
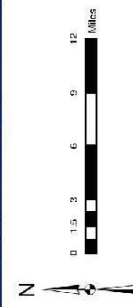
North Country Council
Regional Planning Commission
Fixed Wireless
Broadband Coverage
by Census Block

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



Fixed Wireless Broadband Coverage by Census Block

 Fixed Wireless



Map Notes:

The federal guidelines for this project define broadband as access that is at least 768 kbps downstream and 200 kbps upstream.

Service providers submitted data to the NH Broadband Mapping & Planning Program (NH-BMP) in a range of geographies, including addresses, road segments, census blocks, and other geographic units. All data was processed and displayed at the census block level. A census block is mapped as "served" if service is delivered to any part of the block.

Note that satellite internet is excluded from this analysis and display.

The GRANIT System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.



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www.granit.unh.edu



www.unh.edu



 The New Hampshire Broadband Mapping and Planning Program is a project of the US Dept. of Commerce at the University of New Hampshire.



 Map Date: March 2014

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V. Challenges and Opportunities for Regional Broadband Implementation and Improvement.

This chapter offers a number of strategies and stories related to broadband. Some are taken from local projects, while others are from outside the region.

A. Cable Franchise Agreements.

In 2012, the NH Broadband Mapping & Planning Program began an inventory program for municipal Cable Franchise Agreements (CFA) across the state. The program has collected over 170 CFAs from across the state. These CFAs are freely available from the NHBMP's website.

See [http://
http://www.iwantbroadbandnh.org/cable-franchise-agreements](http://http://www.iwantbroadbandnh.org/cable-franchise-agreements).

NHBMP continues to encourage municipalities to submit their CFA's so that they may maintain a complete and up-to-date resource of CFAs for the state. Although the original intent of the CFA was for video distribution, it is becoming more common that this Agreement also provides the legal infrastructure for Internet access (or at least one of the more common ways for communities to receive Internet access). Although this resource cannot serve as legal guidance, it is a valuable resource for towns when negotiating and considering CFAs. For a catalog of New Hampshire CFAs, their key points, and full text, see <http://www.iwantbroadbandnh.org/cable-franchise-agreements>.

NH RSA 53-C outlines the requirements for municipal CFAs in the state. See **Appendix D**. To better understand a town's obligations under NH RSA 53-C, towns are encouraged to seek legal counsel from a NH licensed attorney.

Only a NH licensed attorney will be able provide legal advice as to a CFA's conformance with NH RSA 53-C and related codes, and as to the agreement's legal strengths and weaknesses as it concerns the parties. Additional assistance may also be obtained from the New Hampshire Coalition for Community Media (NHCCM), and the New Hampshire Municipal Association (NHMA). The NHCCM is a statewide, non-profit organization formed for the purpose of supporting and fostering Public, Educational and Government access television. The NHMA is an organization focused on municipal level facilitation, advocacy and legal assistance.

B. Case Study: Town of Colebrook.

On May 1, 2007 the Town of Colebrook turned on its open public WISP service. This service was completed for under \$200,000. This success story was first published in New Hampshire Rural Development Council's, *Northern New Hampshire: Technology and Telecommunications Master Plan, Mid-Mile Infrastructure Plan, Phase III, Network Infrastructure Options*. This report has republished the Study and provides an update.



**1.Colebrook Development Corporation
Broadband Project.***

*Adopted from: New Hampshire Rural Development Council, *Northern New Hampshire: Technology and Telecommunications Master Plan, Mid-Mile Infrastructure Plan, Phase III, Network Infrastructure Options*, p.60-62 (June 2007).

By Larry Rappaport, Project Manager & Director

Several years ago, the Colebrook Development Corporation (CDC) realized that if we were to convince businesses to relocate to or expand in our area, we would have to install some kind of a broadband network. While manufacturing businesses had been concerned with transportation, modern businesses conduct transactions electronically; their primary concern is that relocation will not impair that ability.

Our first thought was to produce a fiber-to-the-home (fifth) solution, but it soon became apparent that we did not have or were going to be able to get the financial resources necessary. Creation of a fifth solution in our small community (population 2500) would have cost in excess of \$32 million. Not exactly small change for a rural community! We began to look at alternatives with an eye towards substantially reducing the cost. It appeared as if unlicensed wireless would allow us to create an alternative which we could conceivably afford, although the financing of close to \$250 thousand was not in place.

We spoke to many organizations looking for money. Finally, we spoke to our US Senator John Sununu (an engineer by trade). He believed in our dream and was interested in doing some kind of demonstration project, which would assure open access to businesses and the public while being relatively low cost to our citizens. We agreed completely and began to design the kind of “open access” network both the CDC Board and the Senator had envisioned. We contacted what was then called “Island Pond Wireless” (now Great Auk Wireless) for some engineering help. We decided that we would do much of the construction ourselves to further save money.

The System
<ul style="list-style-type: none"> • Tower 1 Colebrook Business Park (principal tower) • Tower 2 Skyline Drive (principal tower) • Tower 3 Colebrook Town Hall (existing tower) • Tower 4 Upper Connecticut Valley Hospital (existing tower) • Tower 5 L.M. Rappaport private tower (existing tower) <p>The network is arranged in a ring with two principal towers at each end. The paths are as follows:</p> <ul style="list-style-type: none"> • Colebrook Business Park to Skyline Drive (45 Mbps link) • Colebrook Business Park to Town Hall (20 Mbps link) • Town Hall to Upper Connecticut Valley Hospital (20 Mbps link) • Upper Connecticut Valley Hospital to L.M. Rappaport (20 Mbps link) • L.M. Rappaport to Skyline Drive (45 Mbps link) <p>*Each radio link is connected to a level 3 (programmable) network switch. Monitoring is provided by both a hired engineer and several members of the technical committee.</p> <p>*Distribution at present is confined to the two principal towers, but may be extended to incorporate some of the others.</p>

We received a small Federal grant in March of 2005 and the money was finally released to us the following Fall. As the CDC had done little with grant disbursement, we hired Northern Community Investment Corporation (NCIC) to act as both our fiscal agent and financial advisor. Additionally, the NCIC is working on a larger project which will bring low cost broadband to 3 counties in [N]orthern Vermont and 3 counties in Northern New Hampshire.

We designed a wireless network consisting of 5 towers. 3 of them were already in place and 2 of them needed to be erected along with small buildings needed to house the electronics. The two, which needed to be built, were erected that Fall. At that time, a defense contractor was extremely interested in our project who insisted that the buildings housing the equipment be bulletproof to specifications referred to as "level one" (the first and lowest class of protection). This meant that the buildings needed to be of masonry construction. Fortunately, we had our Board of Directors, two individuals who were familiar with construction and we pressed into service. While the towers were erected by a private contractor, under our supervision, the buildings were homemade! We had priced protected buildings. There were to cost \$38 thousand each or \$76 thousand total. Our homemade buildings were stronger, larger, and built for a total of \$15 thousand using our Board and a few volunteers.

Everything was put to bid. We bought all of the electronics from a contractor who also installed the equipment on the towers. We bought building supplies from a Board Member who agreed to supply them at a low cost and then we built the two buildings on slabs poured by a local contractor. Most of this happened in the winter so it was a bit uncomfortable!

We are entirely compatible with efforts now underway in Vermont, New York, Maine and Canada.

The system was tested and finally turned on May 1, 2007. The CDC has asked for WISPs to serve the public; so far Great Auk Wireless has provided service, but two others are considering it. We have agreed to rental of \$300 per month and we will pay any WISP \$100 for each signed contract up to 100 contracts. That is a commitment of \$10,000.00 on top of the \$160 thousand we have already spent.

One lady, the late Mrs. Louise Tillotson was impressed enough with our efforts to donate

an additional \$50 thousand. We are entirely grateful as this will allow us some further expansion.

We plan to expand in several areas. We would like to link with Maine and provide service to Errol, NH. We have obtained permission to locate a tower and building on Dixville Peak. We want to serve much of the North Country, and have received permission to go north into Pittsburg, NH. Because of our friends at Tillotson Corporation, we have also received permission to get into a building with antennae on a tower to be constructed by the Department of Transportation by the Province of Quebec to be located on Hereford Mountain in Canada. Power will also be provided. We can currently offer redundancy (or failover) in three states and two countries, a feat unmatched by most providers. We believe that the larger a network becomes, the more valuable it is to its members. Many of our efforts have been designed to facilitate agreements with adjoining networks.

We have since signed a contract with NH Public Radio to provide NPR to our citizens and are speaking with Unicel who are considering relocation cellular coverage in Colebrook and the area.

2. Town of Colebrook Update.

On May 1, 2007, the Town of Colebrook turned on its wireless to the public with one WISP provider, Great Auk Wireless. Today, Great Auk Wireless is among a number of WISP providers in the Town. Although the program has not expanded its service area, it has provided the impetus for additional broadband providers to begin offering and expanding services in Colebrook and the surrounding area. FairPoint and G4 now offer broadband to area customers, DSL and cable broadband respectively.

Wireless service has now expanded to Errol and Pittsburg and the transmission towers built for the program are now, in addition to servicing broadband, used by NH Public Radio and private station transmission.



The Colebrook Case Study is an example of a town spearheading efforts to bring broadband services to a rural region. Although the wireless program hasn't expanded beyond its original scope, it has provided the catalyst to spur additional investment and local interest in broadband services.

C. Getting Fiber to the Community in the North Country.

Fiber has the potential to offer almost limitless capacity to users. Although expensive to install, it can add substantial economic and social value to a community without altering the visual landscape. However, fiber may not be the best fit for all communities. In areas that seek to be bedroom communities and ultra-remote areas, cable and DSL service may provide the necessary levels of service to provide for a generally consumer level use of the Internet. Fortunately, much of the region is already served by DSL. Although cable is not, cable service is slowly developing in previously unserved areas. As discussed in **Chapter IV.E.5. Business / Economic Development**, for communities that desire to develop a content creator-friendly environment and/or provide a level of service that will have the capacity to provide for its businesses and residents well into the future, technologies like fiber, and more specifically fiber-to-the-premises (FTTP) -projects can do just that.

There are many ways to get fiber to a community. However, many require at least some municipal role in building or bonding for broadband infrastructure. It is the rural nature of the region that inhibits the initiative of providers to buildout and provide fiber service to the North Country. It is true, if you call a provider and ask for fiber service, they would likely provide it, but the onus would be on you to pay for the fiber to be strung from the backbone to your business or home. This process is costly and does not answer a town's desire to provide a fiber level of service to all (or most) of its community. Therefore, it is likely a public-private partnership will be needed to develop an FTTP project in the region—municipalities would lay fiber and providers would deliver service.

For good or bad, the current New Hampshire law governing broadband inhibits the ability of a community to respond to a deficit in broadband service if it is currently served by a provider (RSA 33:3). **See Appendix D.** Although the intention of the law is to prevent a town from building broadband infrastructure where a provider is already set up in the community, if that provider is unwilling to upgrade the community's service, the town is out of luck. Under the current law, a community cannot act on its own to bond or issue a note for new broadband infrastructure if the area is served by a provider (RSA 33:3). **See Appendix D.**

State legislation, broadband bill HB286, was recently passed by the state house of representatives and will go before the state senate later this year. The bill's language alters the current broadband law to enable a municipality to build broadband infrastructure through bonding measures regardless of whether it is currently served by a provider. **See Appendix D.** However, the bill explicitly limits a municipality to providing non-retail service. Therefore, if the bill becomes law, it is likely a municipality will be able to build broadband infrastructure through bonds and notes, but will need to lease the infrastructure to a third party provider for retail service.

Many communities have benefited from fiber. Some have been created through public funding, some through public-private partnerships and some through private investment. As discussed earlier, the ruralness of the North Country inhibits the likelihood of a purely private fiber initiative. Furthermore, state broadband law currently inhibits municipal initiatives to develop their own fiber infrastructure. That said, it is likely, a public-private initiative similar to the NH FastRoads will be the model for bringing fiber other rural parts of the state, including the North Country. Interestingly, the recently passed United States farm bill provides \$50 million for the fiscal years 2014 to 2018 under the Rural Gigabit Network Pilot Program. Through this federal program, and others like it, it may be possible to provide part of the



funding necessary to build the middle mile infrastructure deeper into the North Country.

There are a multitude of resources available online that can assist communities in their broadband development projects. A list of some of these resources are provided in subpart, **D. Other Resources**. However, until the state broadband law is settled, some of these resources will have limited value, perhaps more inspirational than direct actionable steps.

D. Other Resources.

There are a number of resources that can provide communities with sample plans, helpful white papers, and educational materials.

The Fiber to the Home Council (FTTH) provides information, community tools and holds annual conferences that focus on empowering communities to build their own fiber networks.

See <http://www.ftthcouncil.org/>.

The Institute for Local Self-Reliance (ILSR) provides a number of resources, some of which are related to broadband technology.

See <http://www.ilsr.org/>.

The U.S. Department of Transportation, Research and Innovative Technology Administration (RITA) publishes a database that allows users to look up and view sample costs for building and installing a range of items, from highway segments to fiber optic cable.

See <http://www.itscosts.its.dot.gov/>.

The New Hampshire Division of Economic Development offers a number of resources including policy-related information.

See <http://www.nheconomy.com/business-services/broadband-telecommunications/default.aspx>.

The New Hampshire Broadband Mapping & Planning Program website contains valuable state-related information and an online broadband map.

See <http://iwantbroadbandnh.org/>.

The University of New Hampshire Cooperative Extension offers economic development assistance to municipalities and small businesses.

See

<http://extension.unh.edu/Community/Economic-Development>.

The Education SuperHighway is a group dedicated to bringing and improving K-12 broadband resources and infrastructure.

See <http://www.educationsuperhighway.org/>.

The Broadband for America is a policy group dedicated to bringing high quality internet access to all of the United States.

See <http://www.broadbandforamerica.com/>.

The Gig.U is a consortium of education and research institutions working to upgrade and expand broadband infrastructure to surrounding communities throughout the United States.

See <http://www.gig-u.org/>.

EveryoneOn's purpose is to assist Americans who do not have the digital literacy skills needed to succeed and help them understand the relevance of the Internet in their lives. From seeking a job, school homework, e-commerce, medical benefits, and long distance communication, EveryoneOn hopes to educate those in need of the Internet's value. Their site contains many resources for community education and instruction.

See <http://www.everyoneon.org/>.

The One Economy Corporation is a not-for-profit that seeks to provide Internet service and technology-related education to under privileged communities throughout the United States and globe:

See <http://www.one-economy.com/broadband-internet-access/>.

The Keep BT Local is the Burlington, Vermont FTTP telecom cooperative providing fast broadband to Vermonters.

See <http://www.keepbtlocal.com/>.



The New Hampshire FastRoads is providing middle and last mile buildout to communities in southwest New Hampshire.

See <http://www.newhampshirefastroads.net/>.

The FCC's E-rate Program provides funding for broadband access and infrastructure to eligible school and library facilities:

See <http://www.fcc.gov/guides/universal-service-program-schools-and-libraries>.



VI. Findings & Recommendations.

Broadband is the highway of the 21st Century. People are travelling thousands of digital miles to visit, communicate and disseminate information. It is important for communities in the North Country to have broadband infrastructure that will serve the community well into the future. Understandably, building broadband infrastructure is both costly and time consuming. However, with assistance and strong leadership, communities in the North Country can provide broadband service to all areas of the region in spite of some of the region's remoteness. When evaluating which broadband technology to use, strong consideration for future needs should be given. It may be that a community will need at least two methods of broadband distribution—one that can be quickly adapted from current technology to supply the region with a currently acceptable level of service, and another that will bring quality, long-term broadband bandwidth to the community. Much of the North Country is now serviced by at least one broadband provider and infrastructure is rapidly expanding. The next step will be to encourage additional providers to the region, and developing the area's fiber resources through private, public or some partnership between the two. It is only through technologies that can provide high upload and download capacity that the North Country will ensure its ability to keep up with and compete in an economy intimately tied to the Internet.

This chapter will review the North County's needs, challenges and opportunities and establish a path communities can take to realize the immediate and long-term goals, of which, most important is to provide broadband access to every person in the region.

A. Evaluation and prioritization of needs / challenges / opportunities.

During the NHBMP development process, the North Country's BSG was asked to develop a list of broadband needs and barriers facing the region. Through an examination of past, current and future needs and barriers, the BSG developed the following lists. Barriers facing the North Country:

- Municipalities need to be educated and empowered when it comes to negotiating CFAs, and proactive in improving local service;
- CFAs need to be standardized and contain language that requires companies to build-out the unserved areas of a town on a routine basis until fully served;
- "Deployment" costs of many technologies is often cost-prohibitive in rural areas where there is no return on investment;
- The process of pole attachments is difficult and lengthy; pole attachment conflicts may impede service expansion; rules need to monitor 3rd party attachers;
- In order to understand potential network expansion, the NCC BSG needs to understand the playing field and players;
- Level of service (LoS) and capacity of broadband required by technologically-demanding business needs to be understood;
- The copper infrastructure in place today must be maintained and available for the future; DSL technology can be accessed by competitors and is most likely to serve rural areas for years to come; and
- Wireless mobile (phone) expansion is as much a priority as broadband.

B. Establish goals & objectives.

The NHBMPP and GSF surveys identified a number of broadband issues facing the North Country. To combat these identified issues, the BSG has identified a number of goals and objectives.

Education:

- Educating municipalities about policy concerning broadband is a top priority. Municipalities should be kept up to date on broadband issues to ensure they take well-informed steps in managing broadband growth.
- Public needs to be educated as to the availability, benefits and costs associated with broadband.

Funding:

- Funding needs to be available to municipalities to engage in private, public-private and public broadband-related projects. This funding could come from a combination of federal, state and local level, public/private grants and private investment monies.

Policy:

- Local municipalities need to enact policy that encourages innovation and expansion of broadband services.

Maintain:

- The region must maintain its existing copper wire infrastructure to provide a baseline level of service to all residents.

Expand:

- Infrastructure should continue to expand and improve bringing with it a vibrant broadband market offering a wide range of service options at competitive prices.
- In the interest of public safety, wireless mobile (phone) service must continue to penetrate the region to provide residents and visitors a sufficient level of service.

C. Identify outcome measures and targets.

Identification and measurement of the North Country's goals and objectives shall be done using specific criteria. **See Table 13.**

D. Strategies for Achieving Goals, Objectives, Target Measures.

To identify and measure the success of the region's goals and objectives, the BSG will continue to meet on a semi-annual to annual basis. At these meetings, the BSG will review the state of the region's broadband capacity, and if necessary, identify, prioritize and devise strategies for improving the system. The BSG will also liaison with the state to push any identified broadband legislative or legal issues. Finally, the BSG will provide a forum for towns, local business groups and providers a place to discuss broadband issues on both a regional and local scale. Management and membership of the BSG will be administered through the North Country Council.



Priority Rating	Phase	Strategy	Level of Action	Relevant Sectors						Potential Partners
				Economic	Education	Government	Health	Public Safety	Residential	
High	Short	1. Conduct audit of local regulations to identify those that impede or discourage broadband deployment or expansion.	● Local ○ State ○ Region			●				Regional Planning Commissions; Municipalities
	Med-Long	2. Encourage policies that promote the installation of broadband conduit when construction occurs in roadway rights of way.	● Local ● State			●				NH Department of Transportation; Municipalities
	Med / Ongoing	3. Legal and general assistance to local governments in regards to CFAs.	● Local ○ Region ● State ● Nation		○	●				UNH Cooperative Extension; NH Municipal Association
	Med / Ongoing	4. Continuing education to municipalities in regards to current and future broadband issues.	● Local ● Region ● State ● Nation	○	○	●				UNH Cooperative Extension; NH Municipal Association
	Short / Ongoing	5. Public education in regards to broadband availability, benefits and costs.	○ Local ● Region ○ State	○	○	●			○	UNH Cooperative Extension; NH Municipal Association
	Med / Ongoing	6. Provide training and education to business owners and groups on broadband integration.	○ Local ● Region ○ State	●	○	○			○	UNH Cooperative Extension; NH Municipal Association
Medium	Med / Ongoing	7. Increase the reach and capacity if wireless mobile service.	○ Local ● Region ● State	○	○	○	○	●	○	Municipalities; Private Sector; DRED; State Legislature; Governor's Council & Office
	Med / Ongoing	8. Continue to grow and expand broadband infrastructure.	● Local ○ Region ● State ● Nation	○		●			○	Municipalities; Private Sector; State Legislature; Governor's Council & Office
	Med / Ongoing	9. Ensure a high value of level-of-service to all areas in the region.	○ Local ● Region ● State	○	○	●			○	Municipalities; DRED; FCC; State Legislature; Governor's Council & Office
	Med / Ongoing	10. Maintain existing copper wire infrastructure	○ Local ● Region ● State ○ Nation	○		●			○	Municipalities; Private Sector; State Legislature; Governor's Council & Office
Lower	Med-Long	11. Bring additional broadband providers to the region.	○ Local ● Region ○ State	○		●			○	Municipalities; DRED; State Legislature; Governor's Council & Office
	Med-Long	12. Encourage competitive pricing and service quality.	○ Local ○ Region ● State	○		●			○	Municipalities; DRED; FCC; State Legislature; Governor's Council & Office

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VII. Implementation.

A. Prioritization of Strategies.

See **Table 13**.

B. Key Participants / Partners.

Bringing broadband service to the North Country is well underway. FairPoint and other providers built out broadband infrastructure throughout the region where just a couple years ago, no broadband service existed. To continue these efforts, the state, counties, local governments, and local business stakeholders should continue to identify unserved and underserved areas. With this information, communities should reach out to providers to seek their assistance in improving the level of service in the region. If communities are unable to achieve the level of action desired from providers, they should look to other methods of developing their broadband infrastructure. Public-private initiatives, like the NH FastRoads, could provide an opportunity to develop the region's broadband resources where providers are unwilling or economically unable to build the necessary middle and last mile infrastructure. Ultimately there will be no one answer or partner to the broadband question. The North Country's broadband portfolio will need to be diverse to accommodate the different community desires and landscapes they serve.

C. Potential Funding Sources.

Federal, state and private funding may be available to a varying range of stakeholders. Of note, the 2014 federal farm bill recently authorized the USDA to provide \$50 million, from the fiscal year 2014 to 2018, to fund the Rural Gigabit Network Pilot Program. This federal program and others may be able to provide the funding to support a variety of community broadband projects in the North Country. Below, **Table 14** notes several sources and some of the requirements associated with potential broadband-related funding. For up-to-date resources, stakeholders should use the below as a starting point. Sources and funding levels change, so stakeholders should continue their search via the Internet, and by contacting the North Country Council, the New Hampshire Department of Resources and Economic Development, and their regional economic development corporation for up-to-date opportunities and guidance in applying for funding.

Table 14. Potential Funding Sources.

ORGANIZATION	GRANT/LOANS	FUNDING AVAILABLE* *as of 2013 unless otherwise noted	FREQUENCY	WHO IS ELIGIBLE	WEBSITE
Community Connects Grants USDA	(RUS) Library Development Grant	\$50,000 to \$1.5 million	Annual	Incorporated Organizations, Indian Tribes or Tribal Organizations, State or local units of government, or Cooperative, private corporations or limited liability companies, organized on a for-profit or not-for-profit basis Eligible areas include: A single community with a population less than 20,000 which does not have Broadband	http://www.rurdev.usda.gov/utp_comconnect.html
Community Development Finance Authority	The Community Development Block Grant program offers funding	\$4,000,000	On-going / Annual	Grantee: Municipal sponsors of the project. Subrecipient: An Economic Development Entity Business: the entity which will create the jobs	www.nhcdfa.org
EDA	Funding	Generally, the amount of the grant May not exceed 50% total cost of project. but a additional amount that shall not exceed 30% based on the relative needs of the region in which the project will be located.	Annual		http://www.eda.gov/InvestmentsGrants/Investments.xml
Ethyl Grant Program	grant	Grants allocated at 500-2,500 with a Potential of 5000 for a community and a \$10,000 estimated funding a year.	Biannual	OPASTCO member telephone companies that are involved with projects aimed at bettering schools and communities.	http://www.fred.org/ethyl
Farm Bill Broadband Program (USDA)	Loans	Low Cost Loans	Limited	Finance the construction, improvement, and acquisition of all facilities required to provide service at the broadband lending speed in eligible rural areas, including facilities required for providing other services over the same facilities; Finance the cost of leasing facilities. Finance the acquisition of facilities, portions of an existing system. Refinance an outstanding obligation on another telecommunications loan, Finance pre-loan expenses.	http://www.rurdev.usda.gov/utp_farmbill.html
Foundation For Rural Education and Development	Technology Grants For Rural Schools	\$1,000 to \$5,000	Annual	Schools K-12 Public	http://www.fred.org/
Lowes ToolBox For Education	Grant Program	\$5,000	Biannual	Grassroot communities and school projects in communities where Lowes does business	http://www.toolboxforeducation.com
Mascoma Savings Bank	Grants	Up to \$7,500 and rarely larger amounts	Annual	Not For Profit Organizations 501 (c)(3)	http://www.mascomabank.com/foundation
NH Business Finance Authority	Loans (LDO)	\$0 to \$1,000,000	Revolving	Any Local Development Organization including Municipalities.	www.nhbfa.com/ldo_main.html
NH Charitable Foundation	Express Grants	Up to \$5,000	Annual		http://www.nhcf.org/page.aspx?pid=606
NH Charitable Foundation	Community Impact Grants	Over \$5,000 to \$20,000 regions and 25,000 statewide	Annual		http://www.nhcf.org/page.aspx?pid=606
Northern Border Regional Commission Grant	Grant	\$30 million to be disbursed from 2008-2012		States covered for this NY-VT-NH-ME	www.nado.org
PSNH	Community Development Grants	\$150,000	Annual	Municipal, Government or Non-profit projects and organizations that have a direct positive impact on the economic development of NH communities	http://www.psnh.com/Environment/Grant-Programs.aspx
State Farm Insurance	Safety Grants		Annual	Auto and Roadway Safety; Home Safety and Fire Prevention; Disaster Preparedness; Disaster Recovery; Personal Financial Safety/Security Nonprofit, Tax-exempt 501(c)(3) Charitable Organization; Educational Institution or Government Entities Community	http://www.statefarm.com/aboutus/community/grants/grants.asp
State Farm Insurance	Community Development Grants		Annual	Affordable Housing; 1st Time Homeowners; Community Revitalization; Economic Development Nonprofit, Tax-exempt 501(c)(3) Charitable Organization; Educational Institution or Government Entities Community	http://www.statefarm.com/aboutus/community/grants/grants.asp
State Farm Insurance	Educational Grants		Annual	Three types of grants for K-12 public schools: Teacher Development, Service-Learning and Systemic Improvement. Nonprofit, tax-exempt 501(c)(3) charitable organization; educational institution or government entity	http://www.statefarm.com/aboutus/community/grants/grants.asp
State Farm Insurance	Other Small Grants		Annual	Nonprofit, Tax-exempt 501(c)(3) Charitable Organization; Educational Institution or Government Entities	http://www.statefarm.com/aboutus/community/grants/grants.asp
Telecom Infrastructure Loans	Loans	Cost-of-Money loans; Guaranteed loans; Hardship loans	Annual	Rural utilities; municipalities; commercial corporations; limited liability companies; public utility districts; Indian tribes; and cooperative, nonprofit, limited-dividend, or mutual associations.	http://www.rurdev.usda.gov/utp_infrastructure.html
Tillotson Fund	Neil and Louise Funding	Up to \$20,000 or \$20,000 to \$100,000	Annual	Programs from Colebrook, Pittsburg, Clarksville, Stewartstown, Dixville and other towns in Coo's County.	http://www.nhcf.org/page.aspx?pid=606
USDA	Rural Business Enterprise Grants (RBEG)	No maximum level of grant funding. Smaller projects are given higher priority. Generally, grants range from \$10,000 to \$500,000.	Annual	Rural public entities (towns, communities, State agencies, and authorities), Indian tribes and rural private non-profit corporations are eligible to apply for funding.	http://www.rurdev.usda.gov/rbs/buspr/rbeg.htm
USDA	Predevelopment Planning Grants (PPG)	State Directors are authorized to make PPG up to \$15,000 or 75 percent of the project costs, whichever is less.	None	The median household income of the proposed area to be served by the project must be either below the poverty line or below 80 percent of the statewide non-metropolitan median household income. Applicant must provide financial information to document that they do not have the resources to pay predevelopment expenses on their own.	http://www.rurdev.usda.gov/UWP-predevelopment.htm
USDA	Rural Business Opportunity Grants (RBOG)	The amount of funding for the program can vary from year to year. The amount available in 2010 was \$2.48 million.	Annual	Rural public bodies, rural nonprofit corporations, rural Indian tribes, and cooperatives with primarily rural members that conduct activities for the mutual benefit of the membership are eligible provided they have sufficient financial strength and expertise to carry out the activity to be funded	http://www.rurdev.usda.gov/BCP_RBOG.html
USDA	DLT Program Grants	Awards can range from \$50,000 to \$500,000.	Annual	Entities providing education and medical care via telecommunications including corporations or partnerships, Indian tribes or tribal organizations, state or local units of government, consortia, and private for-profit or not-for profit corporations. Individuals are not eligible.	http://www.rurdev.usda.gov/UTP_DLT.html
USDA	Public Television Digital Transition Grants	The amount available in 2010 was \$4.5 million. The maximum amount for grants under this program is \$750,000 per public television station per year.	Annual	Public television stations which serve rural areas. A public television station is a non-commercial educational television broadcast station that is qualified for Community Service Grants by the Corporation of Public Broadcasting under section 396(k) of the Communications Act of 1934. Individuals are not eligible for this program. Grants are not renewable.	http://www.rurdev.usda.gov/UTP_DTV.html
USDA	Rural Community Development Initiative Grants (RCDI)		As noticed in Federal Register	To develop the capacity and ability of private, nonprofit community-based housing and community development organizations, and low income rural communities to improve housing, community facilities, community and economic development projects in rural areas.	http://www.rurdev.usda.gov/HAD-RCDI_Grants.html
USDA	Community Facility Grants	The amount of grant assistance for project costs depends upon the median household income and the population in the community where the project is located and the availability of grant funds.	As noticed in Federal Register	Grant funds may be used to assist in the development of essential community facilities. Grant funds can be used to construct, enlarge, or improve community facilities for health care, public safety, and community and public services. This can include the purchase of equipment required for a facility's operation.	http://www.rurdev.usda.gov/HAD-CF_Grants.html
Verizon Foundation Funding	Funding	Grant requests of \$10,000 or more are required to include a project budget breakdown.	Proposals accepted January 1 through September 30	School; Hospital or medical research organization; Organization which operates for benefit of college or university and is owned or operated by a governmental unit; Governmental unit; Organization which receives a substantial part of its support from a governmental unit or the general public; Organization that normally receives no more than one-third of its support from gross investment income and unrelated business income and at the same time more than one-third of its support from contributions, fees, and gross receipts related to exempt purposes; Organizations operated solely for the benefit of and in conjunction with organizations described in the previous seven items; eligible tax-exempt organizations in certain 501(c)(3) subsections.	http://foundation.verizon.com/grant/guidelines.shtml

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VIII. Conclusion.

For this Report to be effective, it must be integrated into the North Country's regional planning, vision and implementation of public and private resources.

We must start at the local level, with initiatives to put broadband access in municipal master plans, infrastructure plans and establish local broadband funds. Taxes need not be the first and last option to fund these initiatives. Assistance with planning and development should be taken on by North Country Council and other economic development organizations. By looking for, and accessing funding these economic development organizations will assist municipalities with their broadband goals. In the search for funding, public-private partnerships should not be overlooked. The efficiency and industry know-how of the private sector can improve the success of certain types of projects. It is of note some New Hampshire municipalities have even used cable franchise agreements monies for broadband improvements.

Second, efforts should be made to work with state and federal officials to coordinate and fund education initiatives for the public in regards to what broadband is, how it can help and why it is important. Only by educating the public on how and why they should embrace it, will it become a mainstay and highly desired resource. Relatedly, the full spectrum of educational institutions in the North Country, K-12 and higher, should have and encourage students to take educational programs intimately tied to broadband: computer programming, journalism/social networking, website development, digital media design and others. By involving the region's youth you develop a culture of broadband that is highly aware of its power and value. In addition, through this cultural shift, over time you create an environment ripe for the private development of higher quality broadband services.

With a youth cultured and educated as to the economic and social values of broadband, it will create an environment ripe for economic development. Education leads to innovation. Innovation leads to economic growth. Things take time to develop. That is why it is of the utmost importance the North Country take the steps necessary to prepare for the future now.

When folks think of the North Country, they think of welcoming, self-determined people, trees, mountains, rivers and historic towns. The North Country will continue to embody those ideals and physical beauty. Broadband does little to change the physical landscape. Although it has been called the "information super highway," there isn't a massive asphalt and concrete structure plowing through pristine lands carrying a mass of traffic and pollution. But perhaps most importantly, broadband embodies the value of self-determination. A value strongly held by those in the North Country. Broadband provides immense economic, educational, safety, cultural and creative possibilities. Communities in the region must decide what infrastructure development will be necessary to keep them up-to-date from now and into the future. For some communities it may mean the maintenance and further improvement of DSL and cable infrastructure, and for others, it may be the development of fiber-to-the-premises (FTTP).

Looking ahead, it will take the strong will, creativity and self-determination of the North Country to continue to develop and maintain the broadband infrastructure of the region. Broadband can improve the local economy by attracting new industry, bettering education and the health, and helping the North Country keep up with what is becoming the global standard for doing business. With smart and thoughtful planning and development, the North Country can use broadband to improve the availability of jobs, better serve an aging population through improved medical care, and encourage young people to stay. It all



comes down to developing a climate for innovation, creativity and economic growth, and the will to follow through. As Matthew Tarleton and Evan Robertson say in their article, *Quality of Place and Its Role in Location Decisions*, “Though provision of necessary and sufficient infrastructure is unquestionably important, place is more important than highways, telecommunications capacity, and land. It transcends a pleasant climate, low crime rates, and quality of public schools. Place is the physical and social fabric that binds residents together—it is the focal point of community.”⁵⁸

The North Country has the physical and social values that people yearn for—the binding glue of a community—development of its broadband infrastructure will improve the region’s ability to develop and compete in today’s economy.

The North Country is and always will be a strong, independent and beautiful place. Let the region take advantage of those strengths to improve the broadband infrastructure and ensure the region’s success now and into the future.

Citations

58. Tarleton, Matthew & Evan Robertson, *Area Development: Site and Facility Planning, Quality of Place and Its Role in Location Decisions*, (Q1 2014), p.23.



IX. Appendices.

A. Glossary of Terms.*

*Content was provided by UNH through the NH Broadband Mapping & Planning Program (February 2013).

What are the Acronyms and Terminology?

(Source: State of New Hampshire Broadband Action Plan, June 30, 2008, Appendix A - Glossary of Terms <http://www.nheconomy.com/uploads/Broadband-Action-Plan-Appendices.pdf>)

Backbone or Transport Layer

A backbone network or network backbone is a part of computer network infrastructure that interconnects various pieces of network, providing a path for the exchange of information between different LANs or subnetworks. A backbone can tie together diverse networks in the same building, in different buildings in a campus environment, or over wide areas. Normally, the backbone's capacity is greater than the networks connected to it.

A large corporation that has many locations may have a backbone network that ties all of the locations together, for example, if a server cluster needs to be accessed by different departments of a company that are located at different geographical locations. The pieces of the network connections (for example: ethernet, wireless) that bring these departments together is often mentioned as network backbone. Network congestion is often taken into consideration while designing backbones.

Backbone networks should not be confused with the Internet backbone. (source: http://en.wikipedia.org/wiki/Backbone_network)

The Internet backbone refers to the principal data routes between large, strategically interconnected networks and core routers in the Internet. These data routes are hosted by commercial, government, academic and other high-capacity network centers, the Internet exchange points and network access points that interchange Internet traffic between the countries, continents and across the oceans of the world. Internet service providers (often Tier 1 networks) participate in Internet backbone exchange traffic by privately negotiated interconnection agreements, primarily governed by the principle of settlement-free peering. (source: http://en.wikipedia.org/wiki/Internet_backbone)

Bandwidth

The transmission capacity of an electronic pathway such as a communications line, computer bus or computer channel. In a digital line, it is measured in bits per second or bytes per second (see Mb/sec). In an analog channel or in a digital channel that is wrapped in a carrier frequency, bandwidth is the difference between the highest and lowest frequencies and is measured in Hertz (kHz, MHz, GHz).

Broadband



(1) High-speed transmission. The term commonly refers to Internet access via cable and DSL, which is as much as 400 times faster than analog dial-up. The term has always referred to a higher-speed connection, but the speed threshold varies with the times. Widely employed in companies, the 1.5 Mbps T1 line was often considered the starting point for broadband speeds, while the FCC defines broadband as a minimum upload speed of 200 Kbps.

The T1 line is no longer the coveted connection for Web surfing. Home users with cable modems experience download speeds up to four times that of T1 and more (see cable modem). For example, in 2007, Comcast offered home users a premium service of 1 Mbps upload and 16 Mbps download. Fiber-based offerings from telephone companies are even greater.

After the turn of the century, South Korea leapfrogged the U.S. in Internet access, offering DSL up to 50 Mbps and calling their 1.5 Mbps service "light." See broadband router, wireless broadband, T1, cable modem and DSL.

(2) Transmitting data by modulating a carrier wave in order to differentiate it from other signals in the air or in a single line. For example, frequency division multiplexing (FDM) is used to carry hundreds of channels of analog and digital TV in a single coaxial cable. In this context, broadband is used in contrast with "baseband," which is data that has not been modulated or multiplexed (see baseband and TDM). In most cases, the term "broadband" is used for high-speed transmission as in definition #1 above.

Cable modem

A modem used to connect a computer to a cable TV service that provides Internet access. Cable modems can dramatically increase the bandwidth between the user's computer and the Internet service provider. Download speeds have reached 6 Mbps and beyond, but the connection is asynchronous. In order to prevent users with lower-cost cable access from hosting high-traffic Web servers, the upload speed is considerably slower, from 10 to 20 times slower. Cable operators also routinely change IP addresses assigned to users to prevent Web hosting (see DDNS).

DSL

(Digital Subscriber Line) A technology that dramatically increases the digital capacity of ordinary telephone lines (the local loops) into the home or office. DSL speeds are based on the distance between the customer and Telco central office. There are two main categories. Asymmetric DSL (ADSL) is for Internet access, where fast downstream is required, but slow upstream is acceptable. Symmetric DSL (SDSL, HDSL, etc.) is designed for connections that require high speed in both directions.

Fiber-optic

Refers to systems that use optical fibers. Fiber-optic communications networks have transformed the world. Barely starting in the late 1960s but gaining serious momentum in the 1980s, the phone companies began to replace their copper long distance trunks with fiber cable. Eventually, all transmission systems and networks are expected to become fiber based, even to the home. In time, the electronic circuits in computers may be partially or fully replaced with circuits of light, in which case fiber pathways would be used throughout the system.

Fixed Wireless

Refers to point-to-point transmission through the air between stationary devices. Fixed wireless is typically used for "last mile" connectivity to buildings.



Kbps

One thousand bits per second. Kbps is used as a rating of relatively slow transmission speed compared to the common Mbps or Gbps ratings.

Last Mile

The connection between the customer and the telephone company, cable company or ISP. The last mile has traditionally used copper-based telephone wire or coaxial cable, but wireless technologies offer alternative options in some locations. Also called "first mile."

Mbps

Mbps means megabits per second and is used for transmission speeds in a network or in internal circuits.

Middle Mile (source: http://en.wikipedia.org/wiki/Middle_mile)

In the broadband Internet industry, the "middle mile" is the segment of a telecommunications network linking a network operator's core network to the local network plant, typically situated in the incumbent telco's central office, (British English: telephone exchange) that provides access to the local loop, or in the case of cable television operators, the local cable modem termination system. This includes both the backhaul network to the nearest aggregation point, and any other parts of the network needed to connect the aggregation point to the nearest point of presence on the operator's core network.

Middle-mile provision is a major issue in reducing the price of broadband Internet provision by non-incumbent operators. Internet bandwidth is relatively inexpensive to purchase in bulk at the major Internet peering points, and access to end-customer ports in the incumbent operator's local distribution plant (typically where local loop unbundling is mandated by a telecom regulator are also relatively inexpensive relative to typical broadband subscription costs.

However, middle-mile access, where bought from the incumbent operator, is often much more expensive than either, and typically forms the major expensive of non-incumbent broadband ISPs. The alternative, building out their own fibre networks, is capital-intensive, and thus unavailable to most new operators. For this reason, many proposals for government broadband stimulus initiatives are directed at building out the middle mile. Two examples are the Network New Hampshire Now and Maine Fiber Company in the Northeast US, both funded largely by the National Broadband Plan (United States) to connect all community anchor institutions.

Open access initiatives such as duct sharing, utility pole sharing, and fiber unbundling are also being tried by regulators as mechanisms to ease the middle mile problem by reducing costs to non-incumbents. This sometimes leads to controversies, such as the NRECA opposition to pole attachment tariff changes [1] motivated by the US plan.

Mobile Wireless

Refers to transmission through the air from a base station to a moving device such as a cell phone.

Cellular vs. Wi-Fi

Cellular carriers offer optional, digital data services for Web browsing, e-mail and other text and data applications. The data service is separate from the carrier's voice plans, often costing considerably more than a basic voice subscription. The cell phones must support the data service,



which is also available for laptops and other portable devices with the installation of the appropriate modem.

Wi-Fi networks are available to the public in many cities and municipal areas. Individual venues such as airports and coffee shops also provide service (see hotspot). Typically fee based by the hour or day, some municipalities provide free service (see Muni Wi-Fi).

Location is the key issue in real estate and also the primary concern with wireless systems. For travelers who need ubiquitous connectivity, there are many gaps (white spaces) in Wi-Fi coverage. Although cellular data rates (EDGE, EV-DO, HSPA, etc.) are typically slower than Wi-Fi, cellular carriers offer the most inclusive coverage when traveling, very often equivalent to using a cell phone for voice.

Satellite Broadband (source: <http://www.fcc.gov/guides/getting-broadband>)

Just as satellites orbiting the earth provide necessary links for telephone and television service, they can also provide links for broadband services. Satellite broadband is another form of wireless broadband and is particularly useful for serving remote or sparsely populated areas.

Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Satellite service can be disrupted in extreme weather conditions. Typically a consumer can expect to receive (download) at a speed of about 1 Mbps and send (upload) at a speed of about 200 kbps. These speeds may be slower than DSL and cable modem, but the download speed is still much faster than the download speed with dial-up Internet access. New facilities, scheduled for deployment in 2012, are expected to support consumer broadband services for several million customers at speeds up to 12 Mbps for downloads and 3 Mbps for uploads.

Obtaining satellite broadband can be more costly or more involved than obtaining DSL or cable modem. A user must have:

- a two or three foot dish or base station - the most costly item;
- a satellite Internet modem; and
- a clear line of sight to the provider's satellite.

To find out if satellite broadband is available to your home, contact broadband satellite companies or your state's public service commission.

Exede Exceeds Expectations

To some fanfare at the Consumer Electronics Show in January 2012, ViaSat, which bought satellite broadband provider WildBlue in 2009, unveiled its new service, Exede. With \$400 million in a new satellite, plus ground stations and terrestrial fiber networks, the company [wants to change the image](#), and the expectations associated with, satellite broadband. Not to be outdone, HughesNet Gen4 has also upped its increased speeds to 15 Mbps. While it remains to be seen whether rural America will adopt, the new satellite services provide new options for areas without access to fiber, cable or wireless broadband services. [source: <http://broadbandbreakfast.com/2012/12/the-year-in-broadband-2012-the-top-10-events/>]



DOCSIS 3.0

Early in the year, cable giant Comcast announced that it had [completed its DOCSIS 3.0 expansion](#) for its entire footprint in the United States. DOCSIS 3.0 is the name for the next version of cable modem technology. The move brings the possibility of promised speeds of 100 megabits per second to all of Comcast's 52 million household subscribers, although consumers need to subscribe to them. Additionally, consumers need DOCSIS 3.0 hardware in order to take the service, and [somewhere between 43 percent and 77 percent](#) of the nation's cable subscribers had that upgrade. The cable industry's push for DOCSIS 3.0 stands in contrast with Verizon's decision to stop the expansion of its Fiber Optic Service and AT&T's November 7, 2012, announcement that it will begin to [favor investments in wireless technology over uVerse investments](#). Traditional telephone giants may be leaving the wireline field to their former cable competitors. [source: <http://broadbandbreakfast.com/2012/12/the-year-in-broadband-2012-the-top-10-events/>]

How is Broadband Delivered?

"Let's take a step back and look at the basic contours of the landline U.S. telecom and cable market. In general, there are three types of wired networks that serve America's phone, cable, and Internet consumers. Copper wire (traditional phone lines, DSL, slow speeds); cable (faster speeds, mostly for downloading); and fiber (potentially unlimited speeds, data is transmitted through pulses of light). In over 75% of the country, the only broadband choice for Americans will soon be cable, according to Crawford. Consumers are fleeing their relatively slow DSL service so rapidly that 94% of new broadband subscriptions in the third-quarter of 2012 went to faster cable service." [source: <http://business.time.com/2013/01/09/is-broadband-internet-access-a-public-utility/>]

(For an alternative to the descriptions from [Connecting Communities](#) below, see [Getting Broadband](#) on the FCC web site)

There are many different types of broadband delivery technologies. Each of them delivers similar services to consumers and businesses. The broadband technologies can be separated into two categories.

- Wired broadband is delivered through some type of wire to the home or office; and
- Wireless broadband uses radio waves to deliver the service

Wired

- **Digital Subscriber Lines (DSL)**
Major providers include Verizon, SBC, Bellsouth, Qwest.
 - Uses plain old phone lines (POTS)
 - Voice and data over the same line
 - Speed 1.5-8 Mbps (mega bits per second) and provides adequate speeds for residents and most small businesses
 - Requires location near central phone office or switch (18,000 feet) - service is often unavailable in rural areas
 - Phone lines are everywhere but not all of them are able to support DSL
 - Direct one-on-one connection; bandwidth is not shared with neighbors
 - The process of installing DSL takes longer and is potentially rockier than the process of installing cable modem access
 - DSL offers options and features that are useful for businesses
- **Cable Modem**
Major providers include AT&T, Comcast, Cox, Time Warner. ISP's that use the pipes of the major cable companies also offer services - e.g. AOL, MSN.



- Faster than DSL
 - Uses the same cable television lines that deliver pictures and sound to your TV set
 - Shared connection - speeds can slow down when many people in the same neighborhood are online
 - Easy to install - Since it's a relatively mature technology, installing the service doesn't typically require a long wait and the installation process is smooth and simple
 - It's easy to determine whether the service is available in your area
 - Coverage areas are mostly residential, so businesses often can't get the service
- **Leased Lines (T1)**

A 1.544 Mbps point-to-point dedicated, digital circuit provided by the telephone companies. The monthly cost is typically based on distance. T1 lines are widely used for private networks as well as interconnections between an organization's PBX or LAN and the Telco. The first T1 line was tariffed by AT&T in January 1983. However, starting in the early 1960s, T1 was deployed in intercity trunks by AT&T to improve signal quality and make more efficient use of the network. (source: State of New Hampshire Broadband Action Plan, June 30, 2008, Appendix A - Glossary of Terms <http://www.nheconomy.com/uploads/Broadband-Action-Plan-Appendices.pdf>)
- **Fiber Optic Cable**

Fiber cable can deliver extremely high bandwidths. Several phone companies are building fiber to the home networks in densely populated communities where they can justify the high cost of building out the network. Some rural communities including Saint Peter, MN and Columbus, KS are served by fiber to the home. Rural Pickens County, GA worked with a local cable company to build a fiber ring to serve the schools and industrial parks in the county.

 - Delivered over fiber optic cables
 - Very high bandwidth
 - High cost to build fiber network
 - Low maintenance
- **Broadband Over Powerline (BPL)**

BPL delivers broadband over the power lines. It is being piloted in several communities. Financial analysis of these pilots indicate each transformer needs to serve 4-6 homes to deliver the service at prices comparable to DSL or Cable. Manassas Virginia is the first City in the nation to offer broadband internet service through the power lines (BPL). Users will be able to access the internet by plugging a modem into any electrical outlet in the City, whether it is from room to room or in an office across town. Business owners will enjoy the ease, flexibility, and portability that internet delivery through the power lines offers. It costs approximately \$29 per month for residential use. The provider (COMTek) expects to announce that it has reached the 1000th customer milestone in Manassas during the summer of 2006.

 - Delivered through power lines
 - Almost all homes and businesses are connected to the power grid
 - Still in early stages of development
 - Potential interference with radio signals
 - Speeds similar to DSL and cable

Wireless

- **Satellite**
 - Available most places, including hard-to-reach rural areas



- Satellite service is available everywhere in the U.S. It's especially popular with people who want high-speed service but can't get DSL or cable modem access in their areas
- Slower than cable or DSL. WildBlue download speeds up to 1.5 Mbps and upload speeds up to 256 Kbps.
- Trees and heavy rain affects signal
- Need unobstructed view of southern sky
- Professional installation is required by the FCC
- Though it's still considered high-speed service, satellite speeds are slower than cable or DSL, and users sometimes experience downtime

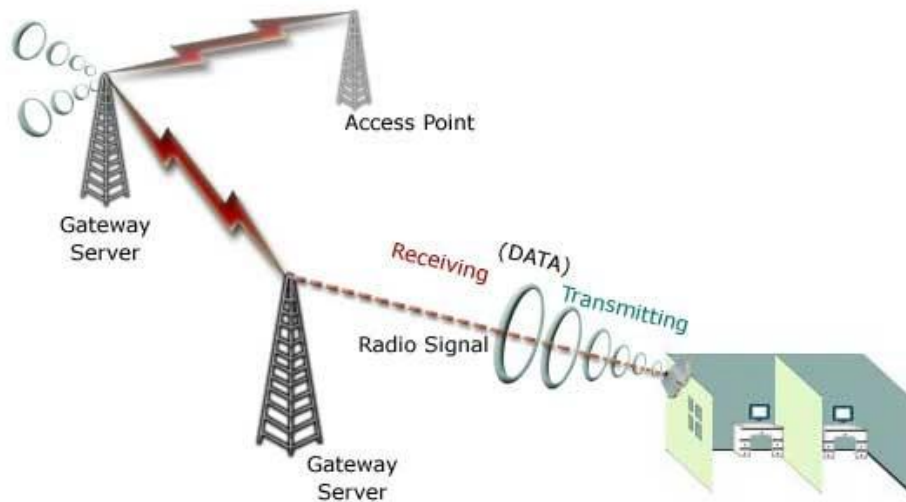
- **Fixed Wireless Networks**

Fixed wireless networks serve many rural communities where phone or cable companies aren't delivering broadband. Wireless networks can be installed quickly and are relatively inexpensive to deploy. Some local governments are installing wireless, but more commonly a private WISP (Wireless Internet Service Provider) delivers the service. Wireless broadband delivered to a home or business location is called fixed wireless. Mobile wireless service is becoming common. Wireless can deliver broadband at speeds equivalent to DSL and cable at comparable or a little higher cost. It can also be configured to deliver higher speeds required by some businesses. There are many different types of wireless networks.

- **Point-to-Point Fixed Wireless**

Uses part of the radio spectrum to send and receive signals. Typically made up of on-the-ground antenna-to-antenna systems.

- Requires indoor or outdoor antenna on the home
- Coverage is about 5 miles from the transmitter or access point
- High bandwidth
- Usually licensed
- Backbone or transport layer
- Line of site

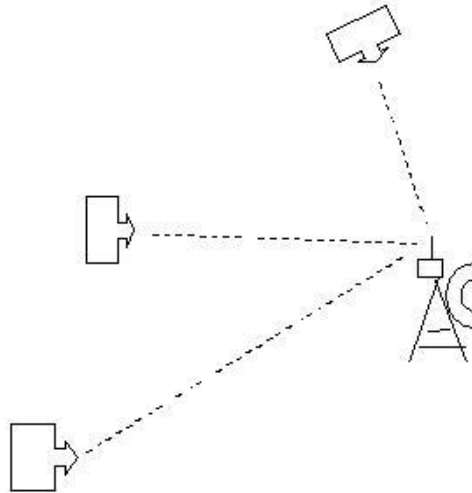


- **Point-to-Multipoint Fixed Wireless**

Point to multi-point refers to the portion of a wireless network that delivers the service to a user. A radio in the network transmits and receives signals from an antenna (CPU - Customer Premise Unit) at the home or business. Although the signal can be delivered over long distances from the tower, the CPU needs to have a clear line of sight to the tower. The line of sight

requirements causes problems in hilly terrain and tree leaves interfere with the signal.

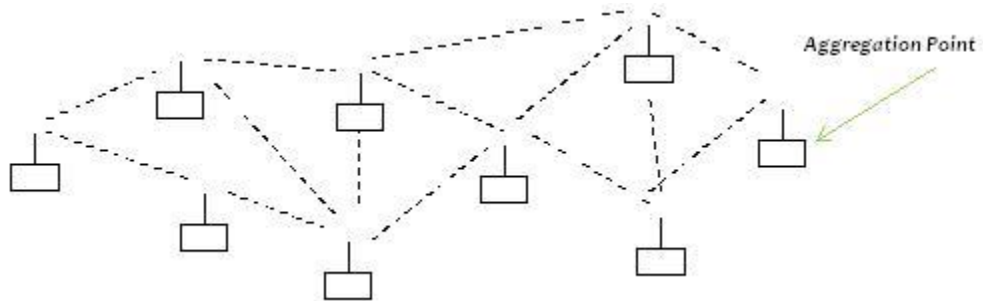
- Broadband delivery to premise
- Consumer or business grade
- One antenna to many sites
- Line-of-sight
- Large coverage area
- Licensed or unlicensed



○ **Mesh Fixed Wireless**

Mesh networks are another type of broadband network that work well in downtowns. The nodes provide service over a 200-300 foot radius. Each node transmits to other nodes in the network moving the data to and from the end user.

- Nodes (radios)
 - Connect to user
 - Transmit to aggregation point
- Typically unlicensed
- Favor urban areas or hot zones



• **Wi-Fi (Wireless Fidelity) ("Hot Zones", "Hot Spots")**

Example: Antenna on a grain elevator sends a signal to local café (access point). Users within 300 feet of the café can pick up the signal. What do you need to connect to a public WiFi hot spot? A laptop and a WiFi card (PCMCIA Wireless Network Card). A WiFi card costs about \$50.

- Wi-Fi access points found at cafés, homes, campuses, businesses
- Access is limited to 50-300 feet
- Coverage limited by location and number of transmitters
- Relatively cheap for providers to set-up
- End-user equipment cheap and easy to install

- **WiMAX**
 - Wi-Fi on steroids
 - Can cover a large area 30 miles
 - Still in early stages of development
 - Can support ultra-broadband, a large pipe with lots of bandwidth and speed - just what you would need to run your own real-time online video channel.

- **Mobile Wireless Service (Cell, G3,G4)**

[Third generation \(3G\) and fourth generation \(4G\)](#) mobile wireless technologies allow consumers to access a variety of different mobile services and functionalities, such as web browsing, e-mail, access to application ("app") stores, video conference or chat, mapping and navigation systems, mobile commerce, and the downloading of content. A range of different mobile devices include built-in 3G or 4G wireless connectivity, including smartphones, tablets, e-readers, and netbook and laptop computers. Several mobile network technologies are generally considered to be 3G or 4G, including EV-DO, WCDMA, HSPA, HSPA+, LTE, and mobile WiMAX. (source: <http://www.fcc.gov/topic/3g-4g-wireless>)

- **WISP**

A wireless Internet service provider (WISP) is an Internet service provider with a network based on wireless networking. Technology may include commonplace Wi-Fi wireless mesh networking, or proprietary equipment designed to operate over open 900 MHz, 2.4 GHz, 4.9, 5.2, 5.4, 5.7, and 5.8 GHz bands or licensed frequencies in the UHF band (including the MMDS frequency band). (source: [http://en.wikipedia.org/wiki/Wireless Internet Service Provider](http://en.wikipedia.org/wiki/Wireless_Internet_Service_Provider))



B. New Hampshire Broadband Mapping Protocol.*

New Hampshire Broadband Mapping Protocol

*Content was provided by UNH through the NH Broadband Mapping & Planning Program (September 2013).

Introduction

The New Hampshire Broadband Mapping & Planning Program (NHBMPP) is funded through the Department of Commerce’s National Telecommunications and Information Administration (NTIA) State Broadband Initiative (SBI), formerly known as the State Broadband Data Development (SBDD) program. In 2010, grants were issued to each of the 50 states, 5 territories and the District of Columbia to compile and maintain a mapped inventory of broadband availability at the state level. The state data sets are regularly submitted to the NTIA for incorporation in the national broadband map, thereby contributing to national, regional, and state efforts to understand the current broadband landscape and to plan for future broadband expansion, access, and adoption.

Broadband Availability

The NHBMPP began mapping statewide broadband availability in January of 2010, with data collection and processing scheduled at 6-month intervals throughout the project end date of December 2014. All map data development is governed by NTIA guidelines and standards, which are enforced to accommodate the merging and analysis of data from NH with comparable data sets from the other 55 grantees.

The first NHBMPP mapping task was to generate a listing of the active internet service providers (ISPs) in the state. An initial list of approximately 70 ISPs was compiled from existing plans and documents as well as local knowledge. The list is continually reviewed and updated as required, and currently includes over 60 known active providers.

At the start of each biannual map update, NHBMPP staff contacts each active ISP and requests broadband service coverage information. The data requested by the NHBMPP comprises the footprint of the provider coverage area(s), the technology delivering service to that footprint, and the advertised download and upload data transmission speeds for the footprint. Per NTIA guidelines, the footprint represents both areas that are currently served and areas that could be served within 10 business days.

NHBMPP focuses on building strong relationships with providers, and actively encourages the provision of data by accommodating data submissions in a variety of forms, and by providing technical support to facilitate submission when requested. The coverage data received by the NHBMPP arrives in formats ranging from detailed maps with speed information to customer addresses to highlighted paper maps to full digital databases that align with the national broadband map format.

The ISP data submissions are processed by the NHBMPP, standardized to conform to NTIA programmatic requirements, verified with the providers, and submitted to NTIA during the spring and fall of each year. Key details of the data processing and standardization include:



- Wireline broadband technology (cable, DSL, T-1, fiber) data are processed into the NTIA standardized format of US Census blocks for areas where the blocks are less than two square miles, and US Census road centerlines for rural areas where the census blocks are greater than two square miles. (The US Census data are derived from the 2010 TIGER files.) If a provider indicates that an address within a Census block or along a road segment is served, the entire block or road is considered served. This may result in an overstatement of coverage footprints in some areas of the state.
- Coverage footprints may also appear to be overstated due to the fact that some providers are submitting data on residential and business class services combined, without differentiating between the two classes. This means that the speed associated with a given census block may reflect the high-speed services delivered to businesses within that block rather than typical speeds available to residential customers. This is more likely to result in an overstatement of speed tiers achievable than it is an overstatement of the coverage footprint itself.
- Wireless broadband technology (cellular, fixed-wireless, satellite) data are processed to represent the actual region that the signal covers. For cellular and satellite providers, the provider submission to NHBMPP is typically the coverage footprint. For fixed wireless, the submission typically comprises the tower location and height, and associated antenna details (make, model, power, signal direction, and span). The NHBMPP then utilizes specialized software (Cellular Expert) to process these inputs and to generate a signal propagation model describing the coverage area.
- Providers are submitting maximum advertised download and upload streams to the NHBMPP, as per NTIA guidance. The NHBMPP recognizes that these may be higher than actual speeds experienced by consumers. However, the NHBMPP verification efforts detailed below, and specifically the collection of speed test records, helps to mitigate this issue.
- The NHBMPP invites participation from all providers. However, not all ISPs have opted to submit data in each data collection cycle. This may result in an understatement of coverage footprints for some areas and some technologies.

While the NHBMPP is required to process the coverage information in the aggregated format, each state does have the opportunity to advance and enhance the level of mapping locally. The NHBMPP collects a suite of complementary data in order to verify the service information supplied by the ISPs. These include user speed tests submitted to the project website (iwantbroadbandnh.org), broadband use and availability surveys also submitted to the project web site and/or collected at project meetings, and direct email feedback. The program has also conducted a number of technology-focused verification inventories, including the following:

- Statewide drive test to collect cellular service data. In the summer of 2012, every US interstate and state route in New Hampshire was driven and each of the 5 cellular provider networks was tested for a data signal using signal propagation software on a provider cell phone.
- Town verification maps to provide feedback on the wireline technologies service areas (DSL and cable). In the summer/fall of 2013, paper maps were provided to each of the 234 cities/towns in the state, requesting that community members with knowledge of the broadband landscape review and submit corrections to the NHBMPP, as appropriate.



Where any of these verification methods indicates that service may not be available in an area reported as served, that area is marked for additional inquiry. Direct contact with the appropriate provider is made to confirm that the mapped data are correct based on project standards. If the finding is that the block is appropriately mapped but there are interior service gaps, the census block (or road segment) is flagged as being partially served. In some cases, broadband service to NH residents was offered or improved based on these reports and direct provider feedback.

Community Anchor Institutions

Broadband connectivity information for New Hampshire's 4,000+ Community Anchor Institutions (CAIs), including schools, libraries, municipalities, hospitals, and public safety entities, is collected on the same biannual schedule as the broadband coverage data. At the project outset, the nine regional planning commissions (RPCs) compiled listings of each CAI in their jurisdiction, mapped their location, and conducted phone and email surveys with each institution. Since that time, the broadband connectivity information collected has been updated and maintained every 6 months through utilization of a web based reporting tool, as well as direct contact by the RPCs to the CAIs. As recently reported by NTIA, these data have been used by policymakers, researchers and other stakeholders, as well as the Network NH Now broadband expansion project, in planning for broadband expansion in NH and nationally.

Data Management

All of the data collected as part of the inventory and verification process are managed in a geographic information system (GIS), which allows for extensive data analysis and reporting. These data are analyzed in concert with other spatial data available in the GRANIT database in order to identify areas of the state that are served, unserved, and underserved. Due to the ever-changing speed requirements of online applications, areas of New Hampshire that are designated as underserved are subject to ongoing review.

The data collected by the NHBMPP and its partners are available in multiple venues. Key data sets of broad interest may be downloaded through the GRANIT web site (www.granit.unh.edu). Other data may be requested directly from the NHBMPP (contact@iwantbroadbandnh.org). In addition, the basic broadband availability data and the CAI inventory are available for online viewing through an interactive map hosted on the NHBMPP website (www.iwantbroadbandnh.org).

Through direct provider contact as well as community engagement and feedback, the NHBMPP has been able to generate the most accurate and comprehensive broadband inventory available to date. Additionally, this engagement has increased the dialogue between stakeholders on resolving issues around broadband availability, accessibility and adoption.

However, the NHBMPP recognizes that in some cases, broadband access and adoption is more a matter of affordability than one of availability. While pricing information is not currently being inventoried, steps have been taken to collect these data and efforts will continue in the future.

In addition to the coverage data currently being collected, rural address points are also being inventoried across the state, and will be publically available to support more granular level

mapping in the future. These data may be used to inventory specific addresses for their broadband availability in order to pinpoint those areas of the state with no service or when service is limited. Collecting the speed tests at the address level will yield a higher resolution of mapping in order to identify the gaps in service in the census block.

The Future of Mapping Broadband in NH

At the conclusion of the NTIA-funded program in 2014, responsibility for national broadband availability mapping will transfer to the Federal Communications Commission (FCC). Currently, there is a federal requirement for providers to submit to the FCC their service information at the US Census tract level. Starting in 2015, the FCC requirement will change to reflect the US Census block level geography that has been used by the NHBMPP and its counterparts around the country.

The NHBMPP hopes to secure funding and resources to continue this important broadband inventorying effort. One key data stream that we hope to continue is the collection of speed test data, as this represents actual speeds experienced by users around the state. These data may then be able to enhance the census block information collected by the FCC in order to indicate the areas in which actual transmission speeds experienced by users are lower than those reported by providers.



C. Additional Mapping Results.*

*Content was provided by UNH through the NH Broadband Mapping & Planning Program. The following maps and statistics are provided to give additional insight into broadband availability in the region.

Appendix C Contents:

- 1) NHBMPP Broadband Summary Statistics for North Country Council (September 2013);
- 2) Satellite Broadband Service Map (September 2013);
- 3) Level of Service for Broadband Intensive Applications and Uses Map (September 2013);
- 4) Broadband Availability for Uses that Require Moderate Speed Map (September 2013);
- 5) Broadband Availability of Uses that Require High Speed Map (September 2013); and
- 6) Wireline Verses Wireless Terrestrial Service Availability Map (September 2013).



Broadband summary statistics for the North Country Council

Broadband service summary:

	Population		Housing Units		Area (sq miles)	
	Count	%	Count	%	Count	%
Broadband Service	90,583	99.7%	61,295	98.9%	3,140.8	91.9%
No Broadband Service	230	0.3%	712	1.1%	275.9	8.1%
Total	90,813	--	62,007	--	3,416.7	--

Broadband service detail:

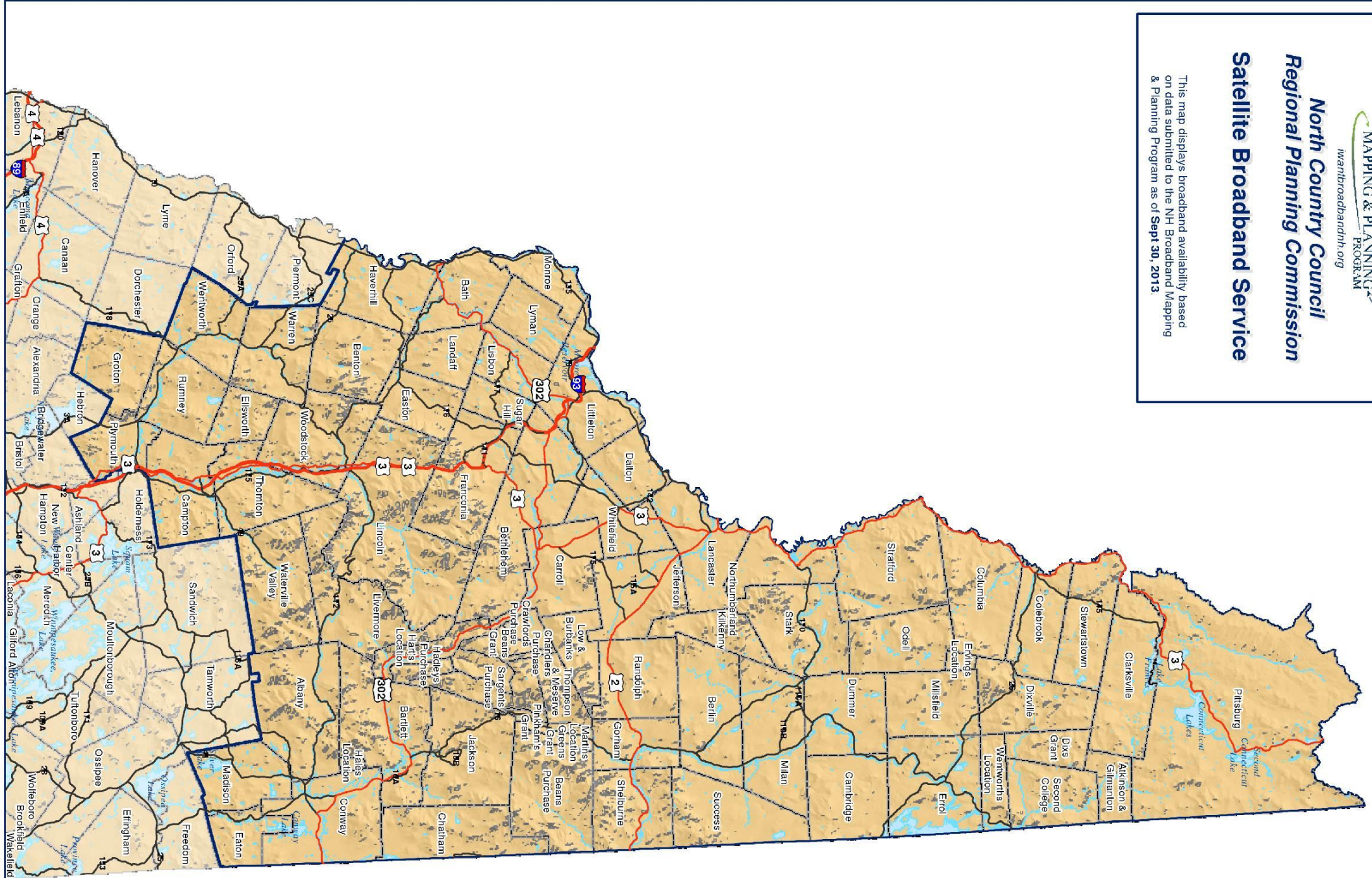
Technology	Population		Housing Units		Area (sq miles)	
	Count	%	Count	%	Count	%
Cable	79,226	87.2%	51,596	83.2%	1,678.6	49.1%
DSL	87,962	96.9%	58,715	94.7%	2,020.8	59.1%
Fiber	0	0.0%	0	0.0%	0.0	0.0%
Fixed Wireless	11,108	12.2%	7,048	11.4%	569.2	16.7%
Mobile Wireless	86,137	94.9%	57,171	92.2%	3,007.1	88.0%
Other Copper	0	0.0%	0	0.0%	0.0	0.0%





North Country Council
Regional Planning Commission
Satellite Broadband Service

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



Satellite Broadband Availability

- Service Available
- Service Not Available

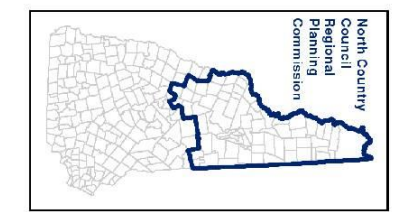
Map Notes:

The federal guidelines for this project define broadband as access that is at least 768 kbps downstream and 200 kbps upstream.

Service providers submitted data to the NH Broadband Mapping & Planning Program (NHBBMP) in a range of geographies: including addresses, road segments, census blocks, census tracts, etc. For mapping purposes all data are aggregated and displayed at the census block level. A census block is mapped as 'service' if service is believed to any part of the block.

Note that satellite internet is excluded from this analysis and display.

The GRANIT System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.





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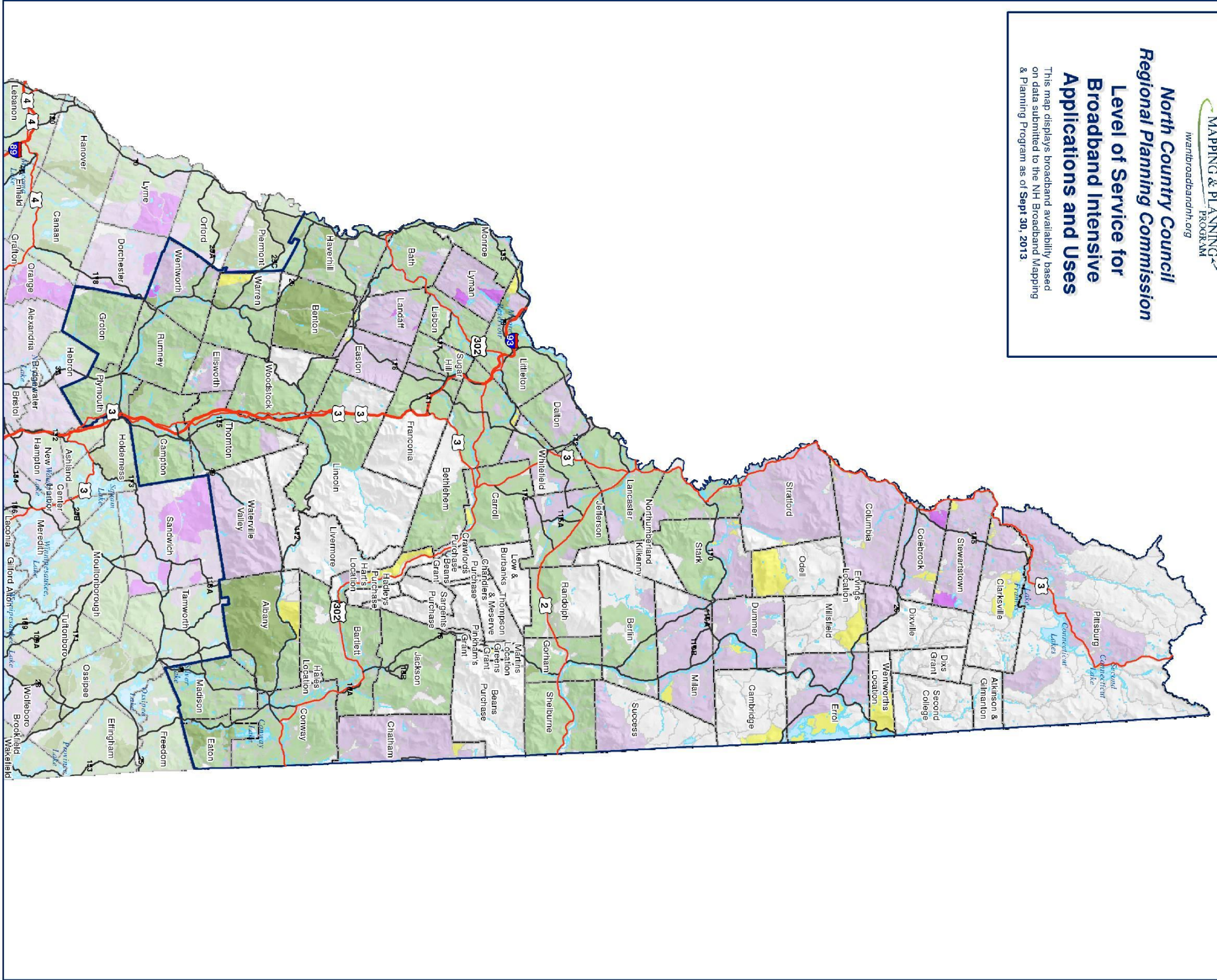
The New Hampshire Broadband Mapping and Planning Program is funded under grant #33.60.A0004 from the US Dept. of Commerce to the University of New Hampshire.
 Map Date: March 2014

NEW HAMPSHIRE
broaband
 MAPPING & PLANNING PROGRAM
 www.broadbandnh.org

North Country Council
 Regional Planning Commission

**Level of Service for
 Broadband Intensive
 Applications and Uses**

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



Availability Based On Provider Advertised Speeds

- Served
- Served With Reported Gaps
- Underserved With Reported Gaps
- Underserved
- Unpopulated Areas

The federal guidelines for this project define broadband as access that is at least 768 Kbps downstream and 200 kbps upstream. The NH&MPP has adopted a higher threshold for minimum broadband transmission speeds as described below.

SERVED:
 Maximum Advertised Download Speed: 3+ Mbps
 Maximum Advertised Upload Speed: 1.5+ Mbps

UNDERSERVED:
 Maximum Advertised Download Speed: 768 Kbps - 3 Mbps
 Maximum Advertised Upload Speed: 200 Kbps - 1.5+ Mbps

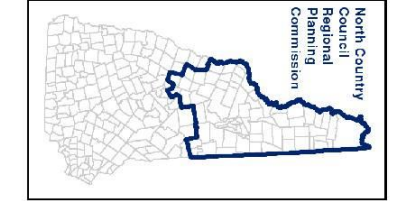
UNSERVED:
 Maximum Advertised Download Speed: < 768 Kbps
 Maximum Advertised Upload Speed: < 200 Kbps

Map Notes:
 The federal guidelines for this project define broadband as access that is at least 768 kbps downstream and 200 kbps upstream.

Service providers submitted data to the NH Broadband Mapping & Planning Program (NH&MPP) in a range of geographies including addresses, road segments, census blocks, census tracts, etc. For mapping purposes, all data are aggregated and displayed at the census block level. A census block is mapped as "served" if service is delivered to any part of the block.

Note that satellite internet is excluded from this analysis and display.

The GRANIT System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.



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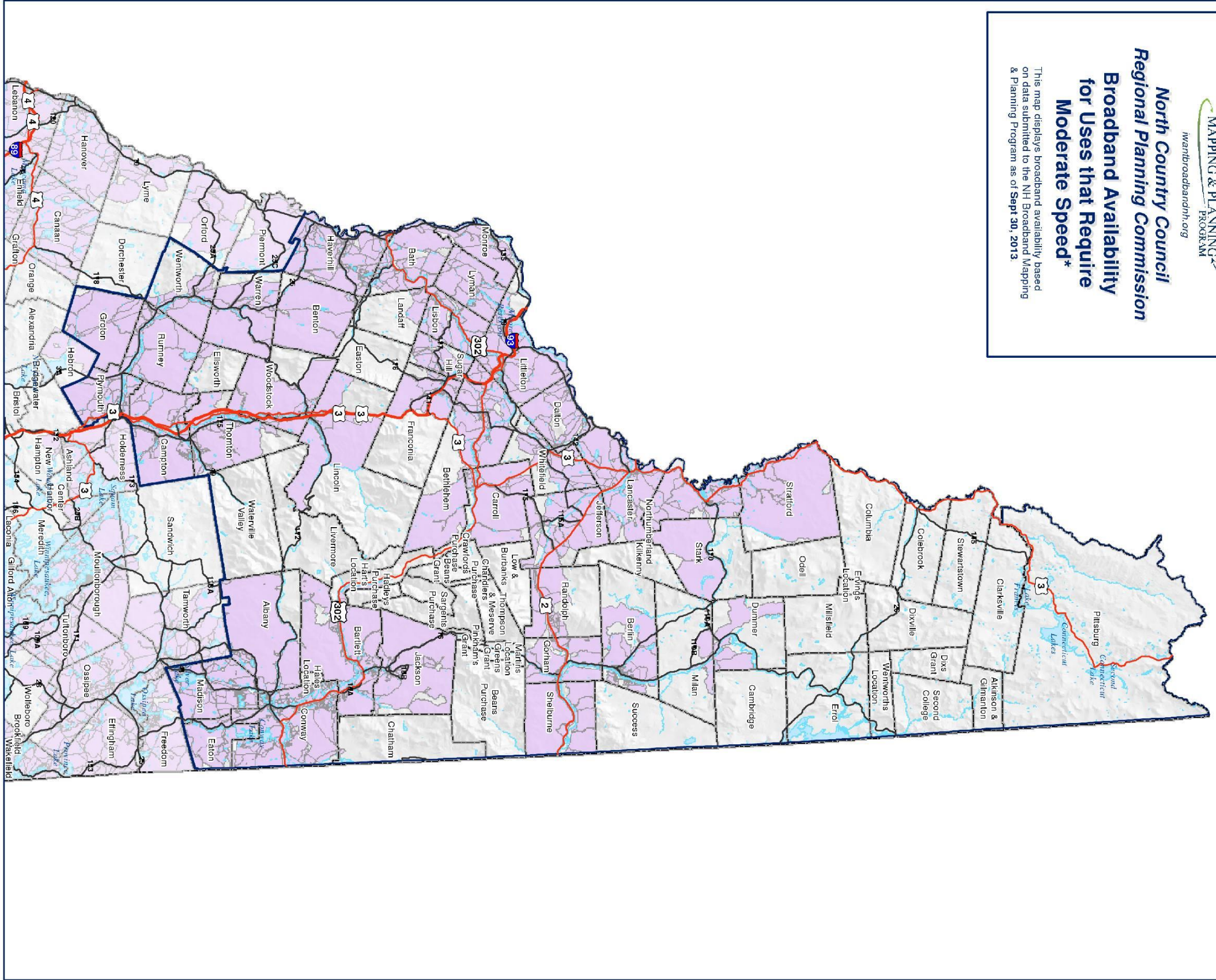
The New Hampshire Broadband Mapping and Planning Program is funded under grant #23760-M00048 from the US Dept. of Commerce to the University of New Hampshire.

Map Date: March 2014



North Country Council
Regional Planning Commission
Broadband Availability
for Uses that Require
Moderate Speed*

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.



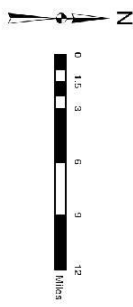
Broadband Availability at Moderate

Service Available
 Service Not Available

Moderate broadband speed is defined as:
 Advertised Download Speed: 3 Mbps - 6 Mbps
 Advertised Upload Speed: 1.5 Mbps - 3 Mbps

Uses that require a minimum of moderate speed broadband:

- Sending/Receiving medium to large sized documents or files (photos, word processing) SD content, buffering not a concern; downloading High Definition (HD) content (movies, video), speed at concern
- Streaming (movies, video), speed at concern
- VPN access needed, speed of operation important but not critical to job function
- Multiple functions performing simultaneously required (e.g. web browsing, streaming video/music, downloading content), but not concerned with potential slowness of downloads
- Low quality, small window frame videoconferencing (Skype)
- Cloud-based computing and data storage



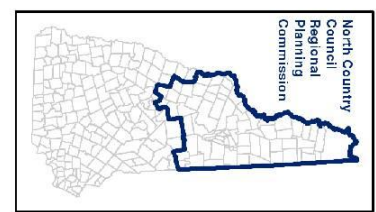
Map Notes:

The federal guidelines for the project define broadband as access that is at least **768 kbps downstream and 200 kbps upstream**

Service providers submitted data to the NH Broadband Mapping & Planning Program (NHBMPP) in a range of geographies, including addresses, road segments, census blocks, census tracts, etc. For mapping purposes, all data are aggregated and displayed at the county level. If service is not available, it is mapped as 'Service Not Available' if service is delivered to any part of the block.

Note that satellite internet is excluded from this analysis and display.

The GRANIT System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.





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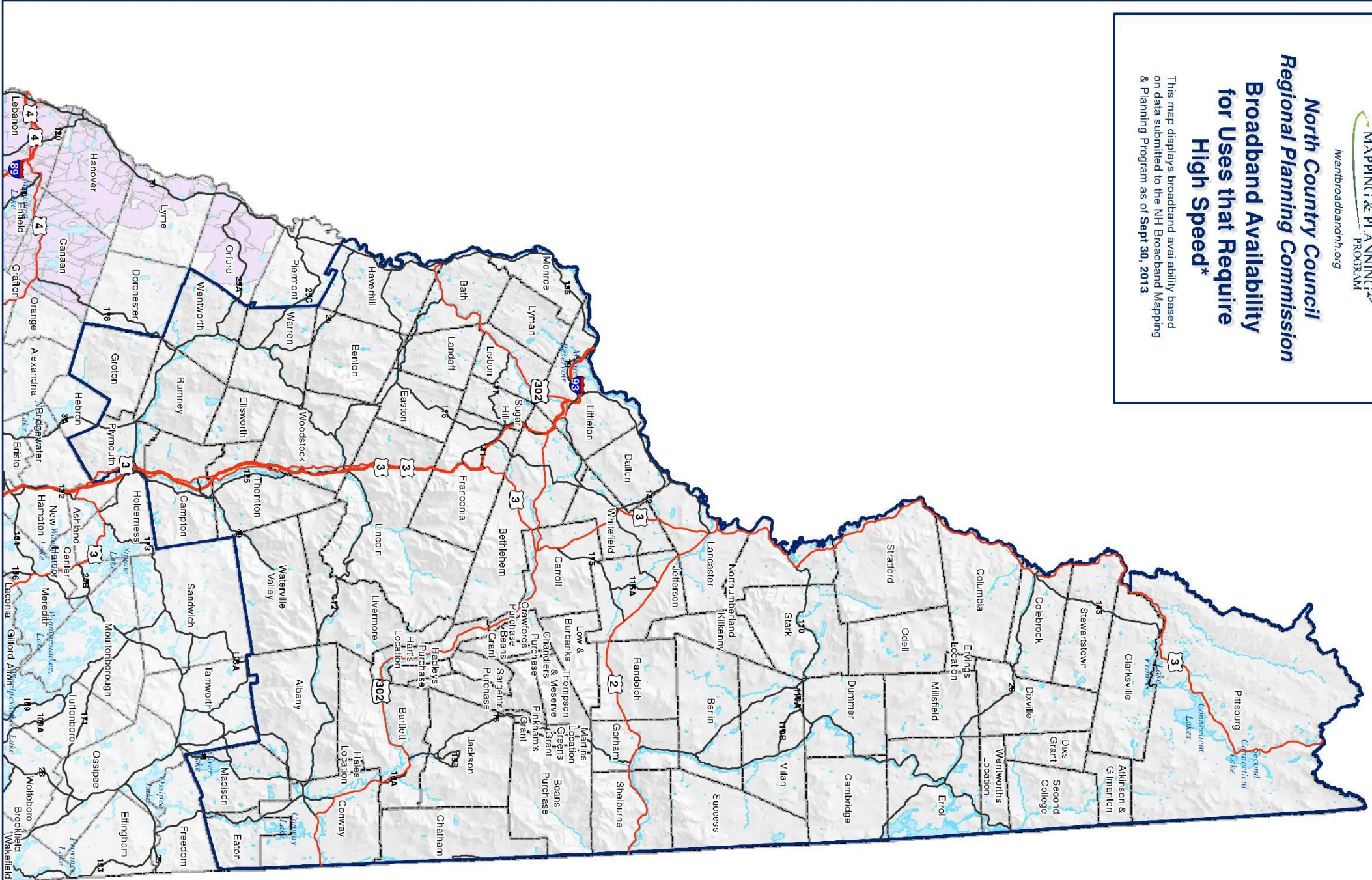
The New Hampshire Broadband Mapping and Planning Program is a project of the University of New Hampshire, Dept. of Commerce to the University of New Hampshire.
Map Date: March 2014

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broadband
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PROGRAM**
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**North Country Council
Regional Planning Commission**

**Broadband Availability
for Uses that Require
High Speed***

This map displays broadband availability based on data submitted to the NH Broadband Mapping & Planning Program as of **Sept 30, 2013**.

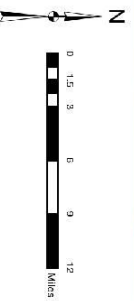


Broadband Availability at High Transmission Speeds

- Service Available
 - Service Not Available
- *High speed broadband defined as:
 Advertised Download Speed: Greater Than 10 Mbps
 Advertised Upload Speed: Greater Than 6 Mbps

Uses that require high speed broadband:

- Streaming/receiving large files and small to medium-sized databases
- HD quality, codec-based, large frame videoconferencing; multiple (bidged) sites/users
- Remote synchronous education, professional development, workshops, etc., facilitated simultaneously at multiple classrooms and/or other locations
- Telehealth/telemedicine applications
- High speed end to end network and business to business applications
- Telemetry-based applications (rely critically on the ability of broadband to continuously monitor and multiplex data, i.e. remote patient monitoring, sensing systems, etc.)
- Internet 2[®] connectivity and applications



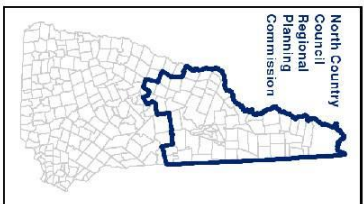
Map Notes:

The federal guidelines for this project define broadband as access that is at least **768 kbps downstream** and **200 kbps upstream**.

Service providers submitted data to the NH Broadband Mapping & Planning Program (NHBMPP) in a range of geographic, including addresses, road segments, census tracts, etc. For mapping purposes, data is aggregated and displayed at the town level. Data that is not mapped as served is service is delivered to any part of the block.

Note that satellite internet is excluded from the analysis and display.

The GRANIT[®] System at the University of New Hampshire is responsible for the management of the inventory and conducts updates to these data every 6 months.



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The New Hampshire Broadband Mapping and Planning Program is a project of the NH Dept. of Commerce in partnership with the University of New Hampshire.

Map Date: March 2014

D. New Hampshire Broadband Regulations.*

*Please note, the below bills, laws and regulations are included for *general reference purposes only* and may not reflect the current text, or full breadth, of applicable bills, laws and regulations. <http://www.gencourt.state.nh.us> (accessed March 17, 2014). Text and introduction for HB 286 from, <http://legiscan.com/NH/text/HB286/id/688931> (accessed March 17, 2014).

HB 286 - AS INTRODUCED

2013 SESSION

13-0820

06/05

HOUSE BILL **286**

AN ACT relative to broadband infrastructure.

SPONSORS: Rep. Townsend, Graf 11; Rep. Pastor, Graf 12; Sen. Kelly, Dist 10

COMMITTEE: Science, Technology and Energy

ANALYSIS

This bill changes requirements for the issuance of broadband infrastructure bonds by municipalities.

Explanation: Matter added to current law appears in *bold italics*.

Matter removed from current law appears [~~in brackets and struckthrough.~~]

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

13-0820

06/05

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Thirteen

AN ACT relative to broadband infrastructure.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 Findings and Purpose. The general court finds that:

I. Universal, easy, and affordable access to high speed Internet service in New Hampshire is essential for economic development, job creation, small business growth, state, federal, and local service delivery, and educational opportunities.

II. Current New Hampshire law makes universal access to broadband Internet services effectively impossible by discouraging competition. Such lack of universal access is a significant missed opportunity for building the state's economy and putting people back to work.

III. The state of New Hampshire must act decisively to facilitate the infrastructure investments that are needed to make broadband/high speed Internet available to its citizens, just as it does with electricity, telephone service, highways, and roads.

IV. Open access technology platforms and universal access are the keys to establishing a thriving, competitive market offering low cost, high-speed Internet services to the public.

V. The state should allow our counties and municipalities to provide access to service by building broadband infrastructure, provided they do not provide broadband services themselves.

VI. The state should facilitate rigorous competition in the broadband market and remove barriers that protect vested interests and discourage competition.

VII. Public-private partnerships are critical to achieving success in effectively building out infrastructure to the premises (i.e. "Last Mile" buildout to residential and businesses in communities) because more stakeholders, rather than fewer, get engaged in and take ownership of any build-out initiative.

VIII. The state should stimulate high speed Internet expansion by providing targeted tax credits and eliminating barriers that limit our counties' and municipalities' ability to use revenue bonds and other financial instruments to access the capital needed for infrastructure development.

IX. The purpose of this section is to give municipalities local control over whether to utilize these tools to build-out high speed Internet infrastructure, provided that their citizens request and approve such action through the local legislative process.

2 Municipal Finance; Purpose of Issue of Bonds or Notes. Amend RSA 33:3 to read as follows:

33:3 Purpose of Issue of Bonds or Notes. A municipality or county may issue its bonds or notes for the acquisition of land, for planning relative to public facilities, for the construction, reconstruction, alteration, and enlargement or purchase of public buildings, for other public works or improvements of a permanent nature including broadband infrastructure as defined in RSA 38:38, I(e), [~~to be purchased or constructed in areas not served by an existing broadband carrier or provider~~], for the purchase of departmental equipment of a lasting character, for the payment of judgments, and for purposes of economic development which shall include public-private partnerships involving capital improvements, loans, and guarantees. The public benefit in any public-private partnership must outweigh any benefit accruing to a private party. Bonds or



notes for the purposes of economic development may be issued only after the governing body of the municipality or county has held hearings and presented the public benefit findings to the public and after such issuance has been approved by the legislative body. A municipality or county shall not issue bonds or notes to provide for the payment of expenses for current maintenance and operation except as otherwise specifically provided by law.

3 Definitions; Revenue-Producing Facilities. Amend RSA 33-B:1, VI to read as follows:

VI. "Revenue-producing facilities" means water works, broadband infrastructure as defined in RSA 38:38, I(e), ~~[purchased or constructed in areas not served by an existing broadband carrier or provider,]~~ sewerage systems, sewage treatment or disposal facilities, solid waste disposal or resource recovery facilities, parking facilities, facilities for the production, generation, transmission, or distribution of electricity or gas, any other real or personal property or interests in a municipality or regional water district owned or controlled by the municipality or regional water district, from the operation of which revenues are or are expected to be derived by the municipality, or regional water district, and qualifying energy conservation and clean energy improvements for which a municipality provides financing pursuant to RSA 53-F.

4 New Sections; Issuance of Revenue Bonds. Amend RSA 38 by inserting after section 41 the following new sections:

38:42 Issuance of Revenue Bonds. A municipality shall not issue revenue bonds under RSA 33-B for the purpose of financing the development, construction, reconstruction, renovation, improvement, and acquisition of broadband infrastructure unless:

I. A request for proposals for private broadband investment in the municipality has been issued and responses considered;

II. The local legislative body determines that the benefit to the public accruing from any planned public-private partnership relating to the issuance of revenue bonds outweighs the benefit accruing to the private member of the partnership. Such public benefit requirement is satisfied without limitation if the governing body of the municipality has held hearings and presented the public benefit findings to its citizens, and, as a consequence of weighing the testimony elicited in such hearings, the legislative body approves the issuance of such bonds as required under RSA 33-B.

38:43 Broadband Infrastructure; Exclusion from Debt Limit. Any debt incurred for broadband infrastructure by the issuance of bonds consistent with RSA 38:42 shall be outside the debt limit prescribed in RSA 33. Such debt shall at no time be included in the net indebtedness of any municipality for the purpose of determining its borrowing capacity.

38:44 Expenditure of Funds. Funds from the issuance of a revenue bond for broadband infrastructure shall only be expended to deploy broadband infrastructure in a universal and non discriminatory manner and, at a minimum, in those areas of the municipality having the least adequate access to broadband service.

38:45 License and Permit Neutrality. In determining whether the public good requires a municipality to grant, change, or revoke any permit or license to any entity under RSA 231:161 or RSA 231:163, the effect that such action may have upon the viability or success of the municipality's broadband infrastructure, whether existing, planned, or contemplated, shall not be a factor in such determination or in determining the terms and conditions of any license or permit that results.

5 Broadband Access; Definitions; Broadband. RSA 38:38, I(c) is repealed and reenacted to read as follows:

(c) "Broadband" means advanced communications systems capable of providing high-speed transmission of services such as data, voice, and video over the Internet and other networks with transmission provided by a range of technologies including digital subscriber line and fiber optic cable, coaxial cable, wireless technology, and satellite. Broadband enables the convergence of voice, video, and data services onto a single network.

6 Broadband Access. Amend RSA 38:38, II to read as follows:

II. A municipality ~~[may]~~ **shall** use its broadband infrastructure for the purpose of providing an open network ~~[and assuring that third party access is available in accordance with current state and federal regulations]~~ **and shall make use of open network interfaces. No municipality shall be a retail provider of broadband service.**

7 Broadband Access Tariffs. Amend RSA 38:39 to read as follows:

38:39 Broadband Access Tariffs. For defraying the cost of acquisition, construction, payment of the interest on any debt incurred, management, maintenance, operation, and repair of broadband infrastructure, or the construction, enlargement, or improvement of such systems, the governing body ~~[may]~~ **shall** establish a scale of rates called access tariffs, ~~[may]~~ **shall** prescribe the manner and the time for the payment of such tariffs, and may change such tariffs when it deems advisable.

8 New Paragraph; Pole Attachments. Amend RSA 374:34-a by inserting after paragraph VIII the following new paragraph:

IX. Pole attachments sought by a municipality for the provision of broadband access pursuant to RSA 38:38-45 shall be subject to this section.

9 Repeal. The following are repealed:



- I. RSA 33:3-c, I(e), relative to the issuance of bonds for preliminary expenses.
 - II. RSA 33:3-g, relative to broadband infrastructure bonds.
 - III. RSA 33:6-f, relative to exclusion from debt limit; broadband infrastructure.
 - IV. RSA 38:38, I(b), relative to the definition of "areas not served."
- 10 Effective Date. This act shall take effect July 1, 2013.

END OF HB 286 TEXT.

BEGINNING OF CURRENT LAW & REGULATORY TEXT.

TITLE I

THE STATE AND ITS GOVERNMENT

CHAPTER 12-A

DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Telecommunications Planning and Development

Section 12-A:45

12-A:45 Telecommunications Planning and Development Initiative. -

I. (a) The director of economic development, under the supervision of the commissioner of resources and economic development and pursuant to the director's duties under RSA 12-A:22, shall develop and implement a telecommunications planning and development initiative which will result in a telecommunications development plan to be adopted and revised regularly by the telecommunications planning and development advisory committee.

(b) As primary duties of this initiative, the director shall:

(1) Identify existing telecommunications infrastructure by establishing and maintaining a database of telecommunications service providers, services, and infrastructure that exist throughout the state.

(2) Publicize the state's telecommunications infrastructure, as an integral part of the state's economic development efforts, by planning, developing, administering, and implementing programs to assist in the distribution of information about available telecommunications services, infrastructure, and technologies throughout all parts of the state.

(c) As secondary duties of this initiative, the director shall:

(1) Identify shortcomings in the deployment of telecommunications infrastructure throughout all parts of the state.

(2) Work with providers of telecommunications services, educators, and municipal, county, state, and other government officials to assist efforts to enhance the deployment of telecommunications services.

II. The director may delegate any of the duties established in paragraph I to appropriate designees within the division of economic development.

III. The budget for the fiscal year ending June 30, 2001 for the duties of this subdivision shall not exceed \$150,000. The budget for subsequent fiscal years shall be considered in the division of economic development's operating budget.

Source. 2000, 298:3, eff. July 1, 2000.

Section 12-A:45-a

12-A:45-a Telecommunications Planning and Development Fund. - There is hereby established in the office of the state treasurer a fund to be known as the telecommunications planning and development fund. The commissioner of resources and economic development is authorized to accept public sector and private sector grants, gifts, or donations of any kind for the purpose of funding initiatives associated with the purpose of this subdivision. Such grants, gifts, and donations shall be deposited in the telecommunications planning and development fund and may only be expended by the commissioner of resources and economic development to accomplish the purposes of this subdivision. The state treasurer may invest moneys in the fund as provided by law, with interest received on such investment credited to the fund. The moneys in this fund shall be nonlapsing and shall be continually appropriated to the department of resources and economic development.

Section 12-A:46

12-A:46 Telecommunications Planning and Development Advisory Committee. -

I. There is hereby established a telecommunications planning and development advisory committee to advise and assist the director of economic development in performing the duties established in RSA 12-A:45. The committee shall meet at least quarterly. Nine members of the committee shall constitute a quorum.

II. The members of the committee shall be:

(a) The governor, or designee;

(b) The commissioner of resources and economic development, or designee;



- (c) The commissioner of safety, or designee;
- (d) The chairman of the public utilities commission, or designee;
- (e) One member of the house of representatives, appointed by the speaker of the house of representatives;
- (f) One member of the senate, appointed by the president of the senate;
- (g) The chief information officer, or designee;
- (h) The following persons nominated by the commissioner of resources and economic development and appointed by the governor and council:
 - (1) Two members representing residential telecommunications customers;
 - (2) One member representing large business telecommunications customers;
 - (3) One member representing small business telecommunications customers;
 - (4) One member representing educational technology;
 - (5) One member representing municipal government;
 - (6) One member representing county government;
 - (7) One member representing a regional economic development organization or a regional planning commission; and
 - (8) One member representing healthcare technology.
- (9) Up to 7 members representing several of the following sectors of the telecommunications industry: wireless, paging, incumbent local exchange carriers, competitive local exchange carriers, Internet service providers, cable, long distance providers, and broadcast television. A member representing one sector may also represent one or more other sectors, as deemed appropriate by the commissioner; and
- (i) The director of broadband technology planning and development in the division of economic development.

III. In this section:

(a) "Broadband" means the transmission, between or among points specified by the user, of information of the user's choosing, with or without change in the form or content of the information as sent and received, at rates of transmission equal or greater than that defined by the Federal Communications Commission as "broadband"

(b) "Broadband infrastructure" means any and all equipment and facilities, including any and all changes, modifications, and expansions to existing facilities, as well as the customer premises equipment used to provide broadband, and any and all software integral to or related to the operations, support, facilitation, or interconnection of such equipment, including upgrades, and any and all installation, operations, and support, maintenance and other functions as may be required to support the delivery of broadband.

IV. The telecommunications planning and development advisory committee shall assist the director in identifying and maintaining an inventory of the state's broadband availability and by:

- (a) Disseminating information and data concerning communication services and broadband infrastructure within the state.
- (b) Identifying funding sources for broadband infrastructure deployment or education.
- (c) Continually assessing the availability of and need for broadband infrastructure in unserved and underserved areas within the state.
- (d) Continually assessing and making recommendations to improve services provided to citizens by state agencies via broadband and internet technologies as a mean of improving service and reducing costs.
- (e) Promoting access to affordable and reliable broadband service to all state citizens and businesses.
- (f) Identifying barriers to investment of private capital in broadband infrastructure.
- (g) Identifying opportunities for coordination among providers, consumers, and state and local governmental entities, including coordination with the statewide emergency radio networks.
- (h) Creating and facilitating public awareness and educational programs to encourage the use of broadband infrastructure.

V. The legislative members of the committee shall serve for the duration of their legislative term, and shall receive mileage at the legislative rate when attending to the duties of the committee.

VI. Other appointed members of the committee shall serve for 3 years and until a successor is appointed.

VII. The committee shall elect a chairperson from among the members.

VIII. The committee shall report its findings and recommendations to the director in the form of a status report on or before July 31 annually.

Source. 2000, 298:3. 2003, 223:23. 2007, 315:1. 2009, 197:1. 2010, 367:4, eff. July 1, 2010. 2013, 29:2, eff. May 16, 2013.

**Broadband Technology Planning and Development
Section 12-A:59**



12-A:59 Technology Development and Telecommunications Planning. - There is established within the division of economic development, a technology development and telecommunication planning function, which is intended to promote technology development and telecommunication planning in the state. Under the supervision of the director of the division of economic development, the division shall:

I. Coordinate state telecommunications policy planning initiatives by providing support for the telecommunications planning and development advisory committee established in RSA 12-A:46, maintaining a state telecommunications resource website, and working with regional partners from the private and public sector to coordinate efforts to provide increased interoperable advanced telecommunications systems throughout the state with the goal of providing affordable and accessible broadband to residents of this state.

II. Encourage and facilitate collaboration between public and private research and development efforts in New Hampshire relative to technology development and telecommunications planning.

III. With the assistance of the University of New Hampshire and other partners, seek resources such as grants from government and nonprofit entities to develop a state technology development and telecommunications plan.

Source. 2007, 263:104, eff. July 1, 2007.

Section 12-A:59-a

12-A:59-a Director of Broadband Technology Planning and Development. - There is established within the division of economic development the position of director of broadband technology planning and development, which shall be an administrator II position, classified at labor grade 29. The director shall:

I. Coordinate state telecommunications policy planning initiatives by serving as a member of the telecommunications planning and development advisory committee established in RSA 12-A:46, maintaining a state telecommunications resource website, and working with regional partners from the private and public sector to coordinate efforts to provide increased interoperable advanced telecommunications systems throughout the state with the goal of providing affordable and accessible broadband to residents of this state.

II. Encourage and facilitate collaboration between public and private research and development efforts in New Hampshire relative to broadband technology planning and development.

III. Develop a comprehensive broadband plan for the state and coordinate with partners throughout the state to implement and regularly update the plan.

IV. Act as an agent in recruiting and retaining high technology companies in New Hampshire.

V. Serve as a resource for state policy makers to develop policies geared towards increasing and expanding high technology jobs and promoting development of a high technology workforce.

VI. Seek resources such as grants from government and nonprofit entities to promote the state's broadband technology planning and development initiatives.

Source. 2009, 197:2, eff. July 13, 2009.

TITLE III

TOWNS, CITIES, VILLAGE DISTRICTS, AND UNINCORPORATED PLACES

CHAPTER 33

MUNICIPAL FINANCE ACT

Section 33:1

33:1 Definitions. - This chapter may be referred to as the "Municipal Finance Act." The following terms, when used in this chapter, shall have the meanings set forth below, except when the context in which they are used requires a different meaning:

I. "Municipality" or "municipal corporation," town, city, school district or village district;

II. "Governing board," the selectmen of a town, the commissioners or comparable officers of a village district, and the school board of a school district;

III. "Net indebtedness," all outstanding and authorized indebtedness, heretofore or hereafter incurred by a municipality, exclusive of the following: unmatured tax anticipation notes issued according to law; or notes issued in anticipation of grants of federal or state aid or both; debts incurred for supplying the inhabitants with water or for the construction, enlargement, improvement or maintenance of water works; debts incurred to finance the cost of sewerage systems or enlargements or improvements thereof, or sewage or waste disposal works when the cost thereof is to be financed by sewer rents or sewer assessment; debt incurred pursuant to RSA 31:10; debts incurred to finance energy production projects, the reconstruction or enlargement of a municipally owned utility, or the manufacture or furnishing of light, heat, power or water for the public, or the generation, transmission or sale of energy ultimately sold to the public; debts incurred to finance small scale power facilities under RSA 374-D; debts incurred outside the statutory debt limit of the municipality under any general law or special act heretofore or hereafter enacted (unless otherwise



provided in such legislation); and sinking funds and cash applicable solely to the payment of the principal of debts incurred within the debt limit.

Source. 1895, 43:1. PL 59:1. RL 72:1. 1953, 258:1, par. 1, eff. as of Jan. 1, 1954. RSA 33:1. 1955, 329:3. 1957, 142:3. 1961, 120:1. 1967, 38:1. 1981, 161:1, eff. Aug. 1, 1981; 545:1, eff. Aug. 29, 1981.

Section 33:2

33:2 Repayment of Loans. – Municipalities and counties shall not issue any bonds or notes payable on demand. They shall provide for the payment of all loans issued under authority of this chapter except notes issued under authority of RSA 33:7, in annual payments which shall be so arranged that the amount of the annual payment of principal and interest in any year on account of any loan shall not be less than the amount of principal and interest payable in any subsequent year by more than 2 percent of the principal of the entire loan. The total amount of such payments shall be sufficient to extinguish the entire loan on account of which they are made at maturity. The first payment of principal on any loan shall be made not later than 2 years and the last payment not later than 30 years after the date thereof, provided, however, that no loan issued to pay for public work or improvement shall exceed the expected useful life of said public work or improvement as determined by the governing board or the city councils in the case of cities, or the county commissioners in the case of counties. Each authorized issue of notes or bonds shall be a separate loan. The amount of each payment of principal and interest on all loans shall, without vote of the municipality or county, be annually assessed and collected. Sinking funds and debt retirement funds for the payment of debt shall not hereafter be established.

Source. 1917, 129:2, 3. PL 59:3, 4. RL 72:3. 1947, 5:1. 1949, 120:1. 1953, 258:1, par. 2, eff. Jan. 1, 1954.

Section 33:2-a

33:2-a Call Bonds. – The issuance of bonds or notes hereunder which are subject to call, at the election of the municipality, before the date fixed for final payment thereof, is authorized. The bonds or notes, in such cases, shall contain provisions setting forth the method or methods by which the option to call may be exercised, the procedure for payment in the event of call, and the legal effect of the making of the call. If such call bonds or notes are payable to bearer, they may be called, at the election of the municipality, on any date when interest thereon shall become payable, written notice of such election first having been given to the bank, banks or other institutions, if any, at which they are stated on their face to be payable, and published for 4 consecutive weeks at least once a week in one or more newspapers printed and published in Boston, Massachusetts, and in one newspaper printed and published in the state of New Hampshire and circulating in said municipality, the last such publications being at least 14 days before the date specified for payment; and thereupon, after the date so specified, interest thereon shall cease. If such call bonds or notes are payable to the registered holder, they may be called, at the election of the municipality, on any date when interest thereon shall become payable, written notice of such election first having been given to the registered holder by registered mail, postage prepaid, to such holder at his last address, as registered in the books of the municipal treasurer; and thereupon, after the date so specified, interest thereon shall cease.

Source. 1957, 103:1, eff. July 1, 1957.

Section 33:3

33:3 Purpose of Issue of Bonds or Notes. – A municipality or county may issue its bonds or notes for the acquisition of land, for planning relative to public facilities, for the construction, reconstruction, alteration, and enlargement or purchase of public buildings, for other public works or improvements of a permanent nature including broadband infrastructure as defined in RSA 38:38, I(e), to be purchased or constructed in areas not served by an existing broadband carrier or provider, for the purchase of departmental equipment of a lasting character, for the payment of judgments, and for purposes of economic development which shall include public-private partnerships involving capital improvements, loans, and guarantees. The public benefit in any public-private partnership must outweigh any benefit accruing to a private party. Bonds or notes for the purposes of economic development may be issued only after the governing body of the municipality or county has held hearings and presented the public benefit findings to the public and after such issuance has been approved by the legislative body. A municipality or county shall not issue bonds or notes to provide for the payment of expenses for current maintenance and operation except as otherwise specifically provided by law.

Source. 1917, 129:5, 6. PL 59:5, 6. RL 72:5, 6. 1953, 258:1. RSA 33:3. 1971, 34:1, eff. May 31, 1971. 1996, 55:1, eff. June 23, 1996. 2006, 225:1, eff. July 31, 2006.

Section 33:3-a

33:3-a Use of Bond Proceeds. –

I. The proceeds of any sale of bonds or notes shall be used only for the purposes for which the loan was incurred except as otherwise authorized by this section; provided, however, that any premium received



shall not be used to increase the amount to be spent for the purpose for which the loan was originally incurred. The purposes for which the loan was incurred may include the payment of principal of and interest on any temporary indebtedness incurred under RSA 33:7-a and interest on any temporary indebtedness incurred under RSA 33:7-b.

II. If after notes or bonds have been issued and no expenditure of the proceeds has been made for the purpose or purposes for which the debt was incurred, or if a balance remains after the completion of the project or projects for which the debt was authorized, a city by a vote of 2/3 of the city council or a town, school district, or village district by a vote of 2/3 of the voters present and voting at an annual meeting, a county by a 2/3 vote of all the members of the county convention, a political subdivision which has adopted official ballot voting procedures pursuant to RSA 40:13 by a vote of 3/5 of those voting, and a municipality that has adopted an official ballot town council under RSA 49-D:3, I-a by a vote of 2/3 unless the municipal charter provides for a vote of 3/5, may authorize the expenditure of the sum or sums on hand, including any premiums received, for any purpose or purposes for which bonds or serial notes may be issued for an equal or longer period of time at any time which said sum or any portion thereof remains available; provided, however, that if the sum obtained by issuance of bonds or notes, as aforesaid, or any balance thereof, including any premium, is not appropriated as aforesaid, then the same shall be used to pay the principal of the loan as it matures. Only "yes" or "no" votes shall be included in the calculation of any majority.

III. Notwithstanding the provisions hereof, no appropriation for a loan or balance thereof shall be made which will increase the amount available from borrowed money for any purpose to an amount in excess of any limit imposed by general law or special act for such purpose.

Source. 1963, 151:1. 1981, 300:4, eff. June 16, 1981. 2006, 12:1, eff. Mar. 13, 2006.

Section 33:3-b

33:3-b Additional Purpose. - A city or town may issue its bonds or notes for the purpose of defraying the cost of a reappraisal by professional appraisers of the real estate in such city or town for tax assessment purposes, or for the acquisition of a tax map of said city or town; said bonds or notes to mature in a period of not more than 5 years from the date of issue.

Source. 1965, 55:1, eff. June 13, 1965.

Section 33:3-c

33:3-c Issue of Bonds for Preliminary Expenses. -

I. A municipality or county may issue its bonds or notes for the purpose of defraying the cost of preliminary or final plans and specifications or other preliminary expenses incidental to, or connected with, any proposed public work or improvement of a permanent nature consisting of the construction, reconstruction, alteration, enlargement, or improvement of the following:

- (a) A public building.
- (b) A water works.
- (c) A sewerage system or sewage or waste treatment facility.
- (d) A solid waste disposal or resource recovery facility.
- (e) Broadband infrastructure as defined in RSA 38:38 to be purchased or constructed in areas not served by an existing broadband carrier or provider.

II. Bonds or notes shall mature over a period of not more than 5 years from the date of issue unless they are issued at the same time as bonds or notes for the public work or improvement for which such expenses were incurred, in which case said bonds or notes shall mature over a period not exceeding the expected useful life of such public work or improvement. A municipality or county may issue its bonds or notes in accordance with this section for planning and other preliminary expenses relating to solid waste disposal or resource recovery facilities to serve the municipality or county, notwithstanding that the facilities may later be owned by a private entity, but only for such expenses incurred prior to any binding contractual commitment to a proposed private owner, and only if such bonds or notes do not constitute "private activity bonds" as defined in section 103(n)(7) of the United States Internal Revenue Code of 1954, as amended.

Source. 1969, 201:1. 1985, 417:1, eff. Sept. 1, 1985. 2006, 225:2, eff. July 31, 2006.

Section 33:3-d

33:3-d Refunding Bonds. -

I. A municipality or county may authorize the issuance of refunding bonds in order to pay all or part of any issue of bonds called or to be called for redemption, including any redemption premium thereon, all or part of the interest coming due on or prior to the date on which the outstanding bonds are redeemed, and the costs of issuing and marketing the refunding bonds. The authorization and issuance of refunding bonds shall be subject to the same requirements and provisions of law as would then be applicable to the authorization and issuance of the bonds being redeemed, as far as apt. In a town, school district, or village



district, but not in a city, such refunding bonds may be authorized by the governing body of such town, school district, or village district, notwithstanding the provisions of RSA 33:8. In this case, the authorization of refunding bonds shall not be subject to RSA 33:8-a, provided that there shall be at least one public hearing concerning any proposed refunding bond issue in excess of \$100,000 held before the governing body of the town, school district, or village district. Notice of the time, place, and subject of such hearing shall be published in a newspaper of general circulation in the town, school district, or village district at least 7 days before the hearing is held.

II. Refunding bonds shall be payable in installments, the first of which shall be not later than the earliest stated principal maturity date of the bonds being refunded and the last of which shall be not later than the last date on which the bonds being refunded could have been made payable under that law applicable to the bonds being refunded. The installment payments of refunding bonds shall be arranged in accordance with RSA 33:2 except that any installment that is payable earlier than the date on which the first installment is required to be made payable may be in any amount. The proceeds of refunding bonds, exclusive of any premium and accrued interest and any proceeds used to pay issuing or marketing costs, shall, upon their receipt, be paid immediately to the paying agent for the bonds which are to be called and prepaid; and such paying agent shall hold such proceeds in trust until the bonds are redeemed. While such proceeds are held in trust, they may be invested for the benefit of the municipality or county as may be provided in any other applicable law of the state of New Hampshire relating to the investment or deposit of municipal or county funds; and the income derived from investment may be expended to pay the principal of and redemption premium, if any, on the refunded bonds and interest thereon until they are redeemed. Refunding bonds issued in accordance with this section shall be subject to the same statutory limit of indebtedness, if any, as the bonds refunded; provided, however, that upon the issuance of the refunding bonds, the bonds refunded shall no longer be counted in determining any limit of indebtedness of the municipality or county.

Source. 1983, 468:9. 1987, 54:1, eff. April 22, 1987. 2007, 347:3, eff. Sept. 14, 2007.

Section 33:3-e

33:3-e Superfund Site Cleanup Bonds Authorized. - A municipality may authorize the issuance of bonds, payable within 20 years from their dates of issuance, in order to pay all response costs associated with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. section 9601 et seq. ("CERCLA"), national priorities list site ("superfund site") in which the municipality is a named potentially responsible party. Response costs shall include, but not be limited to, costs incurred for investigation, design, remedial action, legal fees and costs, consulting fees and costs, and other costs associated with the superfund site. Any debt incurred for this purpose shall be outside the debt limit prescribed in this chapter. Such debt shall at no time be included in the net indebtedness of any municipality for the purposes of determining its borrowing capacity. In the sole discretion of the municipality, it may extend the benefits of this bonding authority to one or more of the other potentially responsible parties at the superfund site. If a municipality elects to extend such benefits, its governing body shall enter into agreements with such other potentially responsible parties, in such form as it shall deem appropriate, to provide for payments to the municipality to pay principal and interest and other related costs of the bonded indebtedness incurred by the municipality on behalf of the other party or parties. For the purposes of this subdivision, "governing body" means the board of selectmen in a town, the board of aldermen or council in a city or town with a town council, the school board in a school district or the village district commissioners in a village district, or when used to refer to unincorporated towns or unorganized places, or both, the county commissioners.

Source. 1992, 275:2, eff. May 18, 1992.

Section 33:3-f

33:3-f State Guarantee. -

I. The governor and council may award an unconditional state guarantee of the principal of and interest on bonds issued under RSA 33:3-e. The full faith and credit of the state shall be pledged for any such guarantees of principal and interest. The principal amount of the bonds guaranteed under this section shall not exceed \$20,000,000.

II. The total amount awarded under RSA 33:3-e and this section to any one superfund site, however, shall not exceed \$10,000,000, plus interest. The governor, with the advice and consent of the council, is authorized to draw his warrant for such a sum out of any money in the treasury not otherwise appropriated, for the purpose of honoring any guarantee awarded under this section. The state's guarantee shall be evidenced on each guaranteed bond by an endorsement signed by the state treasurer in substantially the following form:

The state of New Hampshire hereby unconditionally guarantees the payment of the whole of the principal and interest thereon of the within bond and for the performance of such guarantee the full faith and credit of the state are pledged.



State Treasurer

III. In connection with the award of a state guarantee, the governor and council may impose such terms and conditions as they may deem appropriate concerning the bonds and such terms and conditions as they may deem appropriate concerning reimbursement to the state if any state funds are used to honor the guarantee. Such terms and conditions may be contained in an agreement between the state and the municipality, to be executed on behalf of the state by the governor and the state treasurer and on behalf of the municipality by its governing body.

IV. Nothing in this subdivision shall be construed to affect in any way the ultimate liability of any party, under state or federal law, for hazardous waste cleanup costs.

Source. 1992, 275:2, eff. May 18, 1992. 2008, 49:4, eff. July 1, 2008.

Section 33:3-g

33:3-g Broadband Infrastructure Bonds. -

I. A municipality may issue bonds for the purpose of financing the development, construction, reconstruction, renovation, improvement, and acquisition of broadband infrastructure in areas not served by an existing broadband carrier or provider that would be provided at a fee to broadband carriers that provide broadband services. Without limiting the foregoing, broadband infrastructure may be the subject of public-private partnerships established in accordance with the provisions of RSA 33:3.

II. Bonds issued under this section shall be payable in annual payments so that the amount of annual payment of principal and interest in any year on account of any bond shall be not less than the amount of principal and interest payable in any subsequent year by more than 5 percent of the principal of the entire bond. The total amount of payments shall be sufficient to extinguish the entire bond at such bond's maturity. The first payment of principal on any bond shall be made no later than 5 years and the last payment not later than 30 years after the date issued. Each authorized issue of bonds shall be a separate and distinct loan.

III. A municipality shall not issue bonds for the purpose of financing the development, construction, reconstruction, renovation, improvement, and acquisition of broadband infrastructure in areas not served by an existing broadband carrier or provider unless a request for proposals has been issued and no broadband carrier or provider has responded positively within 2 months or deployed broadband service within 14 months of the issuance of the request for proposals.

Source. 2006, 225:3, eff. July 31, 2006.

Section 33:4

33:4 Debt Limit, Counties. - Counties shall not incur net indebtedness to an amount, at any one time outstanding, exceeding 2 percent of the last assessed valuation thereof.

Source. 1917, 129:7. PL 59:7. 1933, 98:1. RL 72:7. 1951, 183:1. 1953, 258:1, par. 4. RSA 33:4. 1955, 329:1, eff. Aug. 5, 1955.

Section 33:4-a

33:4-a Debt Limit, Municipalities. -

I. Cities shall not incur net indebtedness, except for school purposes, to an amount, at any one time outstanding, exceeding 3 percent of their valuation determined as hereinafter provided.

II. Cities shall not incur net indebtedness for school purposes to an amount at any one time outstanding, determined as hereinafter provided, exceeding 7 percent of said valuation. Any debt incurred for school purposes by a city under this or any special statute heretofore or hereafter enacted shall be excluded in determining the borrowing capacity of a city for other than school purposes under the 3 percent limitation in paragraph I.

III. Towns shall not incur net indebtedness to an amount at any one time outstanding exceeding 3 percent of their valuation determined as hereinafter provided.

IV. School districts shall not incur net indebtedness to an amount at any one time outstanding exceeding 7 percent determined as hereinafter provided.

V. Village districts shall not incur net indebtedness to an amount at any one time outstanding exceeding one percent of their valuation determined as hereinafter provided.

Source. 1955, 329:1. 1957, 120:1. 1959, 209:3, eff. Sept. 27, 1959. 1998, 72:1, eff. July 18, 1998.

Section 33:4-b

33:4-b Debt Limit; Computation. - The debt limitations hereinbefore prescribed, except for counties, shall be based upon the applicable last locally assessed valuation of the municipality as last equalized by the commissioner of revenue administration under RSA 21-J:3, XIII and shall include the equalized value of property formerly taxed pursuant to the provisions of RSA 72:7; 72:15, I, V, VII, VIII, IX, X and XI; 72:16; 72:17; 73:26; 73:27 and 73:11 through 16 inclusive, all as amended, which was relieved from taxation by 1970,



5:3, 5:8 and 57:12, as determined under the provisions of RSA 71:11 as amended. Whenever several municipalities possessing the power to incur indebtedness cover or extend over identical territory, each such municipality shall so exercise the power to incur indebtedness under the foregoing limitations so that the aggregate net indebtedness of such municipalities shall not exceed 9.75 percent of the valuation of the taxable property as hereinbefore determined, except as provided for cooperative school districts under RSA 195:6. A written certificate signed by the commissioner of the department of revenue administration shall be conclusive evidence of the base valuation of municipalities for computing debt limits hereunder.

Source. 1955, 329:1. 1957, 120:4. 1959, 209:4. 1970, 5:6; 57:14. 1973, 544:11, I. 1991, 306:1, eff. April 1, 1992.

Section 33:4-c-4-g

33:4-c to 33:4-g Repealed. - [Repealed 1959, 209:5, eff. Sept. 27, 1959.]

Section 33:5

33:5 Sewerage Systems and Sewage Treatment Works. - Municipalities which have received orders from the department of environmental services to install sewage treatment works under the provisions of RSA 485-A, or to install a sewerage system or sewage treatment works under the provisions of RSA 485:27, or under RSA 147, or acts amending such statutes enacted in the future, may incur debt by the issue of bonds or notes for the construction of such sewerage systems and treatment works outside the limit of indebtedness prescribed by RSA 33:4. Such debt shall at no time be included in the net indebtedness of the municipality for the purpose of ascertaining its borrowing capacity.

Source. 1949, 78:1. 1953, 258:1, par. 5. RSA 33:5. 1986, 202:6, I(a). 1989, 339:11, eff. Jan. 1, 1990. 1996, 228:108, eff. July 1, 1996.

Section 33:5-a

33:5-a Water Works. - Municipalities may incur debt for supplying the inhabitants with water or for the construction, enlargement, or improvement of water works, by the issue of bonds or notes, for such purposes, as set forth in this chapter; provided, however, that such municipalities shall not incur debt for such purposes to an amount, at any one time outstanding, exceeding 10 percent of their last locally assessed valuation as last equalized by the commissioner of revenue administration determined as provided in RSA 33:4-b. Any municipality which shall have received orders from the department of environmental services under the provisions of RSA 485 requiring the alteration, enlargement, or application of any other improvement in such facilities as will ensure fitness and safety and adequate protection of the public health may incur debt thereof by the issue of bonds or notes outside the limit prescribed herein. All debt authorized by this section, inasmuch as it is all excluded from the definition of "net indebtedness" in RSA 33:1, shall at no time be included for the purpose of calculating the borrowing capacity of the municipality for other purposes. The debt limits established by this section may be exceeded by a municipality in accordance with the procedure prescribed in and subject to the provisions of RSA 33:6.

Source. 1957, 142:2. 1973, 544:8. 1986, 202:6, I(a), eff. Jan. 2, 1987. 1996, 228:13, eff. July 1, 1996.

Section 33:5-b

33:5-b Voluntary Projects. - Any city, town, village district, or other political subdivision may vote to incur debt for the purpose of installing a sewage disposal plant including treatment works or sewerage facilities or thereof, although at the time of such vote it has not received an order from the department of environmental services directing such installation under RSA 147, RSA 485, or RSA 485-A. Any such debt shall at no time be included in the net indebtedness of said city, town, village district, or other political subdivision for the purpose of ascertaining its borrowing capacity provided the approval of the governor and council hereinafter provided for is obtained.

Source. 1957, 213:1. 1961, 120:2. 1986, 202:6, I(a), eff. Jan. 2, 1987. 1996, 228:13, eff. July 1, 1996.

Section 33:5-c

33:5-c Approval. - Any such municipality which has voted to incur debt under the provisions of RSA 33:5-b shall submit a certified copy of the record of such action together with detailed plans of the proposed construction to the department of environmental services for review and approval, as hereinafter provided. After a review of the plans and such other independent investigation as is deemed necessary, if the department of environmental services determines that the proposed project is in the public interest, due consideration being given to the cost of said project in relation to the benefits which will accrue to public health or water pollution control, it shall furnish a report of its findings and recommendations including a recommendation concerning a state guarantee as provided for under RSA 485-A:7 to the governor and council for their approval.

Source. 1957, 213:1. 1965, 26:1. 1986, 202:6, I(a). 1989, 339:12, eff. Jan. 1, 1990. 1996, 228:108, eff. July 1, 1996.



Section 33:5-d

33:5-d State Revolving Loan Funds. – The terms of repayment by a municipality of any loan from the loan fund established under RSA 486:14, or from any other state revolving loan fund established for water pollution control, solid waste disposal or treatment or other environmental improvement purposes, shall be governed by the statute and rules establishing the loan fund, notwithstanding any inconsistency with the provisions of this chapter relating to required annual installments, maximum period, or other such terms and conditions. In addition, a municipality may use proceeds of such a loan to pay interest on the loan during construction and for a period thereafter to the extent permitted by such statute or rules, and no authenticating certificate shall be required under RSA 33:11 on any bond, note or other document evidencing the loan.

Source. 1991, 179:1, eff. May 27, 1991.

Section 33:6

33:6 Emergency Borrowing. – Upon recommendation of the commissioner of revenue administration, approved by the governor and council, municipalities and counties may, within such limits as to amount, term and rate of interest as may be prescribed by the commissioner of revenue administration, incur debt outside the debt limit prescribed by RSA 33:4 for purposes made necessary by war or other national or local disaster or emergency. Such debt shall at no time be included in the net indebtedness of the municipality or county for the purpose of determining its borrowing capacity.

Source. 1953, 258:1, par. 6. RSA 33:6. 1973, 544:8, eff. Sept. 1, 1973.

Section 33:6-a

33:6-a Exclusion From Debt Limit. – Any municipality which has authorized the purchase and installation of parking meters under the provisions of RSA 249, and acts in amendment thereof which has incurred indebtedness or may incur indebtedness for the purchase and installation of such meters and the acquisition, construction and improvement of public parking facilities may have such indebtedness to an amount not exceeding 1/2 of one percent of its last assessed valuation computed under the provisions of RSA 33:4 excluded from the debt limit prescribed in RSA 33:4 if upon application to the commissioner of revenue administration, after hearing, the commissioner of revenue administration finds that the revenues from such sources may reasonably be expected to be adequate to retire such indebtedness and the costs connected therewith in accordance with the terms by which said indebtedness was incurred. Every such municipality shall annually in April report to the commissioner of revenue administration such information as the commissioner may require relative to the revenues from such sources, the costs of operation of such parking facilities and the amount of outstanding indebtedness for such purposes. If, at any time, the commissioner of revenue administration shall find the revenues available for retiring the debt are insufficient for the purpose, then the remaining amount of outstanding indebtedness shall be included in the limit of indebtedness prescribed by RSA 33:4.

Source. 1959, 153:1. 1973, 544:8, eff. Sept. 1, 1973.

Section 33:6-b

33:6-b Exclusion From Debt Limit. – Municipalities, other than school districts and counties, may incur debt for energy production projects including the reconstruction or enlargement of a municipally owned utility; the manufacture or furnishing of light, heat, power or water for the public; the generation, transmission or sale of energy ultimately sold to the public; or the construction, enlargement, or improvement of small scale power facilities, as such facilities are defined in RSA 374-D:1; by the issue of bonds or notes authorized under this chapter, RSA 374-D, and as otherwise provided by law. Any debt incurred for this purpose shall be outside the debt limit prescribed in this chapter. Such debt shall at no time be included in the net indebtedness of any municipality for the purposes of determining its borrowing capacity.

Source. 1981, 161:2, eff. Aug. 1, 1981; 545:2, eff. Aug. 29, 1981.

Section 33:6-c

33:6-c Exclusion From Debt Limit. – Any municipality which has voted to acquire land from a United States military base may incur debt by the issuance of bonds or notes beyond the limit of indebtedness as set forth in RSA 33:4-a, provided that the purpose of the acquisition is to further the economic development of the municipality. Such debt shall at no time be included in the net indebtedness of the municipality for the purpose of ascertaining its borrowing capacity.

Source. 1992, 260:10, eff. July 14, 1992.

Section 33:6-d



33:6-d Exclusion From Debt Limit; Waste Site Cleanups. – Municipalities may incur debt for cleanup projects pursuant to RSA 147-B, excluding Superfund sites, and for the closing or cleanup of landfills and other solid waste facilities as defined in RSA 149-M by the issue of bonds or notes authorized under this chapter and RSA 149-M:30. Any debt incurred for this purpose shall be outside the debt limit prescribed in this chapter. Such debt shall at no time be included in the net indebtedness of any municipality for the purposes of determining its borrowing capacity.

Source. 1992, 279:2, eff. May 18, 1992. 1996, 251:6, eff. Aug. 9, 1996.

Section 33:6-e

33:6-e Exclusion From Debt Limit; Solid Waste Management Districts. – The debt limit restrictions of this chapter shall not apply to a solid waste management district formed under RSA 53-B or to the debts or obligations incurred by such a district. Debts or obligations of a member municipality to such a district shall at no time be included in the net indebtedness of the municipality for the purposes of determining its borrowing capacity.

Source. 1994, 367:15, eff. Aug. 8, 1994.

Section 33:6-f

33:6-f Exclusion From Debt Limit; Broadband Infrastructure. – Municipalities may incur debt for broadband infrastructure as defined in RSA 38:38, I(e) by the issue of bonds or notes authorized under this chapter. Any debt incurred for this purpose shall be outside the debt limit prescribed in this chapter. Such debt shall at no time be included in the net indebtedness of any municipality for the purposes of determining its borrowing capacity.

Source. 2006, 225:4, eff. July 31, 2006.

Section 33:7

33:7 Tax Anticipation Notes. –

I. Cities and Towns. Cities and towns may incur debt in anticipation of the taxes of the financial year in which the debt is incurred, in order to pay current maintenance and operation expenses, and may issue notes therefor to an aggregate principal amount not exceeding the total tax levy during the preceding financial year, provided that after the tax levy of the current year has been determined any city or town may borrow an amount not exceeding in the aggregate the total tax levy of the city or town for the current financial year. In order to meet necessary expenses which may arise during the period from the beginning of the financial year to the date of the annual town meeting, the treasurer of any town, with the approval of the selectmen, may issue notes, without a vote of the town therefor, to an aggregate principal amount not exceeding 30 percent of the total receipts from taxes during the preceding financial year.

II. Village Districts. Village districts may incur debt in anticipation of taxes and other revenue of the financial year in which the debt is incurred, in order to pay current maintenance and operation expenses, and may issue notes therefor to an aggregate principal amount not exceeding the total tax levy of the district during the preceding financial year. In order to meet necessary expenses which may arise during the period from the beginning of the financial year to the date of the annual district meeting, the treasurer of any district with the approval of the governing board, may issue notes, without a vote of the district therefor, to an aggregate principal amount not exceeding 30 percent of the total tax levy during the preceding financial year.

III. All notes issued under authority of this section shall be general obligations. They may be sold at discount and shall be payable not later than one year from their date. Notes issued for a shorter period than one year may be refunded or renewed, pursuant to a vote or resolution of the governing board, or the city councils in the case of cities, by the issue of other notes maturing within the required period, provided, however, that the period from the date of issue of the original loan to the date of maturity of the refunding or renewal loan shall not be more than one year.

IV. A village district established pursuant to RSA 52:1 may apply to the town it is situated in for tax anticipation money before the tax rate has been established for the town if said district presents to the selectmen a district budget, approved at a properly constituted district meeting called for the purpose of approving a budget. Towns may advance to any village district a share of any money borrowed by the town in anticipation of taxes, not exceeding the total approved budget amount to be paid to such district. The town may charge the district a proportionate share of the interest due on that town's tax anticipation notes.

V. For tax anticipation notes only, any town or village district at an annual meeting may adopt an article authorizing indefinitely until specific rescission of such authority the issuance of tax anticipation notes. The following shall apply:

(a) Such warrant article to be voted on shall read: "Shall the town (or village district) accept the provision of RSA 33:7 providing that any town (or village district) at an annual meeting may adopt an article authorizing indefinitely, until specific rescission of such authority, the selectmen (or commissioners)



to issue tax anticipation notes?"

(b) If a majority of voters voting on the question vote in the affirmative, the proposed warrant article shall be in effect in accordance with the terms of the article until such time as the town (or village district) meeting votes to rescind its vote.

Source. 1953, 258:1, par. 7. RSA 33:7. 1957, 95:1; 98:1. 1967, 305:1. 1969, 171:1. 1979, 140:1. 1993, 176:4, eff. Aug. 8, 1993; 361:1, eff. Sept. 22, 1993. 1997, 105:3, 4, eff. Aug. 8, 1997.

Section 33:7-a

33:7-a Temporary Loans. – If a municipality votes to issue bonds or serial notes in accordance with this chapter, or when bonds have been authorized by a county convention, and such action was in accordance with the provisions of law in all respects, the officers authorized to issue the same may, in the name of the municipality, or county, make a temporary loan or loans in anticipation of the money to be derived from the sale of such bonds or notes and may issue temporary notes therefor from time to time which are payable not later than 5 years from their respective dates of issue. Temporary notes issued for a period of less than 5 years may be renewed or paid from time to time by the issue of other notes, provided that the period from the date of an original note to the maturity of any note issued to renew or pay the same debt shall not exceed 5 years. When a temporary loan is made in anticipation of an issue of bonds or serial notes, the periods within which annual payments of an equivalent amount of the principal of such bonds or serial notes must commence and end under this chapter shall be measured from the date of the original note or notes representing such temporary loan, except that such annual payments need not commence less than one year after the date of such bonds or serial notes. No such notes shall be renewed beyond the third anniversary date of the original notes unless an amount of such notes, at least equal to the first legally payable installment of the bonds in anticipation of which said notes are issued, is paid and retired on or before said third anniversary date and, if such notes are renewed beyond the fourth anniversary date of the original notes, a like amount is paid or retired on or before said fourth anniversary date from funds other than proceeds of the obligation.

Source. 1957, 89:1. 1963, 151:2. 1965, 322:1. 1969, 172:1. 1973, 138:1; 544:11, III. 1975, 447:2. 1977, 160:1. 1983, 327:1. 1985, 143:1, eff. July 19, 1985.

Section 33:7-b

33:7-b Anticipation of Federal or State Aid. – A municipality may contract for or accept grants of federal or state aid or both in connection with any project for which the municipality may incur indebtedness under this chapter; and, after their receipt, such grants shall be expended according to the terms under which they are received or used to pay indebtedness incurred under this chapter. Any municipality which has contracted for or accepted an offer of a grant of federal or state aid or both, and any municipality which has not contracted for or accepted such aid but which has authorized such action and which has received a certificate from the department of environmental services stating that the department of environmental services has determined that such municipality may reasonably expect to receive an amount of federal aid with respect to a sewer project, may incur indebtedness in anticipation of the receipt of such aid by issuing its note or notes payable not more than 5 years from their dates, except that notes issued for a shorter period than 5 years may be funded and refunded from time to time by the issue of other notes which shall be payable no later than 5 years after the date of issue of the original note or notes creating the indebtedness being funded or refunded. In the case of a city the authority to contract for or accept grants of federal or state aid or both shall be given by a resolution passed in the manner provided in RSA 33:9, and in the case of a town, school district or village district the authority shall be given by a vote by ballot of 2/3 of all the voters present and voting at an annual or special meeting of such corporation; and the giving of such authority shall be sufficient to authorize the appropriate officers as specified in RSA 33:8 and 9 to issue notes as provided in this section without further proceedings by the municipality. Nothing contained in this section shall be construed to authorize the appropriation of any money in a manner which is inconsistent with laws relating to appropriations of money by municipalities.

Source. 1967, 38:2. 1971, 220:1. 1983, 160:1. 1986, 202:6, I(a). 1996, 228:108, eff. July 1, 1996.

Section 33:7-c

33:7-c Borrowing in Emergency Due to Bankruptcy. – Whenever any person, firm or corporation, who or which owns property subject to taxation under any provision of RSA 72, files a petition in bankruptcy, or is adjudicated bankrupt under any chapter of the federal bankruptcy laws, thus causing a substantial delay in or impediment to the payment or collection of property taxes assessed thereon by the city or town in which such property is located, such city or town, if the locally assessed value of such property of the bankrupt taxpayer exceeds 5 percent of the total locally assessed value of all taxable property within the city or town, may borrow money from time to time to meet any such deficit by issuance of its notes in such amount as may be approved by majority vote of its legislative body if a city, or of those present and voting at any



annual or duly called special meeting, if a town. The discretion of fixing the date, maturities and denominations, interest or discount rate, the form and other details of said notes and of providing for the issuance and place of payment thereof shall be deemed delegated to the selectmen or the treasurer, unless otherwise voted by said legislative body or town meeting. The issuance of such notes and the provisions thereof shall also be subject to the approval of the commissioner of revenue administration, who may approve the same upon a finding that the proposed borrowing complies with the provisions of this section and is in the best interests of the municipality. The provisions of RSA 31:5 shall not apply to action by special town meetings under this section. Such notes may be renewed subject to the provisions of this section and subject to the approval of the commissioner of revenue administration. Indebtedness incurred under this section shall not be subject to the debt limit prescribed by RSA 33:4-a and shall be excluded from the definition of net indebtedness in RSA 33:1. All taxes recovered from the bankrupt or through the bankruptcy proceedings shall be promptly applied toward the reduction of notes issued under this section. The commissioner may, from time to time, require reports from any such municipality as to progress in retirement of such indebtedness. All notes issued under this section shall be general obligations.

Source. 1988, 104:1, eff. April 18, 1988.

Section 33:7-d

33:7-d Tax Lien Redemption Notes. -

I. Any city or town in which the provisions of RSA 80:58-86 are in effect may incur debt in anticipation of redemption of real estate tax liens held by the city or town, in order to pay current maintenance and operation expenses or to fund cash deficits, and may issue notes therefor that are secured and made payable in accordance with this section, notwithstanding the provisions of RSA 33:7.

II. Notes issued under this section shall be general obligations but may also be secured, pursuant to a vote or a resolution of the local legislative body of the city or town, by a pledge of all or a portion of the proceeds of payments in redemption made under RSA 80:69 and RSA 80:71. Any such proceeds so pledged shall be deposited upon receipt in a segregated account to be held by the treasurer, or a corporate trustee designated by the treasurer, shall be applied without appropriation to the payment of such notes, and shall not be used for any other purpose until the notes and the interest on such notes are paid in full; provided that any earnings derived from investment of moneys in the account shall be credited to the general fund of the city or town and shall be available for appropriation for any lawful purpose. Any resolution adopted under this section may contain such covenants or restrictions with respect to maintenance, investment and disposition of the account, and any other provisions for protecting and enforcing the rights, security and remedies of the noteholders as may be, in the discretion of the city council or board of selectmen, reasonable and proper and not in violation of law. Any pledge made under this section shall be valid and binding and deemed continuously perfected from the time the pledge is made; and any proceeds so pledged and then held or thereafter acquired shall immediately be subject to the lien of that pledge. The resolution authorizing or creating the pledge need not be recorded other than in the records of the city or town clerk and no filing of the resolution need be made under RSA 382-A.

III. Notes issued under this section may be sold at a discount and shall be payable not later than 3 years from their dates. Notes issued for a shorter period may be refunded by the issue of other notes, provided that the period from the date of issue of the original notes to the date of maturity of the refunding notes shall not exceed 3 years. No notes may be issued or refunded under this section in a principal amount that would cause the total aggregate principal amount of notes outstanding under this section to exceed the total amount of real estate tax liens then held by the city or town.

Source. 1992, 173:1, eff. May 8, 1992.

Section 33:7-e

33:7-e Lease Agreements of Equipment. - The governing body may enter into leases of equipment as required by the municipality. Appropriations to fund lease agreements with nonappropriation clauses may be approved by a simple majority vote of the legislative body. Lease agreements with nonappropriation clauses shall not be treated as debt under RSA 33:4-a. For the purposes of this section, "lease" shall include lease-purchase, sale and lease back, installment sale, or other similar agreement to acquire use or ownership of such equipment as is from time to time required by the municipality.

Source. 1999, 35:1, eff. July 10, 1999.

Section 33:8

33:8 Town or District Bonds or Notes. - Except as otherwise specifically provided by law, the issue of bonds or notes by any municipal corporation, except a city or a town which has adopted a charter pursuant to RSA 49-B, without a budgetary town meeting, and except a school district or municipality which has adopted official ballot voting procedures pursuant to RSA 40:13 shall be authorized by a vote by ballot of 2/3, and the issue of tax anticipation notes, by a vote of a majority, of all the voters present and voting at an



annual or special meeting of such corporation, called for the purpose. The issue of notes or bonds by a school district or municipality which has adopted official ballot voting procedures pursuant to RSA 40:13 shall be authorized by a vote of 3/5. The issue of notes or bonds by a municipality that has adopted an optional form of legislative body under RSA 49-D:3, I-a or RSA 49-D:3, II-a shall be authorized by either a 2/3 or 3/5 vote as adopted and provided for in the charter. If such charter does not specify which majority vote is required, then the required majority vote shall be 2/3. Only votes in the affirmative or negative shall be included in the calculation of any majority. No such action taken at any special meeting shall be valid unless a majority of all the legal voters are present and vote at such special meeting, unless the governing board of any municipality shall petition the superior court for permission to hold an emergency special meeting, which, if granted, shall give said special meeting the same authority as an annual meeting. The warrant for a special meeting shall be published once in a newspaper having a general circulation in the municipality within one week after the posting of such special meeting. The warrant for any such annual or special meeting shall be served or posted at least 14 days before the date of such special meeting. Every warrant shall be deemed to have been duly served or posted, if the return on the warrant shall so state, and it shall be certified by the officer or officers required to serve or post the same. All bonds or notes, authorized in accordance with this chapter, shall be signed by the governing board, or a majority of the governing board, and countersigned by the treasurer of the municipality, and shall have the corporate seal, if any, affixed to it. The discretion of fixing the date, maturities, denominations, the interest rate, or discount rate in the case of notes, the place of payment, the form and other details of said bonds or notes and of providing for the sale of such bonds or notes, may be delegated to the governing board or to the treasurer and shall, to the extent provision therefor shall not have been made in the vote authorizing the same, be deemed to have been delegated to the governing board. Bonding authority under this section may be limited or rescinded as provided in RSA 33:8-f.

Source. 1895, 43:3. PL 59:9. RL 72:9. 1953, 258:1, par. 8. RSA 33:8. 1969, 438:2. 1970, 18:2. 1983, 160:2. 1991, 304:1, eff. Aug. 23, 1991. 1999, 134:1, eff. Aug. 17, 1999. 2002, 246:1, eff. July 16, 2002. 2004, 254:1, eff. Aug. 14, 2004. 2009, 229:1, eff. Jan. 1, 2010.

Section 33:8-a

33:8-a Procedure for Authorizing Bonds or Notes in Excess of \$100,000. -

I. There shall be at least one public hearing concerning any proposed municipal bond or note issue in excess of \$100,000 held before the governing board of any municipality. Said hearing shall be held at least 15 days, but not more than 60 days prior to the meeting, or adjourned session thereof, at which the bond or note issued is to be voted upon. Notice of the time, place and subject of such hearing shall be published in a newspaper of general circulation in the municipality at least 7 days before it is held. Whenever possible the governing board shall determine the form of the warrant article after the public hearing.

II. All articles appearing in the warrant which propose a bond or note issue exceeding \$100,000 shall appear in consecutive numerical order and shall be acted upon prior to other business except the election of officers and zoning matters or as otherwise determined by the voters at the meeting. Polls shall remain open and ballots shall be accepted by the moderator on each such article, for a period of not less than one hour following the completion of discussion on each respective article. A separate ballot box shall be provided for each bond article to be voted upon pursuant to this section.

III. The provisions of this section shall not apply to cities nor to any borrowing under the authority of RSA 33:7, relative to tax anticipation notes.

IV. Upon favorable approval on the motion to reconsider the vote on a bond or note issue under paragraphs I and II, actual reconsideration of the bond issue shall not take place until the expiration of at least 7 days from the date on which the original vote on the motion was taken. Notice of time and place where such reconsideration shall take place shall be published in a newspaper of general circulation in the municipality at least 2 days before the reconsideration vote. Wherever required, the provisions of RSA 33:8-a shall apply.

V. Bonding authority under this section may be limited or rescinded as provided in RSA 33:8-f.

Source. 1971, 270:1. 1973, 25:1; 543:1. 1979, 43:1. 1983, 160:3, eff. Aug. 9, 1983. 2009, 229:2, eff. Jan. 1, 2010.

Section 33:8-b

33:8-b Bonds or Notes in Excess of \$100,000. - [Repealed 1973, 25:2, eff. March 2, 1973.]

Section 33:8-c

33:8-c Alternate Procedure for Authorizing Town or Village District Bonds or Notes for Municipal Small Scale Power Facilities. -

I. By a 2/3 vote, the governing board of a town or village district may call a special meeting for the purpose of authorizing the issuance of bonds or notes for the municipal financing of small scale power facilities, as such facilities are defined in RSA 374-D:1. A special meeting held under this section shall have



the same authority as that of an annual town meeting. The issuance of such bonds or notes shall be authorized by a vote of 2/3 of all the voters present and voting at the special meeting.

II. The warrant for such special meeting shall be published in a newspaper of general circulation in the municipality at least once a week for 2 consecutive weeks after the posting of such warrant. The warrant for such special meeting shall be served or posted at least 14 days before the date of the meeting. Every warrant shall be deemed to have been duly served or posted, if the return on the warrant shall so state, and it shall be certified by the officer or officers required to serve or post the warrant.

III. There shall be at least one public hearing concerning any such proposed municipal bond issue held before the governing board of the municipality, before a special meeting held to vote on such issue. Said hearing shall be held at least 15 days, but not more than 60 days before the special meeting at which the bonds or notes to be issued are to be voted on. Notice of the time, place, and subject of such hearing shall be published in a newspaper of general circulation in the municipality at least 7 days before it is held. If a hearing is held under RSA 35:8-a or RSA 32, said hearing shall be sufficient for this purpose.

IV. All bonds or notes authorized in accordance with this section shall be signed by the governing board, or a majority of the board, and countersigned by the treasurer of the issuing municipality, and shall have the corporate seal, if any, affixed to such bonds or notes. The discretion of fixing the date, maturities, denominations, the interest rate, or discount rate in the case of notes, the place of payment, the form and other details of said bonds or notes and of providing for their sale, may be delegated to the governing board or to the treasurer and shall, to the extent provision for such delegation shall not have been made in the authorizing vote, be deemed to have been delegated to the governing board.

Source. 1981, 545:3, eff. Aug. 29, 1981.

Section 33:8-d

33:8-d Procedures for Authorizing Bonds or Notes in Municipalities Adopting Charters Pursuant to RSA 49-B, Without a Budgetary Town Meeting. -

I. The town council of any town which has adopted a charter pursuant to RSA 49-B, and which has chosen the procedures as set forth in this section, shall have the authority to issue bonds or notes, as follows:

(a) At least one public hearing shall be held at least 15 days, but not more than 60 days, prior to the vote on the bond issue or note. Notice of the time, place and subject matter of such hearings shall be published in a newspaper of general circulation in the municipality at least 7 days before the hearing is held and posted in at least 2 public places in the municipality.

(b) The issuance of any bonds or notes shall appear as an agenda item on the public agenda of the town council meeting at which any vote is scheduled to be taken and any action taken on such item shall be by a recorded roll call vote.

(c) A 2/3 majority vote of the town council shall be required to authorize the issuance of bonds or notes.

(d) The authority of the town council to issue bonds or notes pursuant to this paragraph is limited to an amount not in excess of 10 percent of the town's operating budget for the most recently concluded fiscal year.

II. In the event that a proposed bond issue or note is in excess of 10 percent of the town's operating budget for the most recently concluded fiscal year, a referendum shall be held on said issuance, as follows:

(a) The town council shall, after notice and public hearing at a regularly scheduled council meeting, order a referendum on the issuance to be held on the Tuesday not less than 60 nor more than 67 days from the regular meeting at which the order is passed.

(b) The town council shall hold at least one additional public hearing on the proposed bond or note after the issuance of its order for a referendum. The hearing shall be held at least 30 days, but not more than 60 days, prior to the referendum.

(c) The same notice requirements for public hearings on issuance of bonds or notes by vote of the town council shall apply to public hearings on bonds or notes to be authorized by referendum.

(d) An additional public hearing shall be held if the proposed bond or note issue is substantively altered by the town council after public hearing. Subsequent public hearings shall be held at least 14 days after the prior public hearing and shall comply with the same notice requirements.

(e) An official copy of the final bond or note proposal shall be placed on file with the town clerk and made available to the public 7 days before the referendum and displayed at the voting place on the day of the referendum.

(f) The town clerk shall prepare an official ballot which shall include the following question:

"Are you in favor of appropriating the sum of \$ _____ for the purpose of _____, with said sum to be in addition to any federal, state or private funds made available therefor, and of authorizing the issuance of not more than \$ _____ of bonds or notes in accordance with the provisions of the municipal finance act, RSA Chapter 33?"

When submitting the question under this section to the voters, there shall be 2 squares printed after the question, one with the word "yes" beside it and another with the word "no" beside it.



(g) If a 2/3 majority of the voters present and voting on the issuance of bonds or notes shall vote in the affirmative, the appropriation and issuance of bonds or notes in the amounts so stated in the question shall be declared to have been adopted.

III. The issuance of tax anticipation notes shall be authorized by a majority vote of the town council.

IV. This section shall not apply to towns which have adopted a charter calling for a budgetary town meeting pursuant to RSA 49-D:3, III. The issuance of bonds or notes in such towns shall be governed by RSA 33:7, 33:8 and 33:8-a.

Source. 1991, 304:2. 1993, 176:5. 1994, 87:1, eff. July 5, 1994.

Section 33:8-e

33:8-e Town Council Authority to Issue Bonds and Notes. - Any town which has adopted a charter pursuant to RSA 49-B and which does not have a budgetary town meeting, may choose in its charter to allow the town council to follow the procedures set out in RSA 33:8-d or RSA 33:9 for the issuance of bonds and notes.

Source. 1994, 87:2, eff. July 5, 1994.

Section 33:8-f

33:8-f Procedures to Limit or Rescind Bonding Authority for Bonds or Notes. -

I. In any vote to approve bonding authority, a town may limit the length of time the bond authorization remains valid. If, after the expiration of any such period, no bond or note has been issued, the bonding authority shall be considered for all purposes as rescinded.

II. A town may vote at an annual meeting to rescind an authorized but unissued bond or note following the same procedures as would be required to adopt such bond or note, provided that:

(a) A vote to rescind shall not take place less than 5 years after the vote to authorize the bond or note;

(b) The vote to rescind must pass by the same majority required, at the time of the rescission vote, to adopt a bond or note; and

(c) Notwithstanding RSA 33:8-a, II, a warrant article proposing the rescission of a bond or note in excess of \$100,000 need not be acted upon prior to other business.

Source. 2009, 229:3, eff. Jan. 1, 2010.

Section 33:9

33:9 City Bonds. - The issue of bonds or tax anticipation notes by a city shall be authorized by a resolution of the city councils, passed by at least 2/3 of all the members of each branch thereof. All such bonds and notes shall be signed by a mayor and countersigned by the city treasurer, and shall have the city seal affixed thereto. The discretion of fixing the date, maturities, denominations, place of payment, interest rate, or discount rate in the case of notes, the form and other details of said bonds or notes, and of providing for the sale thereof, may be delegated to the city treasurer and shall, to the extent provision therefor shall not have been made in the vote authorizing the same, be deemed to have been delegated to the treasurer with approval of the mayor.

Source. 1895, 43:4. PL 59:11. RL 72:11. 1953, 258:1, par. 9, eff. Jan. 1, 1954.

Section 33:10

33:10 County Bonds. - County bonds shall be authorized and issued as provided in RSA 25 and 28, provided that a public hearing is held which shall be advertised at least 7 days before said public hearing, in some daily newspaper having a wide circulation in the county, giving the time and place of the hearing; and provided that not more than 14 days after said public hearing the county convention shall approve such bond issue by at least 2/3 of the county convention present and voting and provided further that a majority of the whole convention shall be present.

Source. PL 59:12. RL 72:12. 1953, 258:1, par. 10. RSA 33:10. 1957, 109:1, eff. July 7, 1957.

Section 33:11

33:11 Authentication of Bonds. - All bonds issued under authority of this chapter shall bear an authenticating certificate signed by an authorized officer of a bank or trust company doing business in the state of New Hampshire or in the commonwealth of Massachusetts, or by the commissioner of revenue administration, or by a notary public or justice of the peace. The authenticating certificate endorsed upon such bond shall identify such bond as being one of the particular issues described therein, shall certify the genuineness of the signatures and the seal, if any, thereto affixed and shall state the name of the attorney or attorneys who rendered an opinion approving the legality of such issue. A signed copy of such legal opinion shall be furnished to the commissioner of revenue administration within 10 days after the bonds are delivered to the purchaser thereof. The provisions of this section shall not apply to bonds or notes issued to



secure a principal sum of \$17,000 or less when the bonds or notes are payable over a period not exceeding 5 years from the date of issue.

Source. 1953, 258:1, par. 11. RSA 33:11. 1973, 544:11, II. 1994, 167:1, eff. Jan. 1, 1995.

Section 33:11-a

33:11-a Agreements Relating to Registered Bonds and Notes. - In connection with the issuance by a municipality or county of original or replacement bonds or notes in registered form, the treasurer of the municipality or county, with the approval of the officer or officers authorized to sign such bonds or notes, is authorized to contract for and engage the services of any bank, trust company, banking institution or financial institution within or without the state to perform authentication, registration, transfer, exchange, record and paying agent functions, including, without limitation, the preparation, signing and issuance of checks in payment of such bonds or notes, the preparation and maintenance of records, reports and accounts and the performance of such related duties as may be necessary or desirable in connection with such bonds or notes. The treasurer, with such approval, may also enter into agreements with banks, trust companies, banking institutions and financial institutions to act as custodian or financial intermediary in connection with the establishment and maintenance by others of a central depository system for the transfer of interests in such bonds or notes. Any agreement entered into under this section shall include provisions for indemnifying the municipality or county for losses sustained by it on account of the negligence of a designated bank, trust company, banking institution or financial institution or on account of the failure of such designated bank, trust company, banking institution or financial institution to perform faithfully its duties and obligations under the agreement. Such agreement may include additional provisions necessary or desirable to protect the municipality or county and may provide for the limitation of liabilities of the parties, indemnification or payment of liquidated damages.

Source. 1983, 365:1, eff. June 19, 1983.

Section 33:12

33:12 Register. - The treasurer of every municipal corporation shall keep a register, in such form as may be prescribed by the commissioner of revenue administration, which shall state the denomination, number and date of every bond or note issued by the municipality, the time when and the place where the principal thereof and interest, if any, thereon are payable and such other information as the commissioner of revenue administration may prescribe. The commissioner of revenue administration shall inspect the register provided for herein whenever it shall make any audit of the accounts of a municipal corporation.

Source. 1895, 43:6. PL 59:19. RL 72:19. 1953, 258:1, par. 12. RSA 33:12. 1973, 544:8, eff. Sept. 1, 1973.

Section 33:13

33:13 Treasurer's Certificate. - [Repealed 1957, 95:2, eff. Jan. 1, 1958.]

Section 33:14

33:14 Report of Borrowing. - The treasurer of any municipal corporation, within 10 days after the delivery of an issue of bonds or notes authorized by this chapter to the purchaser thereof, shall submit to the commissioner of revenue administration a report setting forth the details of the issue in such form as the commissioner may prescribe. Failure to make said report, however, shall not affect the validity of any issue of bonds or notes.

Source. 1953, 258:1, par. 14. RSA 33:14. 1973, 544:8, eff. Sept. 1, 1973.

Section 33:15

33:15 Regularity Presumed. - All bonds or notes purporting to be issued under authority of this chapter, and executed as hereinbefore provided, shall, in favor of bona fide holders, be conclusively presumed to have been duly and regularly authorized and issued in accordance with the provisions herein contained, and no such holder thereof shall be obliged to see the propriety of the purpose of the issue, to the regularity of any of the proceedings relating thereto, or to the application of the proceeds thereof. Said bonds or notes shall be negotiable in all respects and to the same extent as other securities negotiable by the law merchant except as herein otherwise provided. Any of such bonds or notes, if properly executed by officers of the municipality in office on the date of execution, shall be valid and binding according to their terms notwithstanding that before the delivery thereof and payment therefor such officers shall have ceased to be officers of the municipality.

Source. 1895, 43:7. PL 59:21. RL 72:21. 1953, 258:1, par. 15, eff. Jan. 1, 1954.

Section 33:16

33:16 Tax Exemption. - All bonds and notes, and the interest thereon, heretofore or hereafter issued by municipal corporations and counties under the provisions of this chapter or of any general or special act,



heretofore or hereafter enacted, shall be exempt from taxation in the state of New Hampshire. For the purpose of this section the amount of the discount on any notes which are sold at discount shall be deemed to be interest paid in advance.

Source. 1953, 258:1, par. 16, eff. Jan. 1, 1954.

Section 33:17

33:17 Construction of Other Legislation. - Any special act, heretofore or hereafter enacted shall be construed so as not to lessen the amount of indebtedness which the municipality affected would be authorized to incur under the terms of this chapter, unless such act expressly provides for such limitation.

Source. 1931, 115:1. RL 72:22. 1953, 258:1, par. 17, eff. Jan. 1, 1954.

Section 33:18

33:18 Saving Clause. -

I. Nothing contained herein shall impair the validity of any debt properly issued by a municipality or county under authority of any general or special act so repealed hereby.

II. Chapter 9, Laws of 1953, [RSA ch. 204], shall not be deemed repealed by this act.

Source. 1953, 258:2, eff. Jan. 1, 1954.

Section 33:19

33:19 Validity and Enforceability of Certain Obligations and Indebtedness. - Any obligation and indebtedness incurred under this chapter prior to January 1, 1999 and any obligation and indebtedness incurred under this chapter on or after January 1, 1999 which mature on or before March 31, 2000 shall be a valid and enforceable obligation and debt of the municipality that approved such obligation and indebtedness in the manner required by this chapter, notwithstanding the fact that all or any portion of the tax revenues that the municipality expects to use to repay such indebtedness or obligation is, or can reasonably be expected, to be derived from tax revenues from levies for the school portion of the municipality's tax rate. No member of any municipal legislative body or governing body, and no officer of any municipality, shall have any official or personal liability as a result of executing and delivering, on behalf of such municipality, any such obligation or debt authorized in said manner.

Source. 1999, 2:1, eff. Feb. 3, 1999.

TITLE III

TOWNS, CITIES, VILLAGE DISTRICTS, AND UNINCORPORATED PLACES

CHAPTER 38

MUNICIPAL ELECTRIC, GAS, OR WATER SYSTEMS

Section 38:1

38:1 Definitions. - In this chapter:

I. "Commission" means the public utilities commission, unless the context otherwise indicates.

II. "Utility" means any public utility engaged in the manufacture, generation, distribution, or sale of electricity, gas, or water in the state.

III. "Municipality" means any city, town, unincorporated town, unorganized place, or village district within the state.

IV. "Municipal water company" means any water distribution system or water supply utility, owned or operated by a municipality, whether as a municipal department, separate company, or otherwise.

V. "Regional water district" means any regional water district formed pursuant to RSA 53-A, for the purpose of providing and assuring the provision of an adequate and sustainable supply of clean water.

Source. 1997, 206:1, eff. July 1, 1997. 2003, 281:8, eff. July 18, 2003.

Section 38:2

38:2 Establishment, Acquisition, and Expansion of Plants. - Any municipality may:

I. Establish, expand, take, purchase, lease, or otherwise acquire and maintain and operate in accordance with the provisions of this chapter, one or more suitable plants for the manufacture and distribution of electricity, gas, or water for municipal use, for the use of its inhabitants and others, and for such other purposes as may be permitted, authorized, or directed by the commission.

II. For these purposes, take, purchase, and hold in fee simple or otherwise lease or otherwise acquire and maintain any real or personal estate and any rights therein, including water rights.

III. Do all other things necessary for carrying into effect the purposes of this chapter.

IV. Excavate and dig conduits and ditches in any highway or other land or place, and erect poles, place wires, and lay pipes for the transmission and distribution of electricity, gas, water, and pressurized hot water in such places as may be deemed necessary and proper.

V. Change, enlarge, and extend the same from time to time when the municipality shall deem necessary,



and maintain the same, having due regard for the safety and welfare of its citizens and security of the public travel.

Source. 1997, 206:1, eff. July 1, 1997. 2010, 49:1, eff. July 17, 2010.

Section 38:2-a

38:2-a Establishment, Acquisition, and Expansion of Plants; Regional Water Districts. – Any regional water district may:

I. Establish, expand, purchase, lease, or otherwise acquire and maintain and operate in accordance with the provisions of this chapter, one or more suitable plants for the manufacture and distribution of water for the use of municipalities that are members of the regional water district and for such other purposes as may be permitted, authorized, or directed by the commission.

II. For these purposes, purchase and hold in fee simple or otherwise lease or otherwise acquire and maintain any real or personal estate and any rights therein, including water rights.

III. Do all other things necessary for carrying into effect the purposes of this chapter.

IV. Excavate and dig conduits and ditches in any highway or other land or place, and erect poles, place wires, and lay pipes for the distribution of water in such places as may be deemed necessary and proper.

V. Change, enlarge, and extend the same from time to time when the regional water district shall deem necessary, and maintain the same, having due regard for the safety and welfare of the citizens of the member municipalities and security of the public travel.

VI. No regional water district shall have the authority to take property by eminent domain.

Source. 2003, 281:9, eff. July 18, 2003.

Section 38:3

38:3 By Cities. – Any city may initially establish such a plant after 2/3 of the members of the governing body shall have voted, subject to the veto power of the mayor as provided by law, that it is expedient to do so, and after such action by the city council shall have been confirmed by a majority of the qualified voters at a regular election or at a special meeting duly warned in either case. Such confirming vote shall be had within one year from the date of the vote to establish such a plant, and if favorable, shall create a rebuttable presumption that such action is in the public interest. If the vote is unfavorable, the question shall not be again submitted to the voters within 2 years thereafter.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:3-a

38:3-a By Regional Water Districts. – Any regional water district may initially establish such a plant after 2/3 of the members of the governing body of the district shall have voted affirmatively, and a majority of the constituent municipalities of the district by a majority vote of their legislative bodies have confirmed that vote. Such confirming vote shall create a rebuttable presumption that such action is in the public interest. If the vote is unfavorable, the question shall not be again submitted to the constituent municipalities within 2 years thereafter.

Source. 2003, 281:10, eff. July 18, 2003.

Section 38:4

38:4 By Towns or Village Districts. – Any town or village district may initially establish such a plant after 2/3 of all the voters present and voting at an annual or special meeting, duly warned in either case, have voted by ballot with the use of the checklist that it is expedient to do so. A favorable vote to establish such a plant shall create a rebuttable presumption that such action is in the public interest. If such vote is unfavorable, the question shall not be again submitted to the voters within 2 years thereafter.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:5

38:5 By Unincorporated Towns and Unorganized Places. – Any unincorporated town or unorganized place may initially establish such a plant after 2/3 of the members of the county convention shall have voted that it is expedient to do so, and, if there are any registered voters in that unincorporated town or unorganized place, after such action by the county convention shall have been confirmed by a majority of the qualified votes in that unincorporated town or unorganized place at a regular election or at a special meeting duly warned in either case. Such confirming vote shall be had within one year from the date of the vote to establish such a plant, and if favorable, shall create a rebuttable presumption that such action is in the public interest. If the vote is unfavorable, the question shall not be again submitted to the voters within 2 years thereafter.

Source. 1997, 206:1, eff. July 1, 1997.



Section 38:6

38:6 Notice to Utility. – Within 30 days after the confirming vote provided for in RSA 38:3, 38:4, or 38:5 the governing body shall notify in writing any utility engaged, at the time of the vote, in generating or distributing electricity, gas, or water for sale in the municipality, of the vote. The municipality notifying any utility in such manner may purchase all or such portion of the utility's plant and property located within such municipality that the governing body determines to be necessary for the municipal utility service, and shall purchase that portion, if any, lying without the municipality which the public interest may require, pursuant to RSA 38:11 as determined by the commission. The notice to such utility shall include an inquiry as to whether the utility elects to sell, in the manner hereinafter provided, that portion of its plant and property located within or without the municipality which the municipality has identified as being necessary for the municipal utility service.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:7

38:7 Reply by Utility. – The utility shall reply to the inquiry provided for in RSA 38:6 by delivering its answer in writing to the governing body within 60 days of the receipt of the inquiry. If the reply is in the negative, or if the reply is not made within the 60 days, the utility thereby forfeits any right it may have had to require the purchase of its plant and property by the municipality, and the municipality may proceed to acquire the plant as provided in RSA 38:10. If the reply is in the affirmative, the utility shall submit the price and terms it is willing to accept for all of its plant and property identified by the municipality in its inquiry, together with a detailed schedule of such plant and property with proper evidence of title. All of the plant and property identified by the municipality shall at all reasonable times thereafter be open to the examination of the officers and agents of the municipality and others charged with the duty of determining the fair value of the property.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:8

38:8 By Agreement. – The governing body of a municipality may negotiate and agree with the utility upon the price to be paid for such plant and property; provided, however, that such agreement shall not be binding upon the municipality until ratified pursuant to RSA 38:13.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:9

38:9 Valuation. –

I. If the municipality and the utility fail to agree upon a price, or if it cannot be agreed as to how much, if any, of the plant and property lying within or without the municipality the public interest requires the municipality to purchase, or if the schedules of property submitted in accordance with RSA 38:7 are not satisfactory, either the municipality or the utility may petition the commission for a determination of these questions.

II. The commission, after proper notice and hearing, shall decide the matters in dispute.

III. When required to fix the price to be paid for such plant and property, the commission shall determine the amount of damages, if any, caused by the severance of the plant and property proposed to be purchased from the other plant and property of the owner. In the case of electric utilities, such amount shall be limited to the value of such plant and property and the cost of direct remedial requirements, such as new through-connections in transmission lines, and shall exclude consequential damages such as stranded investment in generation, storage, or supply arrangements which shall be determined as provided in RSA 38:33.

IV. The expense to the commission for the investigation of the matters covered by the petition, including the amounts expended for experts, accountants, or other assistants, and salaries and expenses of all employees of the commission for the time actually devoted to the investigation, but not including any part of the salaries of the commissioners, shall be paid by the parties involved, in the manner fixed by the commission.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:10

38:10 Construction or Condemnation. – If the utility shall have replied to the inquiry provided for in RSA 38:7 in the negative or if it shall have failed to reply within the time prescribed in RSA 38:7, the municipality, in the event that it shall have passed the vote or votes required in RSA 38:3, 38:4, and 38:5 and after the commission upon proper notice and hearing has determined that it is in the public interest to do so, may construct a municipal plant or may take all or any portion of such private plant and property by condemnation, paying therefor just compensation determined in the manner provided in RSA 38:9.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:11



38:11 Public Interest Determination by Commission. – When making a determination as to whether the purchase or taking of utility plant or property is in the public interest under this chapter, the commission may set conditions and issue orders to satisfy the public interest. The commission need not make any public interest determinations when the municipality and utility agree upon the sale of utility plant and property.
Source. 1997, 206:1, eff. July 1, 1997.

Section 38:12

38:12 Expansion of Existing Municipals. – A municipality that has an existing municipal plant may expand such plant or may purchase or take, in the manner prescribed in RSA 38:6-11 and RSA 38:33, all or a portion of such plant owned by a utility which is necessary for expanded municipal utility service. Such action shall not require any further vote under RSA 38:3, 38:4, or 38:5.
Source. 1997, 206:1, eff. July 1, 1997.

Section 38:13

38:13 Ratification. – Within 90 days of the final determination of the price to be paid for the plant and property to be acquired under the provisions of RSA 38:8, 38:9 or 38:10 and any consequential damages under RSA 38:33, the municipality shall decide whether or not to acquire the plant and property at such price by a vote to issue bonds and notes pursuant to RSA 33-B as may be necessary and expedient for the purpose of defraying the cost of purchasing or taking the plant, property, or facilities of the utility which the municipality may thus acquire. The municipality is authorized to hold a special meeting, if necessary, to take such vote without having to petition the superior court for permission to do so. An affirmative vote under RSA 33-B shall constitute ratification on the part of the municipality of the final determination of the price to be paid for the plant and property under the provisions of RSA 38:8, 38:9, or 38:10 and any consequential damages under RSA 38:33. If the money is so raised it shall immediately be paid to the utility, which shall thereupon execute a proper conveyance and surrender the plant and property to the municipality. If the ratifying vote provided for in this section shall be in the negative, no other action under this chapter shall be had during the ensuing period of 2 years.
Source. 1997, 206:1, eff. July 1, 1997.

Section 38:13-a

38:13-a Aggregate Municipal Revenue Bonds. – If the commission orders divestiture of generation facilities in the implementation of electric utility restructuring under RSA 374-F, any municipality which has voted to acquire a hydro-electric facility as provided in RSA 38 may jointly issue with any other municipality which has also voted to acquire a hydro-electric facility as provided in RSA 38 municipal revenue bonds and notes pursuant to RSA 33-B as may be necessary and expedient for the purpose of defraying the cost of purchasing or taking such hydro-electric generation facilities. Such municipal revenue bonds or notes may be in the aggregate of the total cost of purchasing or taking such generation facilities as set forth in RSA 33-B:3 and may be issued in the joint names of any such municipalities in accordance with their respective interests therein. In all other respects, the provisions of RSA 33-B shall apply to the issuance of such municipal revenue bonds and notes.
Source. 2000, 164:2, eff. May 23, 2000.

Section 38:14

38:14 Operation of Plant. – A municipality, which has so acquired the plant, property, or facilities of a public utility in any other municipality, may operate within such other municipality as a public utility with the same rights and franchises which the owners of such outlying plant, as purchased, would have had such purchase not been made. The operation by a municipality outside its own limits shall be subject to the jurisdiction of the commission except as provided in RSA 362. If the outlying municipality shall itself vote to establish a municipal plant all the provisions of this chapter shall be binding as to such determination.
Source. 1997, 206:1, eff. July 1, 1997.

Section 38:15

38:15 Taking Property. – Any such municipality may enter upon and take by eminent domain any land or any interest in land or water right within its limits, or in the case of a village district within the limits of the town or towns within which it is situated, which may be necessary for the construction, extension, or maintenance of its plant, and shall pay all damages sustained thereby, or by any other thing done under the authority of this chapter.
Source. 1997, 206:1, eff. July 1, 1997.

Section 38:16



38:16 Damages. – If the municipality shall not agree with the owner of the property referenced in RSA 38:15 as to damages, either party may apply to the superior court in the county where the town or district is located, or if the municipality is a village district then to the board of selectmen of the town or towns within which the village district is situated, to have the same laid out and the damages determined and proceedings thereon shall be as upon a petition for the laying out of a highway.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:17

38:17 Supply Contracts. – Any such municipality may contract to supply electricity, gas, or water to individuals, corporations, other municipalities, or any person for any of the purposes named or contemplated in this chapter, and make such contracts, and establish such regulations and such reasonable rates for the use thereof, as may from time to time be authorized by the commission.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:18

38:18 Commissioners. – For the more convenient management of any such electric, gas, or water works system, any such municipality may vest the construction, management, control, and direction of the same in a board of commissioners to consist of 3 or more citizens of such municipality, the commissioners to have such powers and duties as the municipality may prescribe. Their term of office shall be for 3 years and until their successors are elected and qualified. The first board of commissioners may be chosen for terms of one, 2, and 3 years, respectively, by the legal voters of the municipality at any legal meeting or election at which the provisions of this chapter are accepted, or at any special meeting or election thereafter called for that purpose, and their successors shall be elected at each annual meeting or election thereafter in the manner or form as the municipality may determine.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:19

38:19 Appointment. – The commissioners may be appointed by the mayor and board of aldermen or city council, by the selectmen of the town, or by the commissioners of the district if the municipality fails to elect or votes to allow appointments.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:20

38:20 Compensation and Organization. – The compensation of the commissioners shall be fixed by the municipality. They shall be sworn to the faithful discharge of their duties. They shall annually organize by choosing one of their number as chairperson of their board. They shall appoint a clerk and a superintendent of the works and such other officers as they may deem necessary, and shall thereupon furnish a certificate of such organization to the clerk of the municipality, who shall record the same in the clerk's records. The commissioners shall fix the compensation of all officers and agents appointed by them, and all officers and agents shall be sworn to the faithful discharge of their duties.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:21

38:21 Reports. – The commissioners shall annually, at the time other city, town, or district officers report, make a report to the municipality of the condition of the plant financially and otherwise, showing the funds of the department, the expenses and income of the department, and all other material facts. This report shall be published in the annual report of the municipality.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:22

38:22 Liens and Collection of Charges. –

I. Except as provided in paragraph III, all charges for services furnished to patrons by a municipally owned electric, gas, water, or wastewater utility shall create a lien upon the real estate where such services are furnished.

II. Except as provided in paragraph III, a municipality may use any of the following collection procedures for charges and the use of one collection procedure for one service shall not preclude the use of a different collection procedure for another service:

(a) A municipality may commit bills for charges to the tax collector with a warrant signed by the appropriate municipal officials requiring the tax collector to collect them. The tax collector shall have the same rights and remedies, including a lien on the real estate, and be subject to the same liabilities in relation thereto as in the collection of taxes as provided in RSA 80; provided, however, that the real estate lien shall continue for 18 months from the date of the last unpaid bill.

(b) The official or board responsible for administering the municipal utility may collect charges for



services by direct billing on any periodic basis it may choose. All charges which are delinquent may be committed to the tax collector with a warrant signed by the appropriate municipal officials requiring the tax collector to collect them. The tax collector shall have the same rights and remedies, including a lien on the real estate, and be subject to the same liabilities in relation thereto as in the collection of taxes as provided in RSA 80; provided, however, that the real estate lien shall continue for 18 months from the date of the last unpaid bill.

(c) If the official or board responsible for administering the municipal utility has not committed the charges to the collector of taxes, the municipality shall have a lien upon the real estate where the services were furnished and the lien shall continue for 18 months from the date of the last unpaid bill, unless the municipality records in the registry of deeds for the county in which the land is situated a notice of lien, in which case the lien shall continue for 6 years from the date of the last unpaid bill. The lien may be enforced in a suit by the municipality against the owner of the real estate. In such a suit, the municipality shall have the right to a judgment for per year charges, interest at the rate of 12 percent from the date of the last unpaid bill to the date of judgment, and costs. The records in the municipal department which furnished the services shall be sufficient notice to maintain suit upon the lien against subsequent purchasers or attaching creditors of the real estate.

(d) When the services were furnished to some person or legal entity other than the owner of the real estate, the liens provided for in this paragraph shall be effective against the owner of the real estate only for charges of which the owner of the real estate was notified by the municipality within 120 days of the date the charges became delinquent; provided, however, that a municipality may meet these notice requirements by mailing to the owner of the real estate copies of the bills for services at the same time bills are furnished to the person or legal entity which received the services.

(e) The tax collector under subparagraph (a), or the person responsible for issuing bills under subparagraph (b), may issue bills or notices by electronic means only after the customer requests such delivery. There shall be no charge for delivery of bills or notices by electronic means and there shall be no penalty for not choosing to elect delivery by electronic means. Any request for electronic delivery of bills or notices shall contain the physical signature of the customer or an electronic signature conforming to the requirements of the federal Electronic Signatures Act of 2000, Public Law 106-229, or its successor. Any agreement executed by a customer to receive tax bills by electronic means shall contain a description of the delivery system proposed to be used and shall contain clear instructions on the method for terminating such delivery. In the event that the tax collector or other person responsible for sending bills or notices has any reason to believe that bills or notices sent by electronic means have failed to be delivered, such person shall promptly send a duplicate of the bills or notices to the customer by first class mail. A duplicate bill or notice mailed in compliance with this requirement shall be at no cost to the customer. Second and subsequent notices of payments due, or notices of delinquency, shall be sent by first class mail. Sending a bill as provided in this paragraph shall not change the last date that bills may be paid without penalty.

III. No municipally owned electric, gas, water, or wastewater utility shall perform non-emergency work with a total cost in excess of \$250 per project on facilities on customer property beyond the utility's final shutoff point or the point at which the property owner is responsible for construction or maintenance, or both, unless a written contract has been executed and signed between the owner or an authorized representative of the property and an authorized representative of the utility. The contract shall include the terms of the work to be performed, the name and address of the property owner, the location of the work to be performed, the estimated price of the work, the time of completion, and any other agreed upon stipulations relating to the project. No lien shall be placed on the property for such work in the absence of such a contract.

Source. 1997, 206:1, eff. July 1, 1997. 2012, 178:1, eff. Aug. 10, 2012. 2013, 109:3, eff. Aug. 23, 2013.

Section 38:23

38:23 Security Deposits From Tenants. - Notwithstanding any other provision of law, any public utility, including any municipal corporation, providing electricity or gas services other than for resale to a customer who is not the owner of the premises serviced by the utility and who has a separate electric or gas meter, for the premises serviced, may obtain a security deposit from the customer only, and shall not obtain a security deposit from the owner of the premises. The owner of the premises shall not be liable for the failure of a tenant to pay the utility bill when such tenant's premises has a separate meter, and the utility shall not have any lien on the property of the landlord under RSA 38:22 for the tenant's failure to pay the utility bill.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:24

38:24 Effect on City Charters. - Nothing contained in this chapter shall affect, alter or change the provisions of any city charter with respect to the management, control, and direction of electric, gas, or water works.



Source. 1997, 206:1, eff. July 1, 1997.

Additional Provisions for Water Systems

Section 38:25

38:25 Water Control. – Any municipality which shall have received an order from the department of environmental services under the provisions of RSA 147, 485 or 485-A shall proceed forthwith, after a majority vote in favor of such action, by the governing body, to acquire whatever easements and lands as are necessary to comply with the order and may enter upon, for the purpose of survey leading to land description, any land within the municipality. In so proceeding, the selectmen of the town, commissioners of the district, county commissioners, or mayor and aldermen of a city shall institute any necessary land taking in accordance with the provisions of RSA 38:15 and RSA 38:16, and anything contained in RSA 231 or in the statutes generally notwithstanding, the decision of the officials authorized by this section to institute proceedings shall not be vacated and any subsequent appeal or other action by the owner or owners shall be based solely on the amount of damages assessed, and the duly authorized agents of the municipality shall have full right of immediate entry for the purposes of detailed surveys, borings, or the conduct of any and all other actions necessary or desirable to aid the municipality in the implementation of the order of the department.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:25-a

38:25-a Village District Hearings. – Prior to authorizing the expansion of a franchise area of a water company owned or operated by a water village district, the public utilities commission shall, after notice, hold a public hearing in each town or city in which the village district is located, at which it shall hear testimony and receive evidence from any interested party.

Source. 2002, 174:1, eff. May 15, 2002.

Section 38:26

38:26 Bylaws and Ordinances. –

I. In municipalities with public water systems the governing body, or the board of water commissioners, if any, may adopt such ordinances and bylaws relating to the system or structures as required for proper maintenance and operation.

II. Any person who violates any ordinance or bylaw adopted pursuant to paragraph I of this section shall be subject to a civil penalty not to exceed \$10,000 per day of such violation.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:27

38:27 Assessment for Water Supply. – The governing body, or board of water commissioners if any, may assess upon the persons who are served by the water system, or whose lands receive special benefit from the water system, their just share of the expense of constructing, acquiring, and operating the system or paying any capital debt or interest incurred for the system.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:28

38:28 Water Rates. – For the defraying of the cost of acquisition, construction, payment of the interest on any debt incurred, management, maintenance, operation, and repair of water systems, or construction, enlargement, or improvement of such systems, the governing body, or the board of water commissioners, if any, may establish a scale of rates to be called water rates, may prescribe the manner in which and the time at which such rates are to be paid and may change such scale from time to time as may be deemed advisable. The amount of such rates may be based upon the consumption of water on the premises connected to the water system, or the number of persons served on the premises, or upon some other equitable basis.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:29

38:29 Water Funds. –

I. The funds received from the collection of water rates shall be kept as a separate and distinct fund to be known as the water fund. Such fund shall be allowed to accumulate from year to year, shall not be commingled with town or city tax revenues, and shall not be deemed part of the municipality's general fund accumulated surplus. Such fund may be expended only for the purposes specified in RSA 38:28, or for the previous expansion or replacement of water lines or water systems.

II. Except when a capital reserve fund is established pursuant to paragraph III, all water funds shall be



held in the custody of the municipal treasurer. Estimates of anticipated water rate revenues and anticipated expenditures from the water fund shall be prepared and submitted to the governing body as set forth in RSA 32:4, if applicable, and shall be included either as part of the municipal operating budget or as a separate warrant article submitted to the local legislative body for approval. In a town or district that has adopted the official ballot referendum form of meeting, any such separate warrant article shall include a default amount as provided in RSA 40:13, XI-a. If the municipality has a properly established board of water commissioners, then notwithstanding RSA 41:29 or RSA 48:16, the treasurer shall pay out amounts from the water fund only upon order of the board of water commissioners. Expenditures shall be within amounts appropriated by the local legislative body. The water commission shall also remit to the municipality those costs incurred by the municipality in support of water operations, including but not limited to financial audit, facility insurance, treasurer compensation, and office support.

III. At the option of the local governing body, or of the board of water commissioners, if any, all or part of any surplus in the water fund may be placed in one or more capital reserve funds held in the custody of the trustees of trust funds pursuant to RSA 35:7. If such a reserve fund is created, then the governing body, or board of water commissioners, if any, may expend such funds pursuant to RSA 35:15 without prior approval or appropriation by the local legislative body, but all such expenditures shall be reported to the municipality pursuant to RSA 38:21. This section shall not be construed to prohibit the establishment of other capital reserve funds for any lawful purpose relating to municipal water systems.

Source. 1997, 206:1, eff. July 1, 1997. 2013, 191:3, eff. Aug. 31, 2013.

Section 38:30

38:30 Protection of Water Supply. - Any municipality or municipal water company supplying water to the public for domestic use shall have the power to take by the exercise of the right of eminent domain any property needed to protect the purity of the water so supplied, upon petition to the superior court or in the case of a village district to the board of selectmen of the town or towns within which the district is situated and proceedings thereon as in case of a petition for the laying out of a highway.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:31

38:31 Discontinuance of Service. -

I. Notwithstanding any other provision of law to the contrary, except as provided in paragraph V of this section, no municipal water company shall disconnect service to a customer if any part of the service provided accrues to the benefit of one or more parties known by company to be residential tenants, unless the company gives written notice to the tenants. Such notice shall set forth:

- (a) The date on or after which the company proposes to disconnect service.
- (b) A statement that the reason for disconnection is a dispute between the company and the landlord.
- (c) A statement that the tenant should contact the landlord for more information.
- (d) An address and telephone at which the tenant may contact the utility in order to make arrangements to maintain service.

II. A municipal water company shall refrain from terminating service to the affected premises if so requested by the tenant, provided that the tenant agrees to be responsible for service provided as of the date of the tenant's request. However, the water company may continue to list the landlord's past due balance on the tenant's bill, and the lien created pursuant to RSA 38:22 shall include any past due charges which accrue after the company begins billing the tenant. The utility shall provide direct service to the person requesting it on terms and conditions applicable to all residential customers. Such service may include other charges, such as sewer and fire protection service, if customarily included with water service billing.

III. Immediately upon learning that a tenant has been disconnected without the notice required in paragraph I, the water company shall reconnect service and may charge a reasonable reconnection fee which may be added to the existing arrearage.

IV. The notice required by paragraph I shall be provided to the tenant no less than 7 days in advance of the proposed disconnection, by posting a conspicuously lettered notice on the main entrance door to each building in which service is being terminated. In addition, the company shall post the notice on a back door or side door to which the company has reasonable access, or in a common area of each building. The company, at its option, may notify the tenants in the affected property by mail rather than by posting.

V. The notice to tenants required by paragraph I of this section shall not be required when necessary to avoid danger to life or property, and upon the order of a duly constituted public authority such as police, firefighters, public health officer, and building inspectors.

Source. 1997, 206:1, eff. July 1, 1997.

Additional Provisions for Electric Systems

Section 38:32



38:32 Exemption for Municipal Small Scale Power Facility. – Except in municipalities which have acquired, expanded, or established a plant under this chapter, the development by a municipality of any small scale power facility, as defined in RSA 374-D:1, IV shall not be subject to the provisions of this chapter. Nothing in this section shall be construed as exempting municipalities from the provisions of this chapter with respect to the acquisition of a utility plant and equipment if there exists a dispute between the municipality and the utility.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:33

38:33 Consequential Damages. – In matters over which the Federal Energy Regulatory Commission does not have jurisdiction, or has jurisdiction but chooses to grant jurisdiction to the state, the commission shall determine, to a just and reasonable extent, the consequential damages such as stranded investment in generation, storage, or supply arrangements resulting from the purchase of plant and property from a utility and shall establish an appropriate recovery mechanism for such damages. The commission need not make such a determination when the municipality and utility agree upon the sale of utility plant and property.

Source. 1997, 206:1, eff. July 1, 1997. 2000, 164:3, eff. May 23, 2000.

Section 38:34

38:34 Unbundling Rates and Open Access. – Municipal electric utilities established after July 1, 1997, shall unbundle their rates and allow for open access to competitive retail electric supply markets as soon as retail electric competition is certified to exist anywhere in the state pursuant to RSA 38:36. Municipal electric utilities established prior to July 1, 1997, may voluntarily unbundle their rates and allow open access to competitive retail electric supply markets.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:35

38:35 Financial Responsibility. –

I. Any retail electric customer located within a municipality that has established a municipal electric utility after July 1, 1997, but who is not within the service area of such utility, shall not be responsible for, and no entity may require the customer to pay, through taxes or otherwise, any costs associated with such utility except for electric power and services consumed directly by the municipality, and any electric power and services sold by the utility to the customer.

II. Any retail electric customer located within the service area of a municipal electric utility established after July 1, 1997, who does not purchase generation services by or acquired through such municipal electric utility, as allowed by RSA 38:34, shall not be responsible for, and no entity may require the customer to pay, through taxes or otherwise, any costs of generation services from such municipal electric utility, except for electric power consumed directly by the municipality. Nothing in this paragraph shall prevent any property owners or retail electric customers from signing contracts of any duration with such municipal electric utility after retail electric competition is certified to exist pursuant to RSA 38:36, and being bound by their terms, including damages for termination.

III. If any municipal electric utility acquires existing plant and equipment used for the generation of electric power, the municipal electric utility shall make payments in lieu of property taxes in the amount that the plant and equipment would have paid taxes if they had been owned by a private owner. Such payments in lieu of taxes shall be included in "costs of generation services" as provided in paragraph II.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:36

38:36 Certification. – The chairman of the public utilities commission shall certify to the secretary of state the date that retail electric competition exists in each portion of the state.

Source. 1997, 206:1, eff. July 1, 1997.

Section 38:37

38:37 Limitation on Purchase, Construction, or Operation of Certain Fossil Fuel Facilities. –

I. Except as provided in paragraph II, no municipal electric utility or municipality may, after July 1, 2000, purchase, construct, or operate any fossil fuel plants for the manufacture of electricity and sale to customers beyond the bounds of the municipality.

II. Following consultation with the department of environmental services to adequately address present and future environmental impacts, a municipality or a municipal electric utility may petition the department for specific permission for such acquisition, operation, or construction.

Source. 2000, 293:4, eff. June 21, 2000.

Broadband Access

Section 38:38



38:38 Broadband Access. –

I. In this subdivision:

(a) "Access tariff" means the fee charged on a monthly or annual basis to broadband carriers for access to the broadband infrastructure.

(b) "Areas not served" means any part of a municipality without a wireless or facilities based broadband service or a wireless or facilities based broadband service provider. Wireless shall not include subscription satellite service.

(c) "Broadband" means the transmission of information, between or among points specified by the user, with or without change in the form or content of the information as sent and received, at rates of transmission defined by the Federal Communications Commission as "broadband."

(d) "Broadband carrier" means any provider of broadband services, except aggregators of broadband services, as defined in section 226 of the 1996 Telecommunications Act.

(e) "Broadband infrastructure" means all equipment and facilities, including all changes, modifications, and expansions to existing facilities, as well as the customer premises equipment used to provide broadband, and any software integral to or related to the operations, support, facilitation, or interconnection of such equipment, including upgrades, and any installation, operations and support, maintenance, and other functions required to support the delivery of broadband.

(f) "Broadband service" means the offering of broadband for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

(g) "Open network" means any broadband infrastructure which is open to any third party users in a nondiscriminatory manner on a fair and equitable basis using publicly available access tariffs for services.

(h) "Open network interfaces" means the technical and operational means, manners, and methods for any third party access to the broadband infrastructure, which shall be provided on the basis of generally acceptable industry standards available at the time of access.

II. A municipality may use its broadband infrastructure for the purpose of providing an open network and assuring that third party access is available in accordance with current state and federal regulations.

Source. 2006, 225:6, eff. July 31, 2006.

Section 38:39

38:39 Broadband Access Tariffs. – For defraying the cost of acquisition, construction, payment of the interest on any debt incurred, management, maintenance, operation, and repair of broadband infrastructure, or the construction, enlargement, or improvement of such systems, the governing body may establish a scale of rates called access tariffs, may prescribe the manner and the time for the payment of such tariffs, and may change such tariffs when it deems advisable.

Source. 2006, 225:6, eff. July 31, 2006.

Section 38:40

38:40 Broadband Fund. –

I. The funds received from the collection of access tariffs shall be kept as a separate fund to be known as the broadband fund. Such fund shall be allowed to accumulate from year to year, shall not be commingled with town or city tax revenues, and shall not be deemed part of the municipality's general fund accumulated surplus. Such fund may be expended only for the purposes specified in RSA 38:38, or for the previous expansion or replacement of broadband infrastructure.

II. Except when a capital reserve fund is established pursuant to paragraph III, all broadband funds shall be held in the custody of the municipal treasurer. Estimates of anticipated revenues and anticipated expenditures from the broadband fund shall be prepared and submitted to the governing body as a special warrant article as set forth in RSA 32, if applicable, and shall be included as part of the municipal budget submitted to the local legislative body for approval. Expenditures shall be within amounts appropriated by the local legislative body.

III. At the option of the local governing body, all or part of any surplus in the broadband fund may be placed in one or more capital reserve funds held in the custody of the trustees of trust funds pursuant to RSA 35:10. If such a reserve fund is created, then the governing body, may expend such funds pursuant to RSA 35:15 without prior approval or appropriation by the local legislative body, but all such expenditures shall be reported to the municipality pursuant to RSA 38:41. This paragraph shall not be construed to prohibit the establishment of other capital reserve funds for any lawful purpose relating to broadband access.

Source. 2006, 225:6, eff. July 31, 2006.

Section 38:41



38:41 Broadband Fund Report. – The governing body shall annually make a report of the broadband fund to the municipality showing the expenses and income of the fund, and all other material facts. This report shall be published in the annual report of the municipality.
Source. 2006, 225:6, eff. July 31, 2006.

TITLE III

TOWNS, CITIES, VILLAGE DISTRICTS, AND UNINCORPORATED PLACES

CHAPTER 53-C

FRANCHISING AND REGULATION OF CABLE TELEVISION SYSTEMS BY CITIES AND TOWNS

Section 53-C:1

53-C:1 Definitions. – In this chapter:

I. "Cable television system" means facilities by which television signals are received at a central location and for consideration are transmitted to customers or subscribers by means of cables or wires.

II. "Company" means any person, partnership, association, or corporation, including a municipality, owning or operating a cable television system, except for any nonprofit system serving fewer than 100 subscribers.

III. "Franchise" means an initial or renewed authorization issued by a franchising authority to construct or operate a cable system.

IV. "Franchising authority" means any governmental entity empowered by federal, state, or local law to grant a franchise.

V. "Master antenna television system" means a cable television system which serves only the residents of one or more apartment dwellings under common ownership, control or management, and any commercial establishment located on the premises of such apartment house and which transmits only signals broadcast over the air by stations which may be viewed normally or heard locally without objectionable interference, and which does not provide any additional service over its facilities.

VI. "Municipality" means a city or town.

VII. "Privately owned utility pole" means a utility pole which is owned by a person or entity other than a public utility or municipal corporation providing electric or telecommunications services.

Source. 1974, 23:1. 1989, 338:1. 2007, 197:1, eff. July 1, 2007.

Section 53-C:2

53-C:2 Franchise Required. –

I. No company shall construct, commence construction, or operate a cable television system in any municipality without first obtaining a written franchise from the franchising authority of each municipality in which such system is installed or to be installed.

II. Nothing in this chapter shall prevent municipalities from cooperating to jointly exercise franchising authority in accordance with RSA 53-A.

Source. 1974, 23:1. 1989, 338:2. 1996, 72:1, eff. July 12, 1996.

Section 53-C:3

53-C:3 Authority to Grant Franchises. – Municipalities are hereby authorized to grant, renew, amend or rescind for cause franchises for the installation and operation of cable television systems in accordance with the provisions of this chapter within the geographical limits of its respective town or city.

Source. 1974, 23:1. 1996, 72:2, eff. July 12, 1996.

Section 53-C:3-a

53-C:3-a Franchise Applicant Considerations. – No municipality shall grant a franchise for cable service to a cable system within its jurisdiction without first, at a duly noticed public hearing, having considered:

I. The financial ability of the franchise applicant to perform.

II. The ability of the applicant to provide adequate and technically sound facilities, equipment and signal quality.

III. Adequate channel capacity and appropriate facilities for public, educational, or governmental use, taking into account available technology, subscriber interest, and cost.

IV. The prohibition of discrimination among customers of basic service.

V. Reasonable service quality in terms of available technology, subscriber interest, and cost.

VI. Construction and installation which conforms to all applicable state and federal laws and regulations and the National Electric Safety Code.

VII. A competent staff able to provide prompt, adequate service and to respond comprehensively to customer complaints or problems.

VIII. Reasonable rules and policies for line extensions and disconnects, customer deposits, and billing practices.



Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-b

53-C:3-b Franchises; Administration by Municipality. -

I. All franchises shall be nonexclusive. No municipality shall grant any additional franchises to cable service within its jurisdiction on terms or conditions more favorable or less burdensome than those in any existing franchise within such municipality.

II. Nothing in this section shall be construed to prevent any municipality considering the approval of an additional cable service franchise in all or any part of the area of such municipality from imposing additional terms and conditions upon the granting of such franchises as such municipality shall in its sole discretion deem necessary or appropriate.

III. All cable service franchises in existence as of May 1, 1989, shall remain in full force and effect according to their existing terms.

Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-c

53-C:3-c Credits and Refunds for Interruption of Service. - Every franchisee shall agree to the following:

I. In the event its service to any subscriber is interrupted for 24 or more consecutive hours, it will, upon request, grant such subscriber a pro rata credit or rebate.

II. It will maintain an office which shall be open during usual business hours, have a listed toll-free telephone number, and be capable of receiving complaints, requests for adjustments, and service calls.

Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-d

53-C:3-d Notice to Subscribers Regarding Quality of Service. -

I. Annually, every cable television system operator shall mail to each of its subscribers a notice which:

(a) Informs subscribers how to communicate their views to the cable company and to the office of the attorney general, consumer protection and antitrust bureau;

(b) States the responsibility of the office of the attorney general, consumer protection and antitrust bureau to receive and act on consumer complaints.

II. Such notice shall be in nontechnical language, understandable by the general public, and in a convenient format. On or before January 30 of each year, the operator shall certify to the franchising authority and to the office of the attorney general, consumer protection and antitrust bureau that it has distributed the notice as provided in this section during the previous calendar year as required by this section.

Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-e

53-C:3-e Recording of Subscriber Complaints. -

I. Every cable television system operator shall keep a record or log of all written complaints received regarding quality of service, equipment malfunctions, billing procedure, employee relations with customers and similar matters. Such records shall be maintained for a period of 2 years.

II. Such record shall contain the following information for each complaint received:

(a) Date, time, nature of complaint;

(b) Name, address, telephone number of complainant;

(c) Investigation of complaint;

(d) Manner and time of resolution of complaint; and

(e) If the complaint regards equipment malfunction or the quality of reception, a report indicating corrective steps taken, with the nature of the problem stated. Every cable television system operator shall make the logs or records, or both, of such complaints available to any authorized agent of the franchising authority upon request during normal business hours for on-sight review.

Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-f

53-C:3-f Franchise Document Clearing House. - Within 60 days of the granting of an initial franchise and any renewal of such franchise, the franchisee shall file a copy of the franchise and any Federal Communications Commission rulings or other rulings affecting such franchisee with the secretary of state. Within 60 days of June 2, 1989 cable system operators shall file a copy of their existing franchise with the secretary of state. The secretary of state shall maintain a file of all franchise documents so recorded and make copies available upon request for the cost of reproduction and mailing, plus a reasonable administrative fee. The filing fee for initial and renewal franchise documents shall be \$50 per franchise or



renewal of such franchise. In years in which the filing of initial or renewal franchise documents is not required, the franchisee shall pay to the secretary of state a fee of \$50 for each locality served by the franchise.

Source. 1989, 338:3, eff. Aug. 1, 1989.

Section 53-C:3-g

53-C:3-g Rights of Individuals. – No cable television system operator shall deny service, deny access, or otherwise discriminate against subscribers, channel users, or any other citizens on the basis of age, race, religion, sex, physical disability, or country of natural origin.

Source. 1989, 338:3. 1990, 140:2, XI, eff. June 18, 1990.

Section 53-C:4

53-C:4 Authority to Establish Fees and Impose Conditions. – In conjunction with the rights granted in said franchises, any franchising authority may require reasonable fees payable to the municipality and may impose conditions not inconsistent with applicable Rules and Regulations of the Federal Communications Commission, as amended from time to time.

Source. 1974, 23:1, eff. April 2, 1974.

Section 53-C:5

53-C:5 Existing Operations. – Any existing contract, license, permit, resolution or other accepted authorization for a cable television system which is in operation as of April 2, 1974, or for a cable television system which has substantially completed the installation of equipment and facilities as of such date, shall be deemed to be a franchise under the provisions of this chapter until the earlier of the expiration of its stated term, if any, or the date of any renewal or amendment required under applicable Rules and Regulations of the Federal Communications Commission, as amended from time to time.

Source. 1974, 23:1, eff. April 2, 1974.

Section 53-C:6

53-C:6 Installation of Cable Television in Manufactured Housing Parks. –

I. A cable television operator who affixes or causes to be affixed cable television facilities to the dwelling of a tenant in a manufactured housing park shall:

(a) Do so at no cost to the landlord of such manufactured housing park.

(b) Indemnify the landlord for damages, if any, arising from the installation or the continued operation thereof or both.

(c) Not interfere with the safety, functioning, appearance, or use of the manufactured housing park, nor with the rules and regulations of the owner dealing with the day-to-day operations of the property, including the owner's reasonable access rules for soliciting business.

II. Nothing in this section shall prohibit a landlord from contracting with the cable television operator for work in addition to standard installation.

III. No cable television operator shall enter into any agreement with persons owning, leasing, controlling, or managing a manufactured housing park served by a cable television system or perform any act which would directly or indirectly diminish or interfere with the rights of any tenant to use a master or individual antenna system.

IV. A cable television operator shall obtain the landlord's consent to affix cable television system facilities to a privately owned utility pole within the manufactured housing park by delivery to the owner, in person or by certified mail, return receipt requested, of a copy of this section and a signed statement that the cable television operator will be bound by the terms of this section to the owner or lawful agent of the property upon which the cable television system facilities are to be affixed.

V. The cable television operator shall present and review with the owner prior to any installation, plans and specifications for the installation, and shall abide by reasonable installation requests by the owner. The cable television operator shall inspect the premises with the owner after installation to insure conformance with the plans and specifications. The owner may waive in writing the prior presentation of the plans and specifications. The cable television operator shall be responsible for the maintenance of any equipment installed on the owner's premises and shall be entitled to reasonable access for maintenance. The cable television operator shall also, prior to any installation, provide, upon the request of the owner, a certificate of insurance covering all the employees or agents of the installer or cable television operator as well as all equipment of the operator.

VI. If the owner of any privately owned utility pole intends to require the payment of any sum in excess of a nominal amount, defined as the amount paid by the cable television operator to utility companies for installation of similar facilities on their poles, in exchange for permitting the installation of cable television system facilities to the privately owned utility pole, the owner shall notify the cable television operator by



certified mail, return receipt requested, within 20 days of the date on which the owner is notified that the cable television operator intends to install cable television system facilities on the privately owned utility pole within the manufactured housing park. Absent such notice, it shall be conclusively presumed that the owner shall not require payment in excess of the nominal amount specified in this section for the connection.

VII. If the owner gives notice, the owner shall, within 30 days after giving notice, advise the cable television operator in writing of the amount the owner claims as compensation for affixing cable television system facilities to his or her privately owned utility pole. If within 30 days after receipt of the owner's claim for compensation, the cable television operator has not agreed to accept the owner's demand, the owner may bring an action in the superior court for the county in which the real estate is located to enforce the owner's claim for compensation. The action shall be brought within 6 months of the date on which the owner first made a demand upon the cable television operator for compensation.

VIII. It shall be presumed that reasonable compensation shall be the nominal amount, but the presumption may be rebutted and overcome by evidence that the owner has a specific alternative use for the space occupied by cable television system facilities or equipment, the loss of which shall result in a monetary loss to the owner, or that installation of cable television system facilities or equipment upon the privately owned utility pole will otherwise substantially interfere with the use and occupancy of the pole to an extent which causes a decrease in the resale or rental value of the real estate. In determining the damages to any real estate injured when no part of it is being taken, consideration is to be given only to such injury as is special and peculiar to the real estate, and there shall be deducted therefrom the amount of any benefit to the real estate by reason of the installation of cable television system facilities.

IX. The foregoing steps to claim or enforce a demand for compensation in excess of the nominal amount shall not impair or delay the right of the cable television operator to install, maintain, or remove cable television system facilities to a tenant's dwelling on the real estate. The superior court shall have original jurisdiction to enforce the provisions of this section.

X. In addition to other remedies allowed by law, a manufactured housing park owner may be assessed by a district court a civil penalty of \$500 and other reasonable damages for discriminating in rental charges or other charges to tenants based on the tenants' subscription to a cable television service or for demanding or accepting payment, except as provided in this section, for the affixing of cable television facilities to a privately owned utility pole within the manufactured housing park.

Source. 2007, 197:2, eff. July 1, 2007.



E. Granite State Future Technical Report.*

* New Hampshire Regional Planning Commissions, A Granite State Future 2013 Statewide Survey North Country Regional Report, pp. T-1 to T-3 (July 2013).



Technical Report

How the Sample Was Selected

The New Hampshire Regional Planning Commissions A Granite State Future (GSF) Survey was a telephone survey of randomly selected adults in the state of New Hampshire. This survey was conducted using a procedure called Random Digit Dialing (RDD), of both landline and cellular telephone.

A sample of households in the area was selected by a procedure known as random digit dialing. The way this works is as follows. First, with the aid of a computer, one of the three digit telephone exchanges that are currently used in the state (e.g., 772) is randomly selected. The computer then randomly selects one of the "working blocks"--the first two of the last four numbers in a telephone number (e.g., 64)--and attaches it to the randomly selected exchange. Finally, the computer program then generates a two digit random number between 00 and 99 (e.g., 57) which is attached to the previously selected prefix (772), and the previously selected working block (64) resulting in a complete telephone number, i.e., 772 6457. This procedure is then repeated numerous times by the computer to generate more random numbers, so that we have a sufficient quantity to conduct the survey. The end result is that each household in the area in which there is a telephone has an equally likely chance of being selected into the sample. This procedure is done for both land line and cellular exchanges.

The random sample used in the GSF survey was purchased from Scientific Telephone Samples (STS), Foothill Ranch, CA. STS screens each selected telephone number to eliminate non-working numbers, disconnected numbers, and business numbers to improve the efficiency of the sample, reducing the amount of time interviewers spend calling non-usable numbers.

Each of these randomly generated telephone numbers is called by one of our interviewers from a centrally supervised facility at the UNH Survey Center. If the number called is found not to be a residential one, it is discarded and another random number is called. (Approximately forty-five percent of the numbers were discarded because they are found to be businesses, institutions, or not assigned.) If it is a residential number, the interviewer then randomly selects a member of the household by asking to speak with the adult currently living in the household who has had the most recent birthday. This selection process ensures that every adult (18 years of age or older) in the household has an equally likely chance of being included in the survey. No substitutions are allowed. If, for example, the randomly selected adult is not at home when the household is first contacted, the interviewer cannot substitute by selecting someone else who just happens to be there at the time. Instead, he or she must make an appointment to call back when the randomly selected adult is at home. In this way, respondent selection bias is minimized.

When the Interviewing Was Done

New Hampshire adults in the GSF survey were interviewed between May 9 and July 6, 2013. Each selected respondent was called by a professional UNH Survey Center interviewer from a centrally supervised facility at the UNH Survey Center. Telephone calls during the field period were made between 9:00 AM and 9:00 PM.

Response Rates

Interviews were completed with 2,935 randomly selected adults in New Hampshire from a sample of 25,114 randomly selected telephone numbers. Using American Association for Public Opinion (AAPOR) Response Rate 4, the response rate for the Granite State Future survey was 33% percent. The formula to calculate standard AAPOR response rate is:

$$\frac{I}{(I + P) + (R + NC + O) + e(UH + UO)}$$

I=Complete Interviews, P=Partial Interviews, R=Refusal and break off, NC=Non-Contact, O=Other, e=estimated portion of cases of unknown eligibility that are eligible, UH=Unknown household, UO=Unknown other.

Weighting of Data

The data have been weighted to account for known biases of telephone surveys. The data in the Granite State Future survey are weighted by the number of adults and telephone lines (landlines and cell phones) within households to equalize the chances that any one adult would be selected for inclusion. The data are also weighted by respondent sex, regional planning commission, and age of respondent.

Sampling Error

The Granite State Future survey, like all surveys, is subject to sampling error due to the fact that all residents in the area were not interviewed. For those questions asked of five hundred (500) or so respondents, the error is +/- 4.4%. For those questions where fewer than 500 persons responded, the sampling error can be calculated as follows:

$$\text{Sampling Error} = \pm 1.96 \sqrt{\frac{P(1 - P)}{N}}$$

Where P is the percentage of responses in the answer category being evaluated and N is the total number of persons answering the particular question.

For example, suppose you had the following distribution of answers to the question, "Should the state spend more money on road repair even if that means higher taxes?" Assume 1,000 respondents answered the question as follows:

YES	47%
NO	48%
DON'T KNOW	5%

The sampling error for the "YES" percentage of 47% would be

$$\pm 1.96 \sqrt{\frac{47(53)}{1000}} = \pm 3.1\%$$

for the "NO" percentage of 48% it would be

$$\pm 1.96 \sqrt{\frac{48(52)}{1000}} = \pm 3.1\%$$

and for the "DON'T KNOW" percentage of 5% it would be

$$\pm 1.96 \sqrt{\frac{5(95)}{1000}} = \pm 1.4\%$$

In this case we would expect the true population figures to be within the following ranges:

YES	43.9% - 50.1% (i.e., 47% ±3.1%)
NO	44.9% - 51.1% (i.e., 48% ±3.1%)
DON'T KNOW	3.6% - 6.4% (i.e., 5% ±1.4%)