State of New Hampshire

Five-Year Broadband Action Plan

Broadband Equity, Access, and Deployment Program

New Hampshire Department of BUSINESS AND ECONOMIC AFFAIRS

mission broadband
Connecting America's Communities

Table of Contents

1. Executive Summary

New Hampshire possesses an impressive level of broadband availability, with 93 percent of broadband serviceable locations in the state having access to broadband services of at least 100 Mbps downstream and 20 Mbps up. While that accomplishment is considerable, it only tells part of the story, as significant broadband access and adoption challenges remain.

According to FCC definition for broadband, approximately 36,276 locations in the State of New Hampshire remain either unserved or underserved with fast, reliable, and affordable broadband. Closing the digital divide and providing access to the digital economy for all citizens is of the highest priority to the state. Access to high-speed internet is not a luxury, it is essential for individuals and communities to have the information technology capacity needed for full participation in our digital society, democracy, and economy.

Securing fast, reliable, affordable broadband to all locations in New Hampshire will allow residents the ability to improve their lives through increased opportunities for employment, better and more diverse access to healthcare services, government services, education, public safety, and information. As we saw throughout the COVID-19 pandemic, the lack of high-speed broadband became a significant barrier to Granite Staters' participation in classrooms and the workplace, the ramifications of which were felt immediately and are still being felt today. Those still without access to fast, reliable, affordable broadband, have been asking the question of "when will reliable, affordable, high-speed internet be available in my area?" for far too long.

Through the Infrastructure, Investment and Jobs Act (IIJA) federal grant programs funding, New Hampshire will receive $196.5 million and will be given the opportunity to finally close the digital gap for the entire state, finishing the task undertaken with previous state and federal programs. Through the Broadband, Equity, Access, and Deployment (BEAD) program there will be an unparalleled investment in broadband infrastructure over the next five years. The impact of this investment by the federal government on this generation and future generations is unprecedented.

> "New Hampshire has been leading the way when it comes to bringing high-speed broadband to all regions of the State and working towards 100 percent accessibility as quickly as possible" said New Hampshire Commissioner of Business and Economic Affairs Taylor Caswell. "Ensuring (New Hampshire) residents and businesses, regardless of location, can access the digital economy is a top priority for (BEA's) team." The State is incredibly proud of the work that has established New Hampshire as a national leader in this historic broadband expansion effort. Commissioner Caswell noted that New Hampshire "knows how critical access to reliable high-speed broadband is not only to New Hampshire small businesses today, but to support the jobs of tomorrow."[1]

New Hampshire will now have the fiscal capability to be able to overcome the obstacles that have prevented offering high-speed internet to every resident. The main reason that locations remain unserved and underserved is that a business case cannot be made by most internet service providers. While there may be other contributing factors, we know that the cost of deploying fast, reliable, affordable broadband in the furthest and deepest niches of this geographically challenging state has always been financially difficult. New Hampshire's Five-Year Action Plan utilizes the most current information about services, locations, and costs, to create a strategic, fiscally responsible path forward that will allow for every resident to have the opportunity to be connected to reliable, affordable, high-speed internet, and finally close the digital divide in our state.

Goals

New Hampshire's Broadband and Digital Equity vision has remained unwavering. The goals are simple and clear.

❖ Goal: Build out broadband infrastructure to 100 percent of the state's serviceable locations by 2029.

❖ Goal: Provide access to all unserved locations.

❖ Goal: Provide access to all underserved locations.

❖ Goal: Increase the availability of affordable broadband, including increasing the percentage of eligible households enrolled in the Affordable Connectivity Program (ACP).

❖ Goal: Increase the percentage of New Hampshire residents with access to internet-capable devices and the digital skills necessary to use them.

❖ Goal: Increase household adoption (broadband subscription) rates.

Fueled by BEAD funding, New Hampshire will be able for the first time to support ubiquitous broadband deployment, last mile connections, and Digital Equity initiatives to ensure that every location in the state can connect, and every resident has the ability and skills needed to utilize the essential services offered by high-speed internet as defined by the FCC.

New Hampshire's Five-Year Action Plan provides a comprehensive snapshot of the state's current resources to provide fast, reliable affordable broadband, specific broadband adoption goals, and the way forward.

2. Overview of the Five-Year Action Plan

2.1 Vision

The vision of the New Hampshire Department of Business and Economic Affairs (BEA) is to close the digital divide in support of New Hampshire's economic, workforce, health, and education goals by ensuring fast, reliable, and affordable internet access for all Granite Staters, businesses, and Community Anchor Institutions (CAIs). BEA has the mandate to act as the administering entity for the State's broadband infrastructure deployment program, ensuring broadband access, adoption, and implementation for all populations.

BEA is building a broadband program that will reach unserved and underserved Broadband Serviceable Locations (BSLs) and narrow the digital divide, giving all New Hampshire residents the information technology capacity needed for full participation in the digital society, democracy, and economy.

New Hampshire will increase broadband access and adoption with a focused effort on broadband deployment and Digital Equity. Given the potentially high cost associated with deploying fiber infrastructure to remote areas of the state, BEA will explore all technology options to achieve its internet connectivity goals. Such options may include drawing on a flexible combination of fiber optic cable, traditional copper, hybrid fiber coaxial (HFC), fixed wireless, and satellite deployment (only where necessary) to reach homes, businesses, and CAIs such as schools, libraries, shelters, and hospitals.

Recognizing that deployment of last mile broadband infrastructure in rural communities comes with a variety of resource challenges including much higher costs, BEA's Office of Broadband Initiatives will prudently use the BEAD funding for the best viable solution for each community of unserved BSLs. As the nation's 5th smallest of the 50 states, with a land area of 8,954 square miles and the10th least populous, New Hampshire has an average population density of 154 people per square mile.[2] The topography of the state's three distinct geographic regions (White Mountains, Eastern New England Upland, and Coastal Lowlands) drives the state's connectivity challenges.[3]

The infrastructure deployment vision will be directed towards provisioning the unserved BSLs as the primary goal. As funding allows, and through the natural implementation of engineering and last mile buildout of the unserved, underserved BSLs will also be upgraded to enhance broadband services to these residents and businesses. As directed by the Notice of Funding Opportunity (NOFO), with the remaining available funding, CAIs location data will be analyzed to incorporate delivery of synchronous gigabit service to these critical community institutions. Our vision also recognizes the need for public Wi-Fi and will encourage political subdivisions, businesses, and CAIs to support this technology to support populations with challenges of adopting broadband services.

The deployment goal will include the recommendation for funding to support reliable speeds of at least 100 Mbps symmetrical. If construction of this level of service is not financially viable or other constraints such as geography prohibit the achievement of this goal, a service of 100 Mbps/20 Mbps will be accepted. If this limited bandwidth is proposed, the project will need to provide an acceptable scalability plan to increase the bandwidth to 100 Mbps symmetrical service in the future.

Combined with the deployment vision is a focus on Digital Equity and keeping these strategies closely aligned. New Hampshire understands the social economic impacts on populations without the ability to utilize the internet for education, employment, news, healthcare, and other needed services, particularly for those included in NTIA's definition of Covered Populations.[4] Rural communities represent nearly 75 percent of New Hampshire's population.[5] As a result, residents are further removed from access to in-person services and without sufficient internet access, they may be cut off from basic services and information.

Broadband deployment to the unserved and underserved is the first priority for BEAD funding. The BEA Office of Broadband Initiatives will support allocating non-deployment eligible activities with remaining funds, which can include Digital Equity efforts. These funds will complement the additional allocated funding for Digital Equity being received by the state.

Digital Equity is another key strategic theme for New Hampshire over the next biennium. In addition, modern digital government initiatives are crucial to bridge the gap between government and its citizens to provide essential and desired services.

Separate from, yet aligned with BEAD initiatives, continued modernization of state government's digital interaction with residents and businesses is an additional key strategic theme for New Hampshire over the next biennium. Some of the goals to meet these objectives are a) modernizing state web presence; b) enabling a way to provide single identity access to information; c) projecting the state's assets digitally with easy accessibility; and d) defining roadmaps to align services with citizen and business friendly approaches.[7] New Hampshire has made it a priority to offer electronic options for accessing government services via NH.gov Online Services.

Broadband deployment will further the state's workforce, educational, healthcare, economic goals, and strategic IT goals.

2.2 Goals and Objectives

Broadband Deployment

Goals:

- Build out broadband infrastructure to 100 percent of the state's broadband serviceable locations by 2029, ensuring all residents have access to Broadband speeds of greater than 100/20 Mbps with a stretch goal of all residents to have service of 100/100 Mbps.
- Eliminate unserved locations.
- Eliminate underserved locations.
- Ensure CAIs have access to 1 Gbps symmetrical service (depending on available funding).

As referenced in BEA's vision, the strategic goal is to bring broadband service to 100 percent of New Hampshire residents, businesses, and CAIs. This requires delivering broadband deployment solutions into difficult-to-serve areas where geography and low population density result in higher costs and other challenges. According to the latest available data per the FCC Broadband Data Maps published December 31, 2022, updated October 10, 2023, New Hampshire has 26,123 unserved and 10,153 underserved BSLs.

To meet this goal of 100 percent coverage to New Hampshire residents, businesses, and CAI's (as funding allows), BEA will utilize a competitive subgrantee selection process. Potential subgrantees will include private company service providers, public-private partnerships, cooperatives, community-based organizations, and other potential providers and solutions. This process will include a challenge process as further defined in the Initial Proposal and will be open to supportive technologies to reach the goal of 100 percent coverage.

Once the access needs of unserved and underserved BSLs are addressed, focus will then move to ensuring that Community Anchor Institutions (CAIs) will have access to service of 1 Gbps symmetrical or greater. New Hampshire has identified CAIs in Section 3.4 as defined in 47 USC 1702 (a)(2)(E). The definition applies to a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization (including any public housing agency, HUD-assisted housing organization, or Tribal housing organization), or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals.

Broadband Access

Goal: Increase the percentage of New Hampshire residents with access to internet-capable devices.

The Broadband office ensures alignment and coordinates with common goals and strategies with the Digital Equity requirements of BEAD. This includes strengthening or initiating programs to assist residents gain and retain access to internet-capable devices.

Ongoing responsible fiscal management of allocated BEAD funding will be a top priority, to ensure deployment assets are utilized effectively. BEA will follow NTIA guidelines throughout the process of awarding broadband deployment subawards.

New Hampshire is one of five states with a broadband subscription rate higher than 90 percent. The state is not requiring end users to purchase internet services, rather encouraging adoption of internet services and its inherent benefits. As a result of higher adoption rates, Granite Staters will have access to resources such as education, telehealth, government programs, jobs, etc. As a goal in relation to Digital Equity effort, the state will work with a variety of organizations to help provide households/users access to internet-capable device access (e.g., laptop, smartphone, tablet).

Tracking processes will be developed to monitor the key performance indicators (KPI) progression of agreed upon deliverables of subgrantees to include allocated funding, make ready, installation standards, technology, bandwidths, Broadband Serviceable Location coverage, and timeline.

KPI	Baseline	Goal
Percent of BSLs unserved (FCC data)	7%	0% (as required by NOFO)[6]
Percent of BSLs underserved (FCC data)	> 1%	0% (as required by NOFO)[7]
Ensure CAIs have access	TBD	TBD (as Funding is Available)
Percent of households with internet-capable device access (e.g., laptop, smartphone, tablet)	94%	96% (current highest state device access rate)[8]

Figure 1-Broadband Access Goals and Objectives

Broadband Adoption

Goal: Increase household adoption (broadband subscription) rates.

Concurrent with ensuring that all BSLs obtain access to reliable broadband services, an important component of New Hampshire's Digital Equity effort involves increasing broadband adoption throughout the state. The subgrantee selection process will include requirements for an outreach plan to help potential subscribers understand available broadband services, options, and how to use them. BEA's ongoing Digital Equity efforts include ongoing public outreach, education, assistance, and adoption efforts that encompasses all geographical areas of the state and Covered Populations. New Hampshire is one of five states with a broadband subscription rate higher than 90 percent. The state is not requiring end users to purchase internet services, rather encouraging adoption of internet services and its inherent benefits. As a result of higher adoption rates, Granite Staters will have access to resources such as education, telehealth, government programs, jobs, etc.

KPI	Baseline	Goal
Household adoption rate	90.1%	91.3% (current highest state adoption rate in U.S.)[9]

Figure 2-Broadband Adoption Goals and Objectives

Broadband Affordability

Goal: Increase the percentage of eligible households enrolled in the Affordable Connectivity Program (ACP) and work with subgrantees to develop and offer a Low-Priced Option for ACP qualified and enrolled Granite Staters.

Providing affordable broadband options and enhancing awareness to all qualified residents and households is a critical component to broadband adoption. The subgrantee selection process will include a requirement to participate in the federally funded Affordable Connectivity Program (ACP). In addition, subgrantees will need to provide a plan of their ongoing outreach efforts to subscribers and potential subscribers regarding their awareness of ACP and to direct these residents to assistance, as needed, for signing up to ACP.

BEA's Digital Equity work also aligns with this goal and their ongoing planned efforts to help eligible residents understand that financial assistance is available. This effort will also include regional education outreach to assist individuals and families sign up for ACP. Statistics on ACP enrollment will be monitored by BEA to determine the success of these efforts and how they may need to be adapted to increase the use of ACP.

KPI	Baseline	Goal
Percent of eligible households enrolled in ACP	19%	Expand ACP enrollment by 25% by 2030

Figure 3-Broadband Affordability Goals and Objectives

Digital Equity

Digital equity is defined as a condition in which all individuals and communities have the information technology capacity needed for full participation in our digital society, democracy, and economy. The digital equity gap is between individuals and households who have access to broadband services and have access to access to internet-capable device access as well as the knowledge how to use them as it relates to those individuals and households who do not.

Closing the Digital Equity gap is a critical step in partnership with the other goals of deployment, access, adoption, and affordability. Initial and ongoing education with supportive tools is a key component to helping address the disparities and achieve Digital Equity. Many covered population sectors would benefit from training in technological literacy and cybersecurity. BEA's effort through the subgrantee process and Digital Equity work is the basis for helping solve the Digital Equity gap, to include understanding the benefits of, and how to use, internet services. New Hampshire will make great strides in closing the Digital gap, building out the broadband infrastructure, providing access to all residents and businesses, furthering adoption, and affordability, and providing digital literacy and cybersecurity education.

New Hampshire is one of five states with a broadband subscription rate higher than 90 percent. The state is not requiring end users to purchase internet services, rather encouraging adoption of internet services and the associated benefits. By continually monitoring deployment activities, end user subscriptions, ACP signups, and participation in Digital Equity efforts, BEA will continue to measure success in meeting New Hampshire's broadband goals and objectives.

Economic Growth and Job Creation

All the objectives above support the goal of improving economic growth by increasing employment opportunities and creating jobs.[10]

BEA is working with state agencies, education institutions, and workforce development organizations to understand their current programs and identify opportunities in which the state can assist, coordinate, and amplify their efforts to prepare, train, and retrain Granite Staters for employment in a rapidly changing marketplace. BEA includes focus on the participation of underrepresented communities and Covered Populations defined by BEAD in the workforce.

New Hampshire's plan will ensure access to reliable, affordable broadband service to all unserved and underserved locations in the state. In addition, the adoption and use of broadband services will expand through robust digital equity efforts. These include outreach and education regarding affordability options and conducting digital literacy and cyber safety training designed to reach all New Hampshire residents.

3. Current State of Broadband and Digital Inclusion

3.1 Existing Programs

The following Figure 4, Table 1, provides the details of the existing and previous broadband plans, programs, and goals within the state of New Hampshire to bring broadband to the unserved and underserved BSLs within the state. This table also represents the vast experience that BEA has in implementing, administering, and awarding broadband deployment grants.

Activity Name	Description	Intended Outcome(s)
The New Hampshire Broadband Mapping Initiative	BEA, using Capital Project Fund, hired UNH to map broadband, Served, Underserved, and unserved addresses throughout the state.	Mapping broadband coverage, speeds, and service availability to identify areas of limited or no connectivity.
The Broadband Contract Program, Round One	Program designed to offer an ISP a financial incentive to bring service to the unserved and underserved BSLs of the state - BSLs where it may be financially challenging for an ISP to attempt to expand.	Provide reliable high-speed broadband services to 23,259 BSLs throughout New Hampshire currently unserved or underserved.
The Broadband Contract Program, Round Two	Program designed to offer an ISP a financial incentive to bring service to the unserved and underserved BSLs of the state - areas/ BSLs where it may be financially challenging for an ISP to attempt to expand.	Provide reliable high-speed broadband services to 24,757 BSLs throughout New Hampshire currently unserved or underserved.
Broadband Matching Grant Initiative (BMGI)	Program subsidizing 75 percent of project costs for broadband infrastructure projects that bring service to unserved or underserved BSLs.	Provide reliable high-speed broadband services to an estimated 3,000-4,000 BSLs. This number is based on $6,400-$8,500 per BSL.
Broadband Planning and Coordination	The BEA worked to facilitate broadband planning and coordination efforts across the state. This involved collaborating with various stakeholders, including state agencies, local governments, internet service providers (ISPs), and community organizations.	Develop strategies for expanding broadband access and improving digital connectivity.

Activity Name	Description	Intended Outcome(s)
Grant Programs and Funding Assistance	The BEA administered grant programs and provided funding assistance to support broadband infrastructure projects. These programs sought to incentivize ISPs and communities to invest in expanding broadband networks in underserved areas.	Identify funding opportunities, assist in the application process, and support the implementation of broadband projects.
Policy and Advocacy	The BEA engages in policy discussions and advocacy efforts related to broadband access and expansion. This involves working with state legislators, regulatory bodies, and other stakeholders	Promote policies and initiatives to foster broadband development, address barriers, and encourage investment in underserved areas.
Technical Assistance and Resources	The BEA provides technical assistance, resources, and guidance to communities, businesses, and ISPs seeking to improve broadband access.	Provide information on best practices, connect stakeholders with relevant expertise, and assist in the development of broadband deployment plans.
Coronavirus Aid, Relief, and Economic Security (CARES) Act	Investments in broadband expansion, with prioritization of broadband infrastructure both during and beyond COVID-19.	The state invested $13 million from CARES Act funds into sixteen (16) projects that benefitted over 4,500 households.
NH Senate Bill 170	An Act relative to the authority of towns to issue bonds for the expansion of broadband infrastructure.	NH Senate Bill 170 allows municipal governments to issue bonds for building broadband infrastructure in areas not served by a commercial provider.
New Hampshire Broadband Mapping and Planning Program (NHBMPP)	NHBMPP is a comprehensive program that seeks to understand where broadband is currently available in New Hampshire.	Identify strategies to increase availability, adoption, and usage of broadband.

Activity Name	Description	Intended Outcome(s)
Broadband Expansion in Rural Areas	New Hampshire recognizes the need to specifically address broadband access challenges in rural areas.	Implemented strategies to bridge the digital divide by extending broadband infrastructure to these underserved regions and fostering partnerships between ISPs and communities.
Public-Private Partnerships	New Hampshire emphasizes the importance of public-private partnerships in expanding broadband availability. The state encourages collaboration between government entities, ISPs, and community organizations.	Leverage resources, expertise, and funding to accelerate broadband deployment and address gaps in coverage.
Digital Equity and Adoption	Alongside infrastructure expansion, New Hampshire recognizes the significance of digital equity and adoption. resources to fully participate in the digital economy.	Promote digital literacy, provide access to affordable devices, and offer training and support programs to ensure that all residents have the necessary skills and resources to fully participate in the digital economy.
FCC's USF High-Cost Program	The FCC's Universal Service Fund (USF) High-Cost Program provides financial support to eligible telecommunications carriers to help them offer and maintain voice and broadband services in high-cost areas. This funding helps bridge the gap in deploying broadband infrastructure in rural and remote regions.	Bridge the gap in deploying and maintaining broadband infrastructure in rural and remote regions.
Lifeline Program	The FCC's USF Lifeline Program provides a monthly discount on voice or broadband services for eligible low-income households.	Ensure that economically disadvantaged individuals have access to essential communication services.
Federal Resources	The BEA utilizes federal resources related to broadband and digital inclusion. This includes accessing information, reports, and guidance from agencies such as the Federal Communications Commission (FCC), the National Telecommunications and Information	Best practices, funding opportunities, and policy guidance.

Activity Name	Description	Intended Outcome(s)
	Administration (NTIA), and the United States Department of Agriculture (USDA).	
Broadband Mapping and Data Resources	The BEA utilizes broadband mapping data and resources available at the federal and state levels. This includes national broadband maps, datasets, and tools provided by organizations like the FCC and the NTIA.	Identify underserved areas and inform planning.
Partnerships with Internet Service Providers (ISPs)	The BEA fosters relationships and partnerships with ISPs operating in New Hampshire. Collaborating with ISPs allows for knowledge sharing, coordination, and leveraging private sector expertise.	Address broadband deployment challenges and promote digital inclusion initiatives.
Collaboration with Local and Regional Organizations	The BEA has established relationships with local and regional organizations working on broadband and digital inclusion issues. This includes engaging with nonprofit organizations, and community groups.	Leverage local knowledge, identify specific community needs, and implement targeted initiatives.
Nonprofit and Advocacy Organizations	The BEA collaborates with nonprofit organizations and advocacy groups focused on broadband and digital inclusion. These organizations often have expertise, resources, and community networks that will support the BEA's efforts.	Guidance, training programs, and advocate for policies that promote broadband access and digital equity.
Research Institutions and Universities	Collaborating with research institutions and universities will provide the BEA with access to academic expertise, studies, and research on broadband deployment and digital inclusion.	Evidence-based decision-making and innovative approaches.
Affordable Connectivity Program (ACP)	The FCC's Affordable Connectivity Program offers a discount on broadband internet service of $30 per month to residents who qualify.	Provides financial assistance to qualified households and promotes overall affordability of broadband.
Rural Digital Opportunity Fund (RDOF)	The FCC's Rural Digital Opportunity Fund (RDOF) is a program geared towards deploying broadband in rural communities that would not otherwise be served if not for this program.	The funding from this program sought to increase broadband access to unserved locations.

Activity Name	Description	Intended Outcome(s)
E-Rate	This program, part of the FCC's USF, provides discounts of up to 90% to registered schools and libraries to obtain affordable telecommunications and internet access.	To ensure that schools and libraries have affordable access to high-speed internet.
Northern Border Regional Commission (NBRC)	The Northern Border Regional Commission (NBRC) is a multi-state cooperative that provides grants for special projects for towns in northern regions of the states.	In 2021 and 2022, there were four broadband projects that were designed to build networks in municipalities lacking access.

Figure 4-Table 1-Current Activities that the Broadband Program/Office Conducts

Current and Planned Full and Part-Time Employees

Identified in the following tables are the current full-time and part-time employees working on behalf of the State of New Hampshire who will assist in implementing and administering the BEAD Program to achieve the common goals and objectives of universal broadband to the entirety of the State of New Hampshire, such that every location will have access to high-speed internet.

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Current	FT	Broadband Program Manager	Manages broadband programs including all broadband grants and planning short and long-term department goals.
Current	FT	Broadband Business Administrator	Administratively supports the broadband program, including both Digital Equity and BEAD.
Current	FT	Broadband Accountant	Administratively executes the accounting activities to support the broadband program.
Current	FT	Broadband Digital Equity Administrator	Administratively executes the planning, developing, and overseeing the fiscal and budgetary activities of the Infrastructure Investments and Jobs Act (IIJA), focusing on Digital Equity objectives.
Planned	FT	Broadband BEAD Administrator	Administratively executes the planning, developing, and overseeing the fiscal and budgetary activities of the Infrastructure Investments and Jobs Act (IIJA), focusing on BEAD objectives.

Figure 5-Table 2-Current and Planned Full-Time and Part-Time Employees

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Current	FT	GIS Consulting Services Vendor	Develop, publish, and maintenance of the broadband coverage availability map for the State of New Hampshire.
Current	FT	Compliance and Reporting Vendor	Administer and ensure the federal reporting compliance with Capital Project Funds. Provide subrecipient monitoring.
Planned	FT	Internet Service Provider(s) Vendor	Broadband Buildout for unserved and underserved communities within New Hampshire.
Planned	FT	Digital Equity Consulting Services Vendor	Develop and draft the State Digital Equity Plan for the State of New Hampshire.
Current	FT	BEAD Consulting Services Vendor	Develop and draft the BEAD five (5) year action plan, initial proposal, and final proposal for the State of New Hampshire.
Planned	FT	Compliance and Reporting Vendor	Administer and ensure the federal reporting compliance with IIJA for both Digital Equity and BEAD. Provide subrecipient monitoring.

Figure 6-Table 3-Current and Planned Contractor Support

Identified in the following Figure 7, Table 4 are the existing efforts funded by the federal government within New Hampshire to deploy broadband and close the digital divide, as documented in this New Hampshire Five-Year Action Plan. Amounts that appear as "Available" in the table below for any last-mile deployment project refer to funding that has yet to be expended but may have already been allocated. Locations covered by this funding have either already been accounted for in FCC maps as benefiting from an enforceable funding commitment and thus not eligible for BEAD funding; or they will be so accounted for in subsequent updates of eligible BSLs.

As a result of our office's increasing engagement with stakeholders across the state to coordinate and plan the implementation efforts resulting from these federal funding activities, BEA has substantially bolstered its implementation capabilities to administer our BEAD efforts. These efforts include the growing experience and knowledge of our core BEA staff and close efforts with other stakeholders such as Gov. Chris Sununu's administration, the New Hampshire Municipal Association, New Hampshire Planning Association (NHPA), University System of New Hampshire, New Hampshire Department of Education, state legislators, numerous nonprofit organizations, seasoned contractor resources with capabilities in GIS modeling and data management, and internet service providers.

BEA has also strengthened our broadband deployment cost modeling, strategic planning and federal grant program planning and reporting. This will allow consistency throughout the entire process from planning to implementation.

Source	Purpose	Total	Expended	Available
Department of the Treasury	Capital Projects Fund to build broadband infrastructure connecting unserved and underserved households American Rescue Plan Act (ARPA)[11]	$122,066,151	122,066,151	$0
Department of the Treasury	Coronavirus Aid, Relief and Economic Security (CARES) Act	$13,000,000	$13,000,000	$0
Department of Commerce	BEAD Planning Grant[12]	$5,000,000	$2,080,000	$2,920,000
Department of Commerce	Digital Equity Planning Grant[13]	$525,033	$525,033	$0
Department of Commerce	Digital Equity Capacity Grant	TBD[14]	N/A	N/A
Department of Commerce	BEAD Grant[15]	$191,560,278	$0	$191,560,278[16]

Source	Purpose	Total	Expended	Available
Federal Communications Commission	Affordable Connectivity Program[17]	$51,136,560	$12,606,120	$38,530,440
Federal Communications Commission	Schools and Libraries Fund (E-rate) 2016 - 2022[18]	$28,787,466	$28,787,466	$0
Federal Communications Commission	Emergency Broadband Benefit Program[19]	$2,391,423	$2,391,423	$0
Department of Commerce	NTIA Middle Mile Grant[20]	$11,969,000	$0	$11,969,000
Department of the Treasury	State and Local Fiscal Recovery Funds[21]	$1,321,200	$659,734	$661,466
Federal Communications Commission	Alternative Connect America Cost Model 10/1 (A-CAM) 2015 – 2022[22]	$14,985,791	$14,985,791	$0
Federal Communication Commissions	ACP Outreach Grant Program[23]	$316,200	$0	$316,200
Federal Communications Commission	Alternative Connect America Cost Model II 25/3 (A-CAM II) 2019 – 2022[24]	$615,089	$615,089	$0
Federal Communications Commission	Connect America Fund II 10/1 (CAF II) 2015 - 2022[25]	$29,806,022	$29,806,022	$0
Federal Communications Commission	Connect America Fund-Broadband Loop Support 25/3 (CAF-BLS) 2016 - 2022[26]	$9,743,817	$9,743,817	$0
Federal Communications Commission	Rural Digital Opportunity Fund[27]	$15,247,989	$1,389,168	$13,858,821
Northern Border Regional Commission	2021[28] and 2022[29] NBRC State Economic & Infrastructure Development Investment Program	$3,335,603	TBD (individual projects, data is being determined per project)	TBD

Figure 7-Table 4-Broadband Funding

3.2 Partnerships

Figure 8, Table 5 below identifies BEA's current partners with which it collaborates and coordinates on a regular basis. These partners have helped shape the information contained in this plan and will continue, through their agency activities, to support the implementation and outreach of this plan.

Partners	Description
Carroll County Communications District	BEA coordinates with Carroll County Communications District as it represents the interests of locally owned, community-based broadband providers, to understand their needs and concerns and partner with their member ISPs in broadband deployment.
CostQuest Associates	BEA collaborates with CostQuest Associates for access to a common data set of all residential and business locations (or structures) in New Hampshire where fixed broadband internet access service is or can be installed and is the foundational location database that supports the latest available data per the FCC Broadband Data Maps published December 31, 2022.
Digital Equity Research Center (DERC)	BEA coordinates with the Digital Equity Research Center (DERC) on community-based and participatory research to inform Digital Equity practice and policy at the local, state, and national levels.
Labor unions and workforce development organizations	BEA has begun to engage labor unions and workforce development organizations during the stakeholder engagement process and plans to further engage such groups during development of a workforce strategy that will help ensure an available and highly skilled workforce for broadband deployment.
Local Governments	BEA coordinates with local governments to increase local stakeholder participation and outreach. Local governments publicize broadband efforts, including opportunities for public input, so that the community is informed and can participate in the process.
National Collaborative for Digital Equity (NCDE)	BEA collaborates with the National Collaborative for Digital Equity (NCDE) to foster significant gains in access to digital tools and in educational and economic opportunity for low-and moderate-income learners of all ages.
New Hampshire Asset Advisory Council	BEA coordinates with Digital Equity's Asset Advisory Council to identify Digital Equity related services/resources/programs. The Asset Advisory Council represents stakeholders who support the Covered Population.
New Hampshire Department of Corrections	BEA partners with the Department to understand and improve the state of broadband and/or device access for incarcerated individuals.
New Hampshire Department of Environmental Services	BEA coordinates with the Department to ensure that broadband deployment supports the Department's mandate to regulate air, water, and ground resources in line with New Hampshire's environmental laws.
New Hampshire Department of Health and Human Services	BEA partners with the New Hampshire Department of Health and Human Services to understand the impact of broadband access for public health

Partners	Description
	programs and health facilities, as well as the impact of broadband access for the health of Covered Populations.
New Hampshire Department of Information Technology	BEA coordinates with the New Hampshire Department of Information Technology for information technology services, including enterprise services, technical, operational, infrastructure, security, web, and software development.
New Hampshire Department of Labor	BEA collaborates with the Department to understand how broadband deployment and digital opportunity can have an impact on the state's current workforce development plans, goals, and strategies.
New Hampshire Department of Transportation	BEA collaborates with the Department to streamline upcoming broadband deployment opportunities, including by working to establish right-of-way and dig-once policies.
New Hampshire Digital Equity Advisory Council	BEA collaborates with the New Hampshire Digital Equity Advisory Council to connect residents state-wide with access to high-speed internet, digital devices, training, services, and resources made possible through digital technology (e.g., telehealth, online educational resources, mobile banking, assistive technologies, on-line employment resources).
New Hampshire Electric Cooperative (NHEC)	BEA collaborates with the New Hampshire Electric Cooperative to bring broadband to their communities. NHEC is a member-owned electric distribution cooperative serving 85,000 homes and businesses in 115 New Hampshire communities. NHEC is a member-owned electric distribution cooperative serving 85,000 homes and businesses in 115 New Hampshire communities.
New Hampshire Granit	BEA partners with New Hampshire Granit for access to New Hampshire's geospatial data and resources for broadband mapping.
New Hampshire Natural Resources Conservation Services	BEA coordinates with the Department to ensure that broadband deployment supports Natural Resources Conservation Services mandate to administer New Hampshire's land and water resources.
New Hampshire Public Utilities Commission	BEA partners with the Commission to better understand the public assets that could support broadband deployment.
New Hampshire State Library	BEA partners with the library system to develop digital equity initiatives including digital training for Covered Populations.
Consolidated Communications, Inc.	CCI was awarded ARPA funding to build out unserved locations.

Figure 8-Table 5- Broadband Partnerships

3.3 Asset Inventory

In the State of New Hampshire, both public and private entities have made concerted efforts to bridge the digital divide. This has helped New Hampshire maximize investment and outreach to close the digital divide within the state. It has also bolstered the served locations in New Hampshire to an impressive 93 percent.

To create a snapshot of where the state currently is in its efforts to provide high-speed broadband to every location, New Hampshire has conducted a detailed review of available assets used to advance broadband adoption, both through online research and through interviews with multiple state agency leaders. The digital asset inventory is organized in the following sections as follows:

- 3.3.1: Broadband Deployment Assets.
- 3.3.2: Broadband Access Assets.
- 3.3.3: Broadband Adoption Assets.
- 3.3.4: Affordability Assets.
- 3.3.5: Digital Equity Assets

3.3.1 Broadband Deployment

Figure 9 below identifies assets that promote broadband ***deployment***, including state-owned infrastructure, such as land, rights-of-way, utility poles, fiber, and other assets.

Broadband Deployment Assets

Asset Name	Description
Land managed by New Hampshire Department of Environmental Services (DES)	Tracts of public land belonging to the Department of Environmental Services may be available for deployment via right-of-way laws.
Land managed by New Hampshire Department of Natural & Cultural Resources (DNCR)	Tracts of public land belonging to the New Hampshire Department of Natural Resources & Conservation may be available for deployment via right-of-way laws.
Advanced Traffic Management Systems, Rights-of-Way, Light poles managed by Department of Transportation	• NHDOT has fiber connecting Advanced Traffic Management Systems throughout the state. • NHDOT grants use of longitudinal right-of-way along interstate highways to eligible projects. • LED light poles belonging to the Department of Transportation may be available for deployment of 5G nodes, which could support New Hampshire's broader broadband goals beyond the BEAD program.
University System of New Hampshire (USNH)	iBeamNH provides gigabit and multi-gigabit service to all USNH institutions and to a number of Community Anchor Institution partners across New Hampshire, in support of education, research, healthcare, public safety, government, and the public good.

Figure 9-Broadband Assets

3.3.2 Broadband Access

This section includes assets that promote ***access*** to broadband. See Section 3.4 for more details on the state library system as a key source of public Wi-Fi.

Organization Name	Asset Name	Description	Covered Populations
Libraries[30]	Library Wi-Fi locations throughout New Hampshire	222 Public Libraries	Available to all.
Dovernet Public Wireless[31]	Community Wi-Fi	Provides access at all their Community Wi-Fi hotspot locations.	All
Network New Hampshire Now (NNHN)[32]	Public/Private sector collaboration	A collaboration between state and local governments, non-profits, and private entities to bring a mix of wireline and wireless next-generation broadband services to community anchor institutions in all ten counties of New Hampshire.	All
New Hampshire Electric Cooperative (NHEC)[33]	Co-op broadband	NH Broadband powered by NHEC has partnered with Conexon, a company specializing in electric cooperative fiber-to-the-home.	Rural Residential Business
University System of New Hampshire (USNH)[34]	iBeamNH is owned and operated by the University System of New Hampshire (USNH)[35]	iBeamNH provides gigabit and multi-gigabit service to all USNH institutions, and to a number of Community Anchor Institution partners across New Hampshire, in support of education, research, healthcare, public safety, government, and the public good.	iBeamNH serves over 50,000 users in New Hampshire with a variety of services to education, government, public safety, health, and other vital public-serving institutions.

Figure 10-Broadband Access

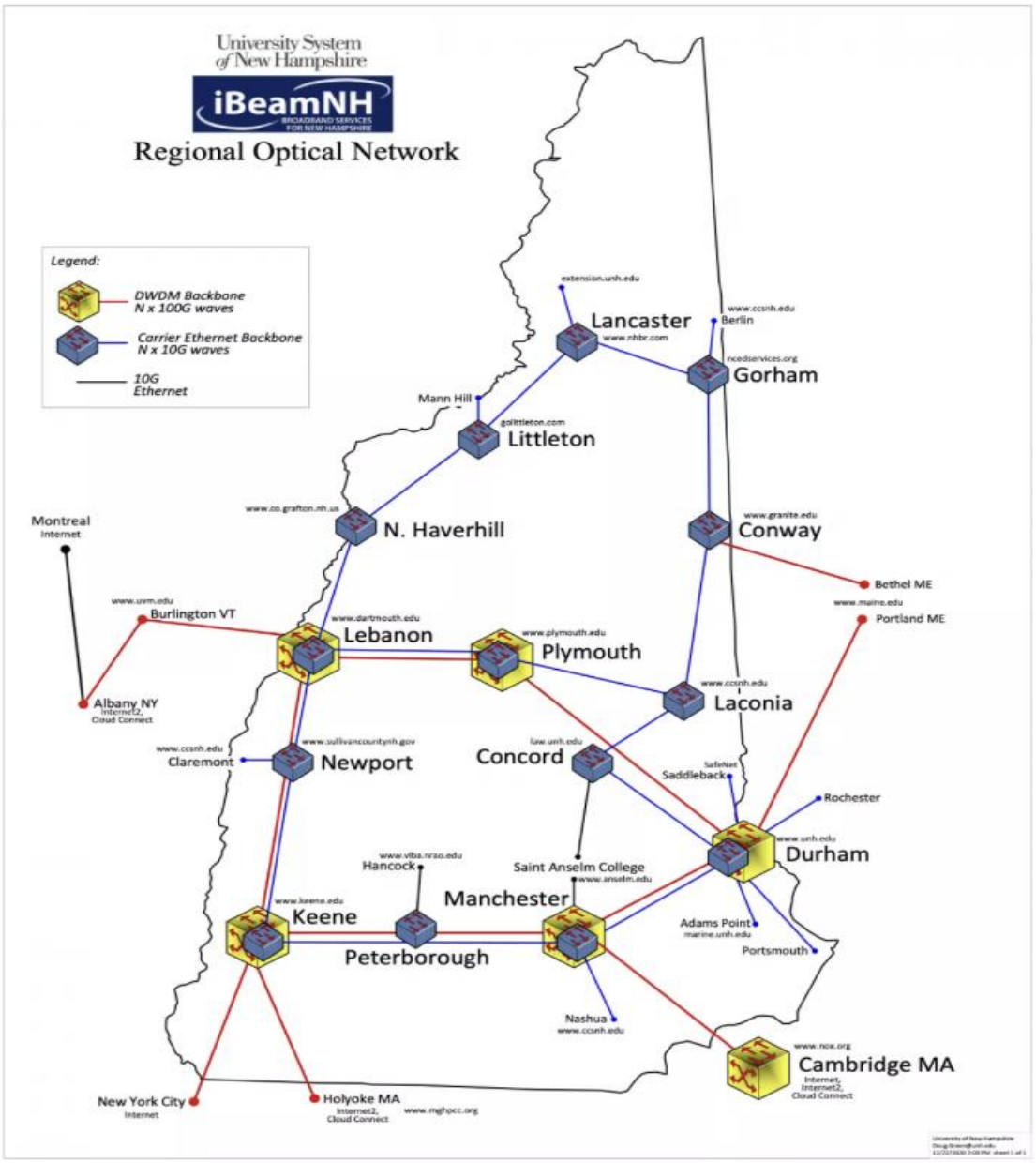


Figure 11-iBeamNH Assets

Source: https://www.usnh.edu/ibeamnh/our-network

3.3.3 Broadband Adoption

Figure 12 below includes assets that promote broadband ***adoption***.

Organization Name	Asset Name	Description	Covered Populations
University of New Hampshire[36]	Broadband Center of Excellence	UNH BCoE is a resource organization whose goals are to enable all – government, universities, communities, and industry participants – to use broadband as a tool to create economic growth, societal improvements, and business success.	Government, universities, communities, and industry.
Tech Goes Home[37]	Community Skills Initiative	Provides access to digital technologies and digital literacy training to underserved communities.	All
Governor's Office of Emergency Relief and Recovery (GOFERR)[38]	Connecting New Hampshire – Emergency Broadband Expansion Program	Address the increased need for internet connectivity due to the COVID-19 pandemic. The Connecting New Hampshire – Emergency Broadband Expansion Program will benefit students, families, and businesses as the need for distance learning, telework, telehealth, and other remote services continues due to the COVID-19 pandemic.	Students, families, and businesses as the need for distance learning, telework, telehealth, and other remote services.

Figure 12-Broadband Adoption Assets

3.3.4 Broadband Affordability

These assets promote broadband ***affordability*** and are administered by non-government entities in the State of New Hampshire. While New Hampshire is home to many residents who are eligible for benefits under the Affordable Connectivity Program (ACP), use of the program remains low. See Section 3.4 for more information about the ACP, Lifeline, and E-Rate programs.

Many Internet Service Providers (ISPs) serving New Hampshire residents offer affordable plans, a non-exhaustive sample of which are listed below. In an effort to bolster these numbers and create a broader awareness of their existence, New Hampshire's BEAD program will require ISPs to market and offer affordable broadband plans and benefit program access.

Some ISP's offering low-cost plans, include:

- Consolidated Communications
- Frontier Communications
- GWI (Great Works Internet)

- Spectrum
- Comcast Xfinity
- Breezeline
- NH Broadband

According to the Universal Service Administrative Co. (USAC), some ISPs offer plans that, with the ACP benefit, cost $0 monthly, including:

- Integrated Path Communications, LLC
- VOLT MOBILE INC.
- Comcast Xfinity
- Telispire, Affinity Cellular, Club Cellular, Flex Cellular
- Spectrum (Charter Communications Operating, LLC)
- Metro by T-Mobile
- Cogeco US Finance, LLC d/b/a Breezeline
- Spectrum (Charter Communications Operating, LLC)

Also, according to USAC, many ISPs / organizations also offer discounted devices:

- Figgers Communication Inc.
- Maxsip Telecom Corporation
- Culture Wireless
- Clear Wireless, LLC
- SWA Connect, LLC
- Telispire, Affinity Cellular, Club Cellular, Flex Cellular
- VOLT MOBILE INC.

Source: USAC Universal Service Administrative Co. Companies Near Me. Accessed 8/27/2023.

3.3.5 Digital Equity

Figure 13 below includes programs and plans to advance Digital ***Equity*** instituted by municipalities, Community Anchor Institutions (CAIs), and organizations across the State of New Hampshire. There are several strategies, resources, plans, and programs in the state specifically focused on promoting and enabling digital equity for all residents including Covered Populations. These programs highlight the importance of CAIs as key partners, such as those administered by libraries and colleges, to close the digital divide. These programs can be built upon and supplemented with additional resources to improve Digital Equity.

Organization Name	Asset Name	Description	Covered Populations
New Hampshire Public Library partners[39]	New Hampshire Public Library partners with internet and adaptive services	New Hampshire public libraries have expanded broadband width capacity for internet services, adaptable OPAC computers for access by New Hampshire residents with disabilities, and trained staff on the use of these products.	All; individuals with disabilities
Community College System of New Hampshire[40]	Senior citizen half price tuition	Program for seniors to use internet services and take classes provided by the community college.	Aging populations
ApprenticeshipNH[41]	NH Technology Apprenticeship Programs	A workforce training program of the Community College System of NH (CCSNH) that aims to promote high-quality Registered Apprenticeship and pre-apprenticeship programs in various leading industries throughout the state.	All; veterans
Girl Scouts of the Green and White Mountains[42]	STEM Badge Blast	Brownies join the Xploration STEM program at the Nashua Adult Learning Center for STEM activities.	Rural
New Hampshire Electric Cooperative (NHEC)[43]	Co-op broadband	NH Broadband powered by NHEC has partnered with Conexon, a company specializing in electric cooperative fiber-to-the-home.	Rural
HUD[44]	HUD ConnectHome USA	ConnectHomeUSA is a movement to bridge the digital divide for HUD-assisted housing residents by getting them connected at home while providing access to digital literacy and educational content.	Public Housing
FCC	FCC Lifeline Program	The Lifeline Program allows eligible consumers to receive a monthly benefit up to $9.25 towards phone or internet services and up to $34.25 for those living on Tribal and Native lands.	Low income; Tribal populations

Disability Rights New Hampshire[45]	Assistive Technology	Disability Rights New Hampshire can assist people with disabilities in obtaining assistive technology devices or services.	Individuals with disabilities
ICanConnect [46]	Assistive Technology	Help individuals identify and acquire technology necessary to help students access their curriculum, assist individuals who want to work become employable and successful in the job market, and help people with disabilities enjoy life and stay engaged with their communities.	Individuals with disabilities
University of New Hampshire[47]	Assistive Technology New Hampshire (ATinNH)	ATinNH serves any New Hampshire residents with a disability by loaning devices and equipment and teaching people how to use them.	All; individuals with disabilities
For Inspiration and Recognition of Science and Technology (FIRST)[48]	STEM	A global K-12 not-for-profit organization to inspire young people's interest in science, technology, engineering, and math (STEM), has collaborated with the New Hampshire Department of Education to make state grant funding available to robotics program via the New Hampshire Robotics Education Fund.	All
NH Career Academy[49]	Training services	The nonprofit provides employment and training services, such as computer skills training, for low-income individuals.	Low-income; all
New Hampshire Department of Education[50]	K-12 Digital Literacy and Computer Science Guidelines	The purpose of the DLCS guidelines is to provide schools with a framework to prepare students for success in college and careers.	All

Figure 13-Digital Equity Assets

3.4 Needs and Gaps Assessment

3.4.1 Broadband Deployment

Service to unserved and underserved locations.

New Hampshire's top priority for broadband deployment is to connect all unserved Broadband Serviceable Locations (BSLs) and to connect all underserved BSLs. New Hampshire mirrors BEAD's focus of deploying broadband service to unserved locations, those without any broadband service at all or with broadband service offering speeds below 25/3 Mbps, that is, 25 Megabits per second down and 3 Mbps up, and underserved locations, those without broadband service offering speeds of 100 Mbps down and 20 Mbps up.

While New Hampshire's top priority is to reach unserved locations first, efficient network design, use of material and use of the workforce will result in underserved locations and unserved locations being grouped and funded within the same projects. Capitalizing on this strategy will ensure unserved and underserved locations can be serviced in the most economical and efficient manner. All broadband deployment in New Hampshire will include safety protocols for the workforce and the public to ensure the safety of each.

The unserved and underserved locations have been identified using the latest available data, the FCC Broadband Data Maps published December 31, 2022, updated October 10, 2023. Focus areas are categorized as follows:

- Served: 481,308 - locations with speeds equal to or greater than 100/20 Mbps
- Underserved: 10,153 - locations less than 100/20 Mbps and greater than or equal to 25/3 Mbps
- Unserved: 26,123 - locations with speeds less than 25/3 Mbps
  * Note: There are no federally recognized tribal lands in New Hampshire.
- New Hampshire has 517,584 total locations with 481,308, or 93 percent, served with speeds of at least 100/20 Mbps.
- There are currently 36,276 locations, or 7 percent, that are underserved or unserved.
- These numbers consider that locations covered by RDOF, CAF II, NTIA BIP, RUS, and ReConnect are subject to enforceable funding commitments per the BEAD NOFO.

	New Hampshire Broadband Deployment Collection (BDC) December 2022 (last updated October 10, 2023)			
	Total Broadband Serviceable Locations (BSL)	**Unserved** locations with no broadband service or speeds less than 25/3 Mbps	**Underserved** locations less than 100/20 Mbps and greater than or equal to 25/3 Mbps	**Served** locations with speeds equal to or greater than 100/20 Mbps
Total NH (BSLs)	**517,584**	**26,123**	**10,153**	**481,308**
Residential	**458,549**	**21,286**	**8,490**	**428,773**
Business	**31,890**	**3,334**	**1,105**	**27,451**
Other*	**27,145**	**1,503**	**558**	**25,084**
	***includes business and residence mixed use locations, enterprise, group quarters**			

Figure 14-Broadband Deployment Collection

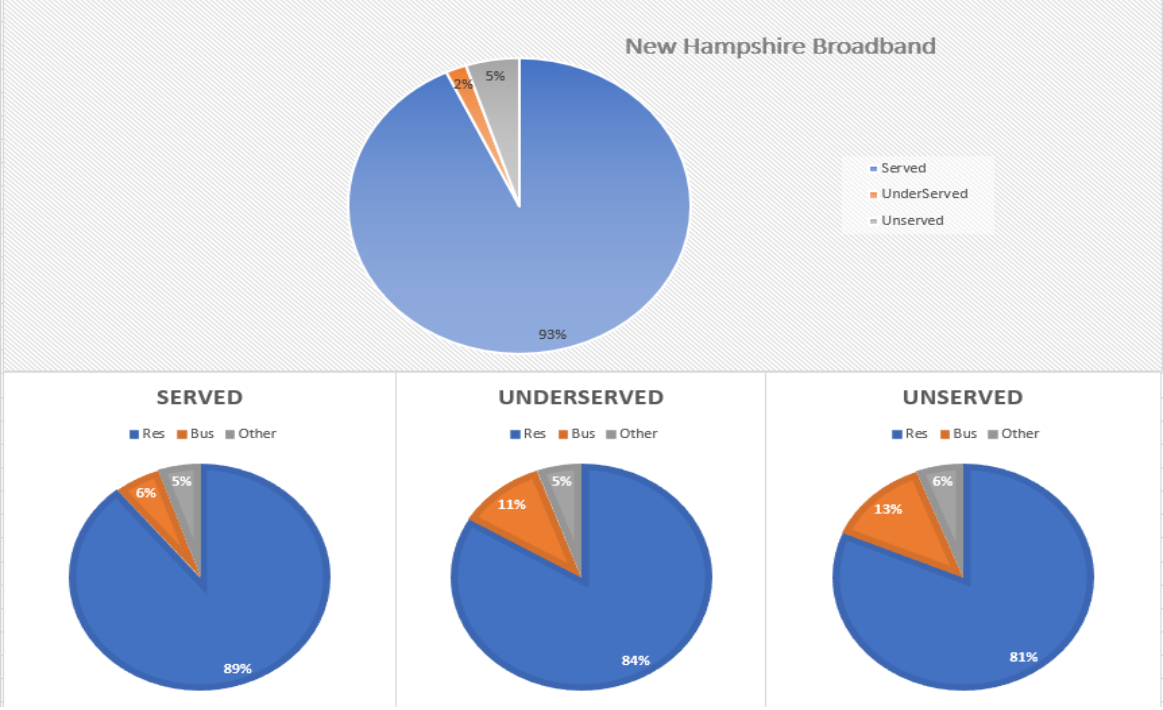


Figure 15-BDC Pie Chart

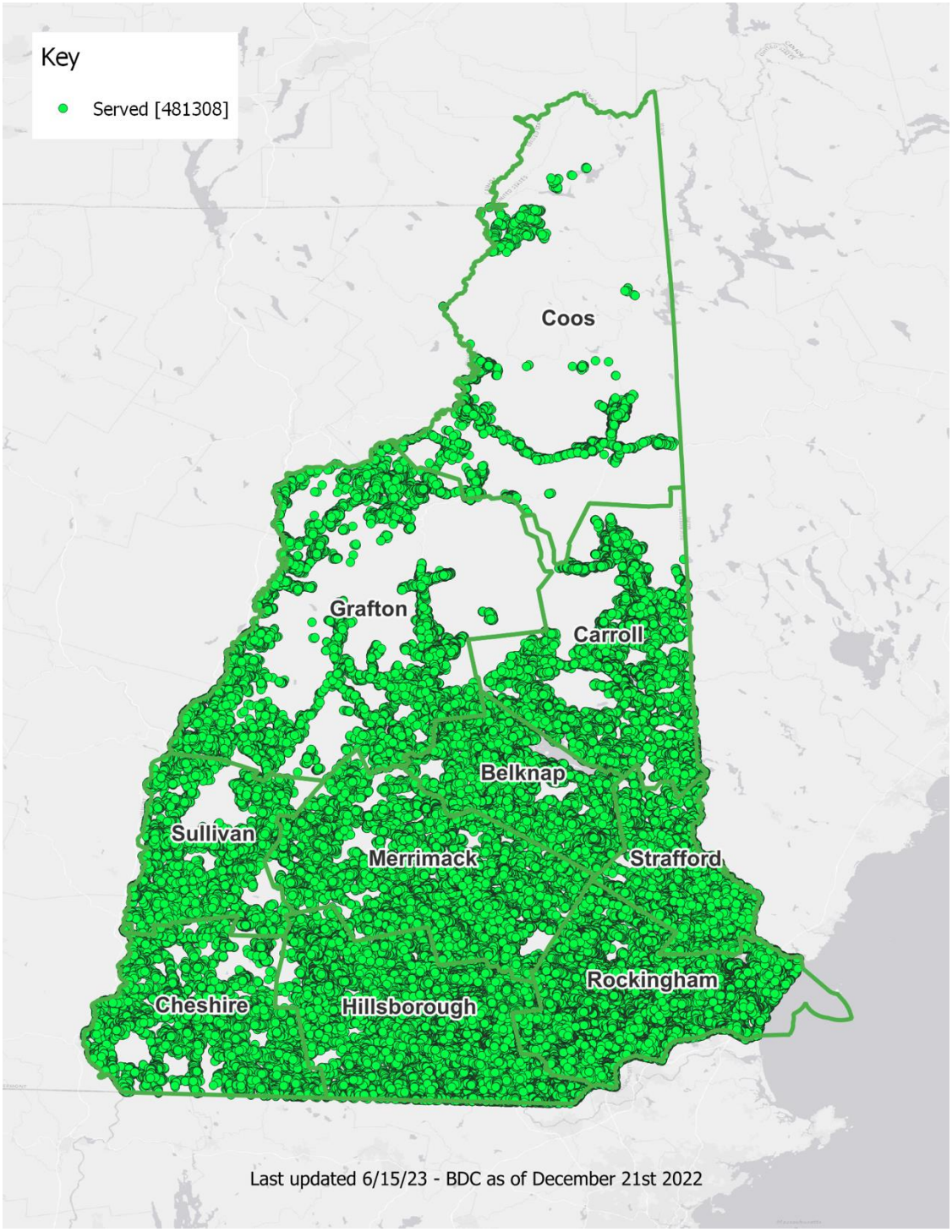


Figure 16-Illustrates the Served Locations in New Hampshire.

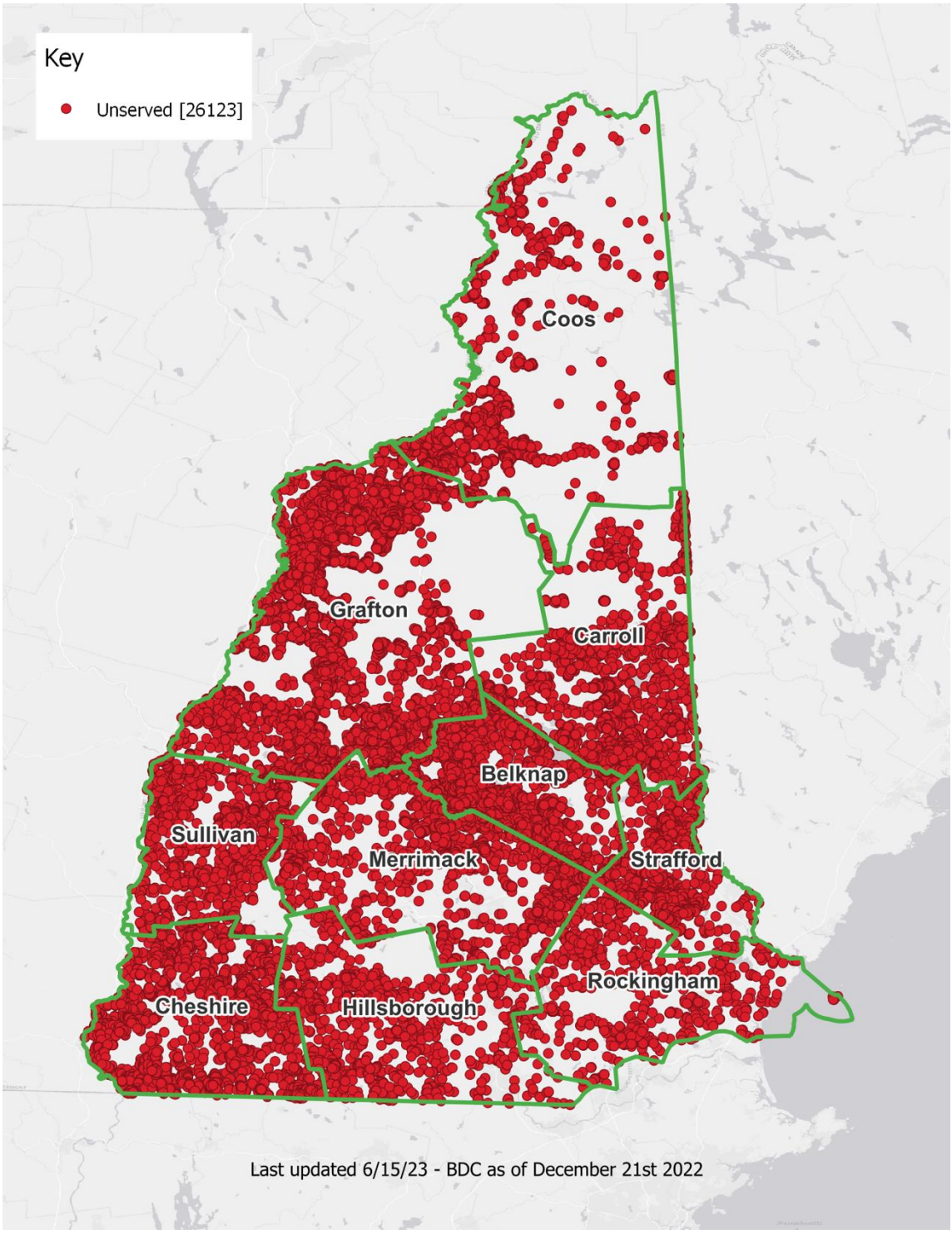


Figure 17-Illustrates the Unserved Locations in New Hampshire, the Primary Focus for Funding.

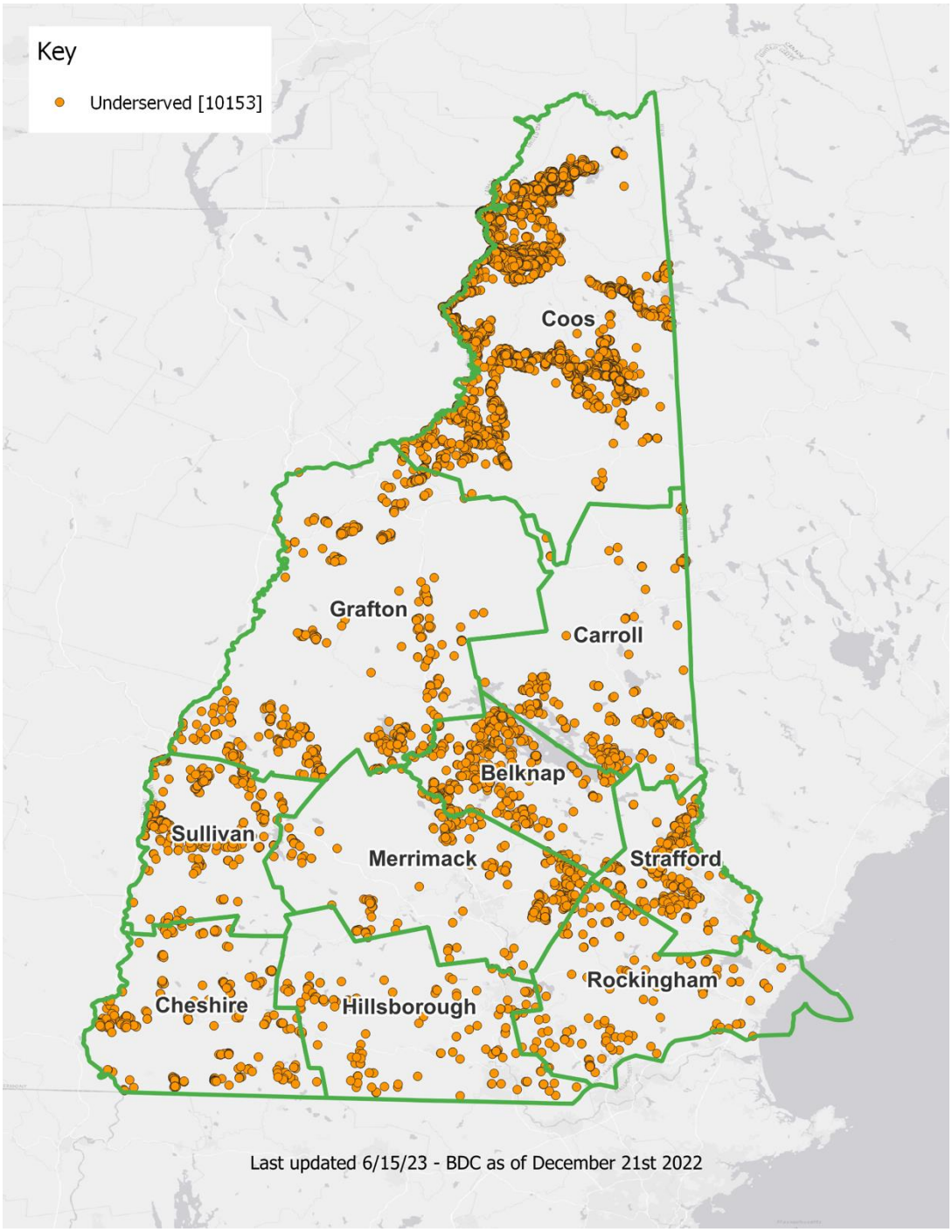


Figure 18-Illustrates the Underserved Locations in New Hampshire, the Secondary Focus for Funding.

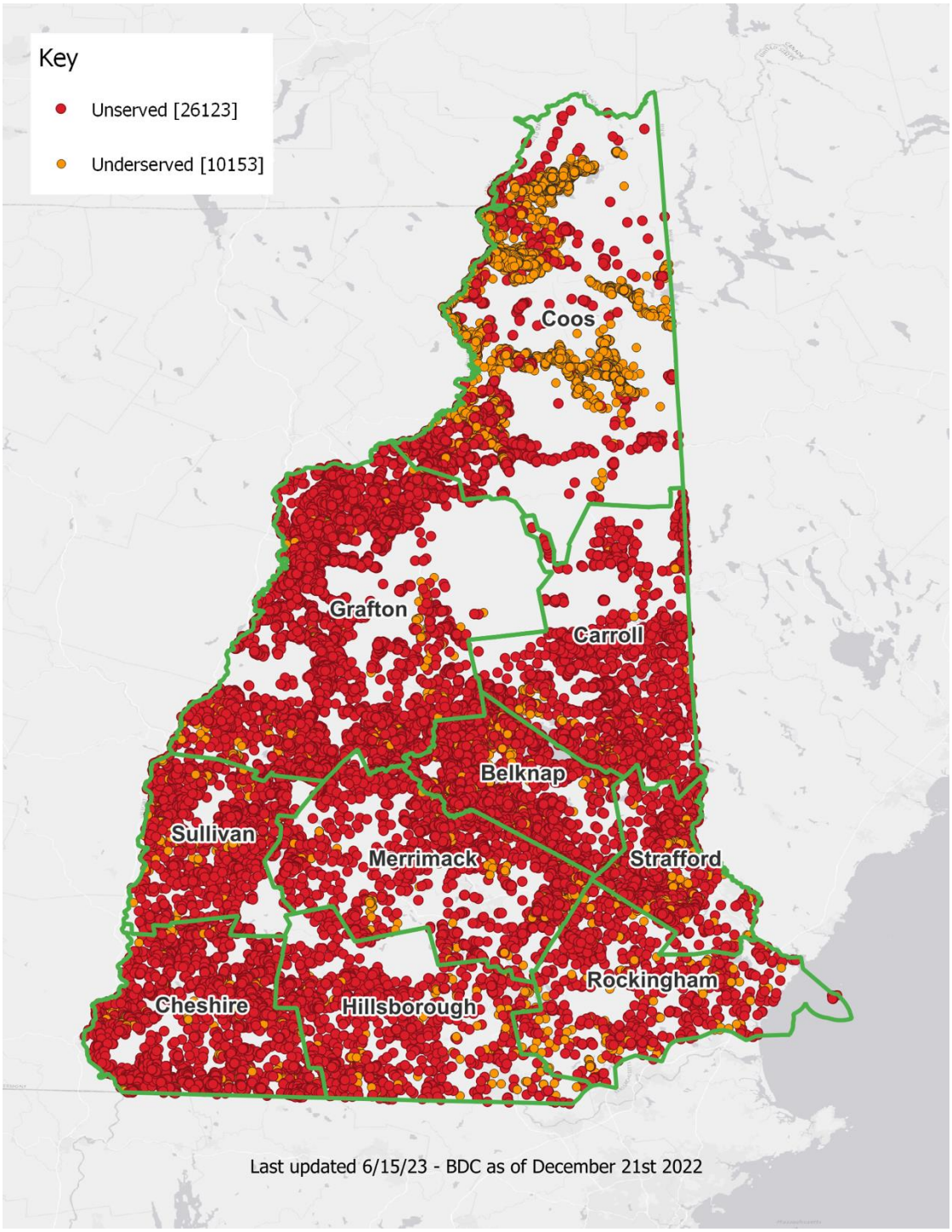


Figure 19-Illustrates the Total Unserved and Underserved Locations

New Hampshire conducted a preliminary analysis to determine the estimated total BEAD funding that would be required to deploy fast, reliable, and affordable broadband service to all unserved and underserved locations in New Hampshire. The state anticipates that most of the deployment will be through expansion and upgrading of existing multi-technology infrastructure. This initial estimate was developed using several resources:

- Broadband Serviceable Location mapping and analysis that identifies each physical location in the State of New Hampshire that requires broadband service.
- Service availability mapping and analysis based on the latest available data per the FCC Broadband Data Maps published December 31, 2022, updated October 10, 2023, that classifies each location as served, unserved, or underserved.
- An estimate of the cost required to provide fast, reliable, and affordable broadband to each unserved location and upgrade each underserved location, based on the average costs of broadband deployment in New Hampshire, surrounding New England states, and nationally.

Service availability is based on the latest available data per the FCC Broadband Data Maps published December 31, 2022, updated October 10, 2023. Values for served, unserved, and underserved locations reflect location totals and, as they are subject to enforceable funding commitments, do not include locations to be funded by Rural Digital Opportunity Fund (RDOF), Connect America Fund II (CAF II), Broadband Infrastructure Program (NTIA BIP), USDA ReConnect (prior to May 2023), and other Rural Utilities Service (RUS) programs. Locations to be served under additional funding sources (American Rescue Plan Act (ARPA) funds, United States Department of Agriculture (USDA) ReConnect after May 2023) are not currently counted as served (this will be updated in the Initial Proposal, if applicable).

Projected cost estimates to deploy broadband to the unserved and underserved range from the cost of expansion of an existing ISP provider that will upgrade and expand their network to cover BEAD eligible locations, to the cost of greenfield applications where new broadband infrastructure will be deployed to an entire community or geographic area. New Hampshire encourages continuation and expansion of existing public/private partnerships and the creation of new partnerships.

The New Hampshire cost analysis will be continuously refined as the Initial and Final Proposals are developed. This iterative process will help to ensure the most accurate and comprehensive information will inform New Hampshire's BEAD execution. Several factors may impact the results of this analysis, including inflation, supply chain challenges, updated service availability information, and changing technological information, among others.

We estimate that there is sufficient BEAD funding, with subgrantee matching funding, to connect all unserved and underserved locations spread across the state with fast, reliable, and affordable broadband, when taking into account all known future deployment projects.

Initial analysis of the estimated cost to serve at a location level show:

- New Hampshire estimates the cost to deploy fast, reliable, and affordable broadband to all unserved and underserved BSLs in the state including the locations that are known to be addressed in future projects will range from approximately $232,000,000 to $363,000,000. In addition to known future projects already funded, available BEAD funding includes $191,000,000, plus approximately $48,000,000 in subrecipient match.
- The average cost to deploy fast, reliable, and affordable service is estimated to range from $6,400 to $10,000 per unserved and underserved location, with an average estimated at $8,000 per location.
- Many of the unserved locations are in very rural, difficult to deploy (NH is the Granite State), and less dense areas. The following figure reflects by County the estimated costs of deployment, the number of unserved and underserved, and population density per square mile.
- The table further demonstrates that the majority of New Hampshire's unserved and underserved locations are in the most rural least densely populated areas.

New Hampshire Estimated Deployment Cost by County			
County	Total Unserved and Underserved	Estimated Range Cost of Deployment	Population Density Per Square Mile
Coos	9,230	$59M-$92M	17.6
Carroll	3,534	$23M-$35M	48.0
Grafton	7,745	$50M-$77M	51.1
Sullivan	2,204	$14M-$22M	78.4
Cheshire	3,001	$19M-$30M	105.1
Belknap	3,484	$22M-$35M	128.6
Merrimack	2,920	$19M-$29M	153.6
Strafford	1,522	$10M-$15M	323.9
Rockingham	1,096	$7M-$11M$	374.4
Hillsborough	1,540	$10-$15M	451.4
	36,276	$232M-$363M	

Figure 20-New Hampshire's Unserved and Underserved

Service to Community Anchor Institutions (CAIs) without gigabit service.

BEAD guidance allows for funding to connect Community Anchor Institutions (CAIs) with less than 1 Gigabit per second (Gbps) symmetrical service if funding remains after unserved and underserved areas have been addressed.

The definition of CAI is based on the statutory definition provided in 47 USC 1702 (a)(2)(E). BEA applied the definition to mean a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization (including any public housing agency, HUD-assisted housing organization, or Tribal housing organization), or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals. There are no federally recognized tribal lands in New Hampshire.

New Hampshire utilized data largely downloaded from Homeland Infrastructure Foundation-Level Data (HIFLD). In addition, BEA has engaged the CAIs, other stakeholder groups, and partners to ensure alignment and coordination with the common goals and strategies of the Digital Equity requirements of BEAD.

Approximately 3,700 CAIs have been identified in New Hampshire:

- Schools: Private Schools are defined by the Private School Survey (PSS) from HIFLD data. Public Schools are defined by the Common Core Data (CCD) from the HIFLD. Public and Private schools are identified with a National Center for Education Statistics ID.
- Libraries: Libraires in New Hampshire were already listed from efforts in 2014 but were confirmed using location data from HIFLD published in 2023.
- Hospitals: Urgent care centers, nursing homes VA medical facilities, and public health department were identified from the HIFLD database. Doctors and Clinicians data were downloaded from the Centers for Medicare and Medicaid Services Address data.
- Public safety entity: The list includes entities such as fire houses, emergency medical service stations, police stations, sheriff and constable offices, and Public Safety Answering Points (PSAPs), based on records maintained by New Hampshire and units of local government.
- Institutions of higher education: Institutions of higher education include all institutions that have an NCES ID in the category "college," including junior colleges, community colleges, minority serving institutions, historically black colleges and universities, other universities, or other educational institutions.
- Public housing organizations: Public housing organizations were identified by contacting the Public Housing Agencies (PHAs) for the state or territory enumerated by the U.S. Department of Housing and Urban Development.

- Community support organizations: BEA included any organizations that facilitate greater use of broadband service by vulnerable populations, including low-income, unemployed, and aged individuals. BEA also included senior centers and job training centers in this category because seniors and unemployed are vulnerable populations and the centers facilitate greater use of broadband. The Department of Labor maintains a database of "American Job Training" training centers, established as part of the Workforce Investment Act, and reauthorized in the Workforce Innovation and Opportunities Act of 2014. The database can be accessed at the American Job Center Finder. The National Council on Aging (NCOA) helped identify senior centers.

New Hampshire, in conjunction with the efforts with Digital Equity requirements of BEAD, is working with partners and stakeholders such as the Division of Rehabilitative Services of the New Hampshire Department of Corrections to address incarcerated populations in the state. Moreover, in furtherance of its efforts in support of Digital Equity, New Hampshire is considering the inclusion of houses of worship as a community support organization where they provide community support for vulnerable populations or act as community shelters in cases of emergencies.

Solutions to funding barriers in designated "high-cost areas."

New Hampshire will coordinate carefully analyzed areas of needed broadband deployment with the subgrantees for the most efficient design, largest benefit of cost per location, including subgrantee matching investment, and speed of deployment. This effort will include careful tracking of projects in progress such as BMGI and RDOF, while improving accuracy of mapping through proper and efficient use of the BEAD-approved challenge process.

"Extremely High-Cost Areas"

New Hampshire will establish an "extremely high-cost area" allocation once data is received from the subgrantee applications. While an extremely high-cost limit has yet to be established, New Hampshire is confident that the majority of the unserved and underserved locations will be served within previously acknowledged acceptable normal cost ranges. Each location identified as extremely high cost will be rigorously examined with the subgrantee for alternatives within their current design, alternatives to redesign, and finally the evaluation of the potential for an alternative technology, such as fixed wireless.

Broadband office and Associated Governance Structure.

New Hampshire established the Office of Broadband Initiatives as part of Economic Development, which is a division of the Department of Business and Economic Affairs (BEA). In addition to the Office of Broadband Initiatives, BEA also includes the Division of Economic Development, Division of Travel and Tourism, Investing Housing, Office of Planning and Development, and Office of Workforce Opportunity. This governance structure creates the optimum location for efficient coordination with key partners to ensure at every level that the BEAD investment will be a success in the state.

The Office of Broadband Initiative conducts the following activities:

- It conducts research and data collection to build the Statewide Broadband Map in collaboration with ISPs.
- It administers grant applications, accepting applications from all broadband providers and communities to provide service to unserved and underserved locations.
- It monitors projects on an ongoing basis to ensure that subrecipients are compliant with the use of grant funds and all pass-through requirements.
- It seeks community participation throughout the development of programs and the application review processes.
- It ensures alignment and coordination with common goals and strategies with the BEAD Digital Equity requirements.

Legislative and/or Regulatory Solutions to Accelerate Infrastructure Deployment.

New Hampshire is aware that regulation or statute changes may be needed to ensure successful and timely implementation of the Five-Year Action Plan. Deployment of infrastructure of this scale is more likely to encounter roadblocks such as those experienced during construction of other projects in the state and in neighboring states, including the need for improved and carefully managed data collection, mapping, and coordination among all stakeholders. New Hampshire is proactively looking at ways to limit these challenges and put strategies into place that will help minimize any barriers or obstacles that may hinder the project(s).

Permitting is time-consuming and expensive, especially in areas that include railways, interstate highways, and navigable waterways. Deployment in greenfield locations, as well as the expansion of existing infrastructure, will require unique permitting and permission solutions. Approvals required of residents, municipalities, state, and federal agencies may need alternative strategies. Managing make ready costs, timeframes, and foliage will also be a challenge over the next five years. Again, New Hampshire is proactive in its efforts to meet the timeline of the BEAD program. These potential barriers will be revisited on a regular basis so that any concerns can be mitigated immediately.

Increased Workforce Available to Deploy Broadband.

BEA has analyzed and is addressing the need for the availability of a greater workforce throughout the state to ensure successful completion of the BEAD effort. In the State of New Hampshire, Work Force Assessment is being utilized to help identify the areas of need and strategies to grow the workforce. In addition, New Hampshire has engaged with key stakeholders in the state to improve the pipeline of potential employees including addressing the necessary training and housing to address the urgent need for a workforce to implement the project(s).

Joint efforts with the Digital Equity office to meet the requirements of the BEAD program have resulted in the establishment of additional strong partnership ties with key stakeholders to coordinate workforce improvement efforts. These partners include:

- Welcoming New Hampshire
- Excellence North Alliance
- Vocational Rehabilitation NH
- New Hampshire Charitable Foundation
- New Hampshire Department of Military Affairs and Veterans Services
- Vocational Rehabilitation - New Hampshire
- University of New Hampshire Cooperative Extension
- Apprenticeship Grant Manager, CCSNH Apprenticeship NH
- New Hampshire Department of Health and Human Services
- National Collaborative for Digital Equity (NCDE) & NH Registered Educator Apprenticeship Program
- Nashua Community College Career and Technical Education Pathways Director
- Workforce Development, Manchester Community College
- Administrator for the NH Department of Education, Bureau of Adult Education
- Director of College Access Programs, Community College System of New Hampshire
- Workforce Development, New Hampshire Works, Workforce Investment Board

New Hampshire has and has had for many years one of the lowest unemployment rates in New England. The State of New Hampshire Workforce Assessment has kept the state's needs in focus, as it systematically details gaps in the workforce and provides strategies to grow the workforce within the state and as well as attract workers from outside New England.

The need for telecommunications workers is of particular concern and not just in New Hampshire, as it has been identified at the federal level as an industry that will feel the effects of a lack of workforce throughout the coming years. Statistics show that the number of telecommunications workers across the country has declined each year for the past 10 years, according to the US Bureau of Labor Statistics. New Hampshire is aligning with its workforce agencies, educational entities, and training facilities, as well as telecommunications businesses to coordinate efforts and strategies that will help New Hampshire meet the requirements set for by the BEAD program for deployment.

3.4.2 Broadband Adoption

A 2021 national Benton Institute survey identified the most important barriers to broadband adoption (*i.e.*, subscribing to an internet service), as (i) the monthly cost was too expensive, (ii) the smartphone does everything I need to do, and (iii) I don't need or want high-speed internet service at home. (1)

	The Most Important Barriers to Adoption	Online Panel	Telephone Respondents	All
1	The monthly cost of a home internet subscription is too expensive	35%	7%	21%
2	The cost of a computer is too expensive	10%	11%	11%
3	Your smartphone lets you do everything online that you need to do	27%	2%	15%
4	You have other options for internet access outside of your home	8%	2%	5%
5	You cannot get internet service installed at your residence	8%	3%	6%
6	You worry about the privacy and security of your personal data	2%	14%	8%
7	You are not comfortable using a computer or the internet	1%	9%	5%
8	You do not want or need high-speed internet service at home	4%	26%	15%
9	You have past-due bills to internet service providers	3%	1%	2%
10	It is too complicated to sign up	1%	1%	2%
11	Some other reason that has not already been mentioned	0%	2%	1%

Figure 21-Most Important Barriers to Adoption

(1) Source: Benton Institute for Broadband & Society, "Affordability and the Digital Divide"

State of Broadband Adoption in New Hampshire.

Source information to support the following tables in this section, state of broadband adoption, can be found at: United States Census Bureau

New Hampshire's broadband adoption rate is above the national average. In the state, 84 percent of its 557,220 households subscribe to high-speed terrestrial broadband, this includes cable, fiber optic, or DSL. Nationwide, the average is 75.9 percent.
Six percent of New Hampshire households do not subscribe to an internet service according to the U.S. Census Bureau's American Community Survey (ACS).
Almost 85 percent of Granite Staters access the internet with cellular service access, while only 3.5 percent do so with a satellite service.

Service Type	Percentage
Cable, fiber optic, or DSL	84%
Cellular Data Plan	84.7%
Satellite	3.5%
None	6%

Figure 22-Broadband Service Penetration

There is a correlation with income age, and broadband adoption. The higher the income the higher the percentage of households having an internet subscription. Those who are younger have the highest percentage of subscriptions.

Household Annual Income	Percentage without an Internet Subscription
Less than $20,000	19.2%
$20,000 to $74,999	8.6%
$75,000 or more	2.4%

Figure 23-New Hampshire Household Income and Service

Age	Percentage with an Internet Subscription
Under 18	96.4%
18 to 64	94.5%
65 and older	83.8%

Figure 24-Age and Internet Service

There is very little correlation between lack of an internet subscription and race, with all races being over 90 percent with a subscription to internet.

Race	Percentage with an Internet Subscription
White alone	92.8%
Black or African American alone	94.5%
American Indian or Alaskan Native alone	91.2%
Asian alone	95.1%
Some other race alone	94.8%
Two or more races	94.7%
Hispanic or Latino origin (of any race)	94.3%
White alone, not Hispanic or Latino	92.8%

Figure 25-Race and Internet Service

One's educational level does impact adoption of broadband. Internet subscriptions are just 76.9 percent among those who have not graduated from high school.

Educational Attainment	Percentage with an Internet Subscription
Less than high school graduate or equivalency	76.9%
HS graduate (or equivalency), some college, or associate degree	90.3%
Bachelor's degree or higher	96.4%

Figure 26-Educational Attainment

Whether one is in the labor force or not does correlate to broadband adoption. Internet subscriptions are lowest among those who are not in the labor force at 85.8 percent.

Employment Status	Percentage with an Internet Subscription
Employed	95.3%
Unemployed	90.9%
Not in labor force	85.8%

Figure 27-Employment and Internet Service

Access to Internet-Capable Devices.

US Census data shows that 3.1 percent of New Hampshire households do not have any kind of computing device (e.g., laptop, smartphone, tablet) and 6 percent only have a smartphone, while 7.6 percent of New Hampshire households with internet access only have access through a cellular data plan.[51]

While a smartphone is a very capable internet interface, a 2015 Pew Survey[52] shows that some important activities are difficult to perform on a phone such as: job seekers using phones to access and read content, altering, and submitting files and documents.

Granite Staters need access to internet-capable devices and assistance with the monthly costs to improve broadband adoption. The federal Affordable Connectivity Program (ACP) implemented through participating ISPs provides a $30 per month discount on the provision of internet service, as well as a one-time discount of up to $100 for a laptop, tablet, or desktop computer with a required copayment between $10 and $50. See section 3.4.3 for more information on this vital program.

Digital Skills.

Digital skills are essential in a digital world.

> Like information literacy, digital literacy requires skills in locating and using information and in critical thinking. Beyond that, however, digital literacy involves knowing digital tools and using them in communicative, collaborative ways through social engagement. The American Library Association's Digital Literacy Task Force defines digital literacy as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[53]

Reasons given for not being online include (i) not being interested, (ii) not being comfortable with computers and internet, and (iii) concern for privacy and data security.

The BEA office is developing the State's Digital Equity Plan. One of the critical tasks "is to gather information about current experiences using the internet and the experiences of people in [the] household." A broadband survey was developed and distributed throughout the state to provide additional insight into the reasons Granite Staters lack broadband access and adoption, including the level of digital skills by those responding.

3.4.3 Broadband Affordability

Affordability is a barrier to broadband adoption throughout New Hampshire and the nation. BEA will develop a middle-class affordability requirement for subrecipients, in accordance with section IV.C.2.c.i of the BEAD NOFO. Furthermore, while there are federal subsidy programs and discount services by internet service providers, there is a low awareness of them among those in need.

A 2021 nationwide survey on broadband adoption among low- and lower-middle income households conducted by the Benton Institute for Broadband & Society found that:

- 7 million households whose annual incomes are $50,000 or less have home high-speed service due to free or discount offers.
- 40 percent said they cannot afford to pay anything for a home internet high-speed service subscription.
- Many of those who say they cannot afford any home broadband bill may be paying for smartphone plans and therefore may not have the capability to pay for both.
- 38 percent say they can pay something in the range of entry-level plans (or somewhat above), that is between $55 to $70 per month.
- 22 percent say they are comfortable paying about $25 per month.
- 46 percent said it is "very" or "somewhat" difficult to build their monthly internet bill into their budget.
- 62 percent would require significant cost relief (relative to market prices) to have broadband service at home.
- 25 percent said they heard of free, or discount internet offers, and 23 percent heard of the Emergency Broadband Benefit (predecessor to the Affordability Connectivity Program).
- 28 percent of those who heard of either free or discount offers found it difficult to sign up.
- 37 percent of households said they could not afford any more than $100 for a computer.[54]

Affordability Connectivity Program (ACP)

Households that are eligible for ACP can receive a monthly service discount of $30, and a one-time device discount up to $100 for a qualifying device.[55]

Eligibility requirements may be based on income or participation in certain government-assistance programs. The six highest eligibility qualifying methods nationwide are:

1. Supplemental Nutrition Assistance Program
2. Medicaid
3. Household income less than 200 percent of the Federal Poverty Level
4. Supplemental Security Income
5. National School Lunch or School Breakfast Program
6. Federal Public Housing Assistance.[56]

The Education Superhighway reports that only 39 percent of the nearly 52 million ACP-eligible households nationwide have enrolled in ACP. The Education Superhighway analyzed ACP eligibility data and Public Use Microdata Samples (PUMS) from the American Community Survey (ACS) for its report.[57]

According to that same report, only 19 percent of ACP-eligible households in New Hampshire have enrolled in ACP, just over one half of the national average.

There are four methods used to verify consumer eligibility for ACP. The methods are defined as follows:

1. National: Consumers can apply to participate in ACP via the National Verifier.
2. Alternative: Providers have the option to obtain FCC approval for an alternative verification that they can use in addition to, or instead of, the National Verifier. Providers with approved Alternative Verification may verify eligibility directly.
3. Lifeline: Lifeline subscribers are eligible to participate in ACP.
4. Schools: Providers may rely on schools to verify eligibility under the free and reduced-price school lunch or breakfast program.

In New Hampshire 64.5 percent of consumers enrolled directly in the ACP program using the National Verifier. Providers qualified 18.5 percent of Granite Staters for the ACP program using the Alternative Verifier. The remaining 17 percent of the 35,000-plus ACP-qualified consumers in New Hampshire did so through the Lifeline program. As of August 1, 2023, only one household qualified for the ACP program through the school verification process.[58]

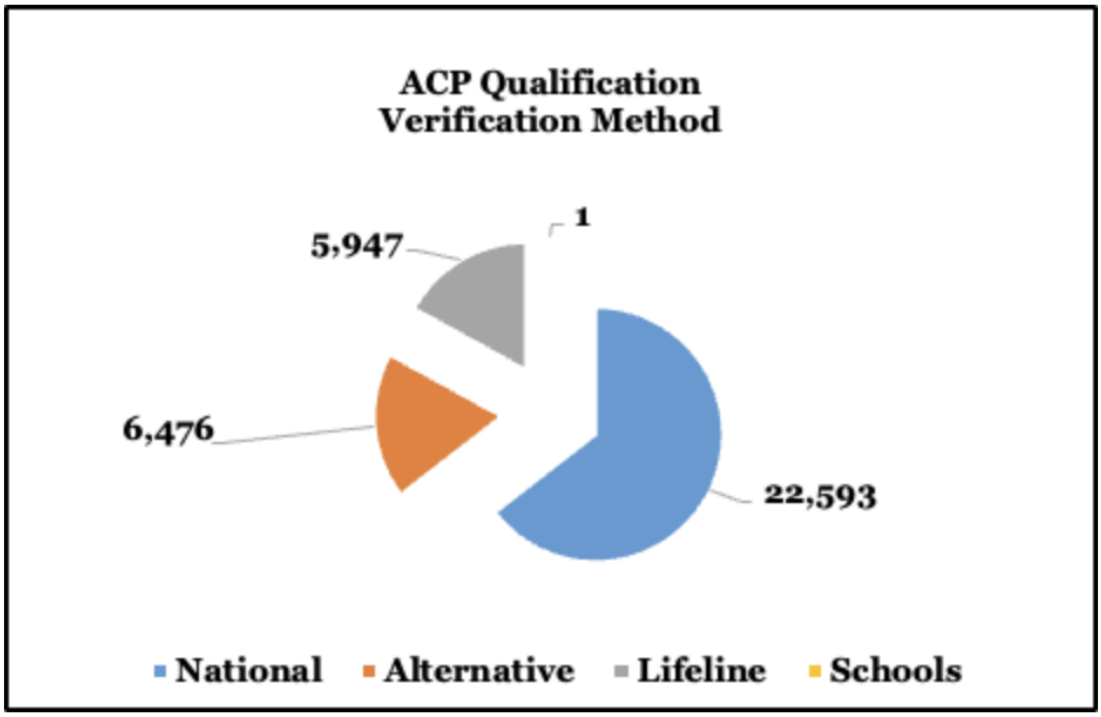


Figure 28-New Hampshire ACP Qualification Methods

During the period from January 2022 through July 2023 ACP claim payments made in New Hampshire totaled $12,947,001 averaging $681,421 and 22,000 claims per month.[59]

Information supporting the above figure are referenced in the below sources.

Source: Federal Communications Commission
Source: Federal Communications Commission
Source: Education Superhighway, Affordability Connectivity Program Enrollment Dashboard accessed September 17, 2023.
Source: FCC Total EBB & ACP Support by Geographic Region
Source: ACP Households by County

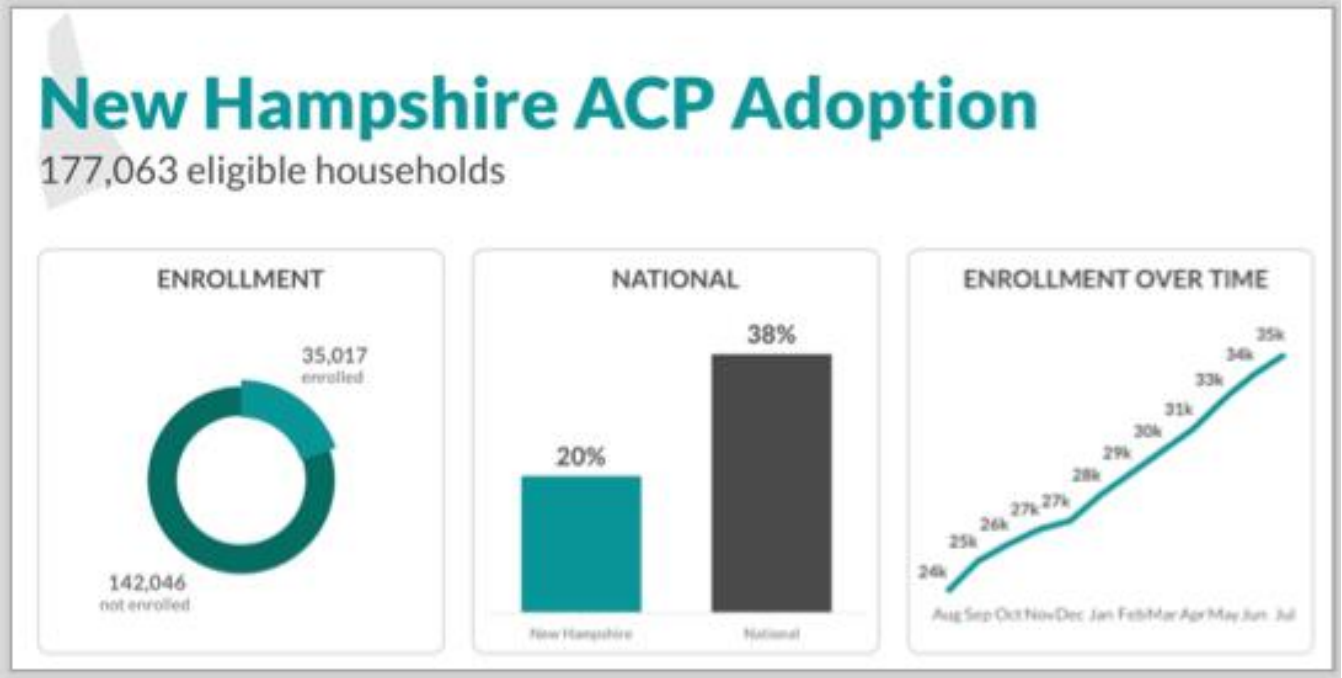
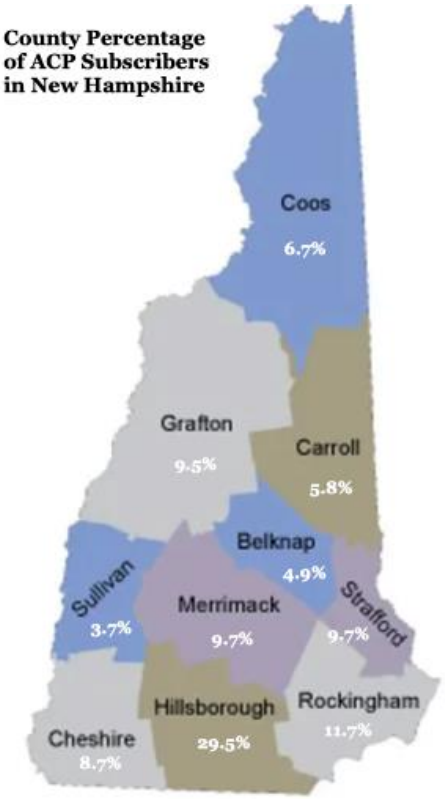


Figure 29-New Hampshire ACP Adoption

Source: Education Superhighway, Affordability Connectivity Program Enrollment Dashboard, accessed September 17, 2023.

Fifty percent of ACP subscribers reside in the three southern counties in the state, with less than 5 percent each located in Sullivan and Belknap counties. The following exhibits reflect the location and percentages of ACP subscribers by county.[60]



New Hampshire County ACP Subscribers			
	County	ACP Subscribers	Subscriber %
1	Belknap	1,712	4.9%
2	Carroll	2,033	5.8%
3	Cheshire	3,057	8.7%
4	Coos	2,352	6.7%
5	Grafton	3,338	9.5%
6	Hillsborough	10,314	29.5%
7	Merrimack	3,408	9.7%
8	Rockingham	4,093	11.7%
9	Stratford	3,405	9.7%
10	Sullivan	1,298	3.7%
		35,010	

Figure 30-New Hampshire County ACP Subscribers

1. ACP Enrollment and Claims Tracker

The ACP enrollment in New Hampshire cities ranges from a low of 17 percent to Berlin's 85 percent of eligible households. The nearly 18,000 enrolled households are only 28 percent of the eligible 63,428 households in the cities.

New Hampshire City ACP Adoption				
	City	Adoption Rate	Eligible Households	Enrolled Households
1	Berlin	85%	1391	1186
2	Claremont	33%	2057	681
3	Concord	22%	6042	1327
4	Derry	22%	2362	514
5	Dover	20%	4341	862
6	Franklin	39%	1001	392
7	Keene	53%	3178	1683
8	Laconia	32%	2513	794
9	Lebanon	18%	1883	341
10	Manchester	26%	19430	5040
11	Nashua	26%	10717	2799
12	Portsmouth	17%	2624	436
13	Rochester	31%	4241	1334
14	Somersworth	26%	1648	437
Total		28%	63,428	17,826

Figure 31-New Hampshire City ACP Adoption

Source: Education Superhighway, Affordability Connectivity Program Enrollment Dashboard, accessed September 17, 2023.

Broadband adoption rates correlate with income, that is, those with less income have fewer internet subscriptions. Thus, affordability is a barrier to participation in the social and economic fabric of the community, state, and country.

Household Annual Income	Percentage without an Internet Subscription
Less than $20,000	19.2%
$20,000 to $74,999	8.6%
$75,000 or more	2.4%

Figure 32-New Hampshire Household Income and Service

Lifeline

Lifeline is a federal program that provides a monthly benefit of up to $9.25 per phone or internet plan for eligible consumers and is limited to only one Lifeline benefit per household. Nationally more than 75 percent of recipients qualify for Lifeline benefits through participation in the Medicaid or SNAP programs.[61] Lifeline distributions in New Hampshire January through August 2023 totaled over $900,000, averaging $122,989 per month.[62]

Lifeline qualifying factors

Lifeline Participation Jan-22							
	COUNTY	TOTAL SUBSCRIBERS	BROADBAND	BUNDLED BROADBAND	BUNDLED VOICE AND BROADBAND	VOICE	BUNDLED VOICE
1	Belknap	459		250	187	22	
2	Carroll	167		90	56	21	
3	Cheshire	389		199	152	37	1
4	Coos	279		127	104	48	
5	Grafton	361		191	121	49	
6	Hillsborough	2,561	2	1,394	1,043	119	3
7	Merrimack	852		461	324	63	4
8	Rockingham	1,049	2	519	449	79	
9	Strafford	884		439	395	50	
10	Sullivan	344		194	128	21	1
	Totals	7345	4	3864	2959	509	9

Figure 33-Lifeline Participation by County January 2022

Source: Lifeline Participation

New Hampshire companies participating in the Lifeline program include:[63]

1. Assurance Wireless USA, L.P.
2. Consolidated Communications of Northern New England Company
3. Dunbarton Telephone Company, Inc.
4. Granite State Telephone, Inc.
5. I-Wireless, LLC
6. Kearsarge Telephone Company
7. Merrimack County Telephone Company
8. New Hampshire Electric Coop, Inc
9. Tracfone Wireless, Inc.
10. Union Telephone Company
11. Wilton Telephone Company
12. Yakima MSA Limited Partnership.

USAC relies on the U.S. Census American Community Survey (ACS) to estimate the rate at which Lifeline-eligible households participate in the Lifeline program. The chart below outlines the total number of Lifeline subscribers for April 2023, the estimated number of households eligible for the Lifeline benefit based on the most recent ACS data available, and Lifeline's estimated participation rate.

Lifeline Subscriber Data for New Hampshire

Subscriber Count (April 2023)	9,175
Eligible Households	106,489
Estimated 2023 Participation Rate	9%

Figure 34-Lifeline Subscriber Data for New Hampshire

Universal Service Program for Schools and Libraries (E-Rate)

The Universal Service Program for Schools and Libraries (E-Rate) is a federally funded program providing discounts to schools and public libraries for their broadband services, internet access, and related equipment. E-rate works by providing discounts averaging 60-80 percent on these services. In 2023, New Hampshire received just over $3.8 million to subsidize schools and public libraries in purchasing services and equipment.

New Hampshire E-Rate Funding 2014 – 2023[64]

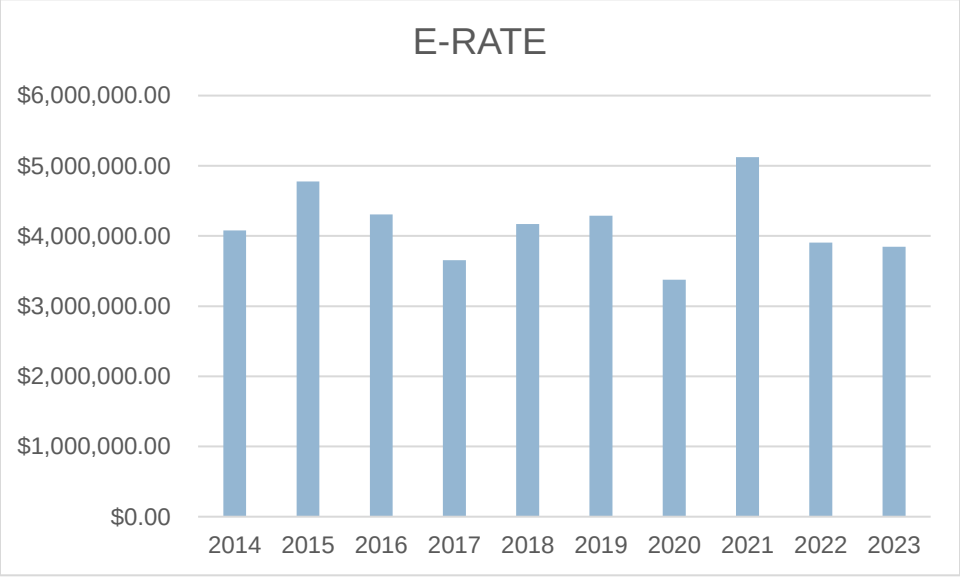


Figure 35-New Hampshire E-Rate Funding 2014 – 2023

3.4.4 Broadband Access

Public Wi-Fi, Networks, and Public Access Points.

The COVID-19 pandemic underscored the need for access to the internet for work, healthcare, and education. Libraries and other publicly available resources became vital access points for many. In its 2022 annual report to the Federal Institute of Museum and Library Sciences, the New Hampshire State Library system reported there were 222 public libraries in the state.

In July 2023, the New Hampshire State Library commenced a survey of all New Hampshire public libraries, "Technology Assessment – A Survey for Digital Equity." Through September 26, 2023, sixty-five libraries had responded. Results to key questions include:

1. All sixty-five libraries have computers available for use by patrons in the library, two with more than twenty-five computers.
2. Fifteen (23 percent) libraries have computers that patrons can check out for use when and utilize where needed.
3. Ten libraries permit patrons to check out Wi-Fi hotspots.
4. All libraries provide technology assistance and aid with online searches.
5. Many libraries provide access to free Wi-Fi in the parking lot twenty-four hours per day, every day of the year.
6. Some libraries assist with troubleshooting, computer navigation, and application installations.

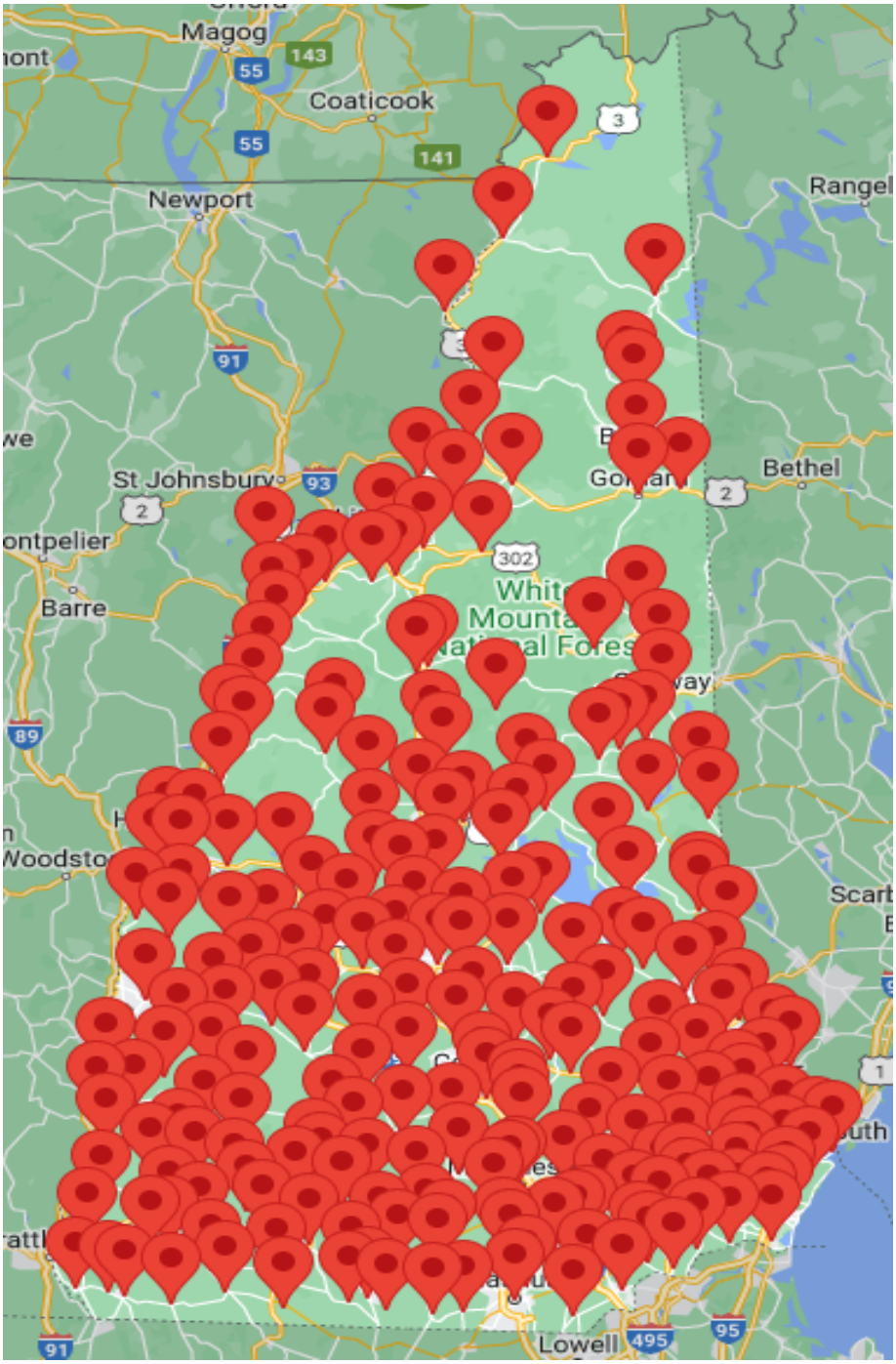


Figure 36-Public Library Locations

Source: New Hampshire State Library

Mobile and Wireless Connectivity

Mobile and wireless connectivity are critical for communications, public safety, and accessing the internet and GPS data, when and where a wired connection is not available. User connectivity is dependent upon being within the coverage area of a wireless network.

According to the FCC's National Broadband Map on mobile broadband coverage, updated on September 12, 2023, the traveling public within New Hampshire has the following access and providers:

Source: FCC National Broadband Map (Last update:9/12/23),

Percentage of Granite Staters with Access to Wireless/Mobile Coverage	
4G (5/1 Mbps) Service	91.9%
5G-NR (7/1 Mbps) Service	46.1%
5G-NR (35/3 Mbps) Service	25.7%

Figure 37-Percent of Granite Staters with Access to Wireless/Mobile Coverage

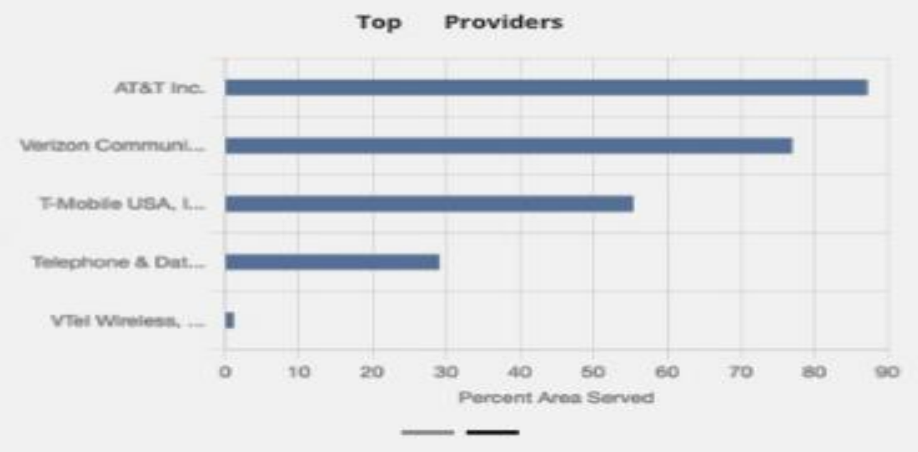


Figure 38-Top 5 Mobile/Wireless Providers in New Hampshire

Middle Mile Networks

Middle mile facilities serve as the crucial network infrastructure that bridges the gap between local or community networks and the larger internet backbone or long-haul networks. This intermediate step in data transmission connects end-users and their premises to the global internet.

On September 6, 2023, the National Telecommunications, and Information Administration's (NTIA) awarded Grafton County New Hampshire $11,969,000 through its Enabling Middle Mile Broadband Infrastructure Program, funded by the Infrastructure Investment and Jobs Act (IIJA). Middle mile internet infrastructure carries large amounts of data over long distances, increases capacity to local networks, boosts network resiliency, lowers the cost of bringing high-speed Internet service to unconnected households, and helps connect unserved regions to the Internet backbone.

The project will develop the 222-mile County of Grafton middle-mile connection to the backbone through population centers by building new fiber optic cable to close gaps and leveraging existing infrastructure to reduce the cost of buildout. The middle mile network will be available for municipalities to tap into and run additional fiber optic cable through their municipalities to reach the last mile. The network will provide the electronics and optics necessary to provide service at identified municipal/county anchor locations and will allow for future growth and expansion with minimal additional equipment. The non-municipal/county locations will be served through dark fiber access only, allowing ISPs to make their own investments within individual communities.

In a statement released upon the NTIA award to Grafton County Governor Chris Sununu stated "In 2020 New Hampshire was the first state in the nation to use CARES Act Funds to build out broadband services, and we haven't slowed down since. This grant is a key investment that puts the necessary infrastructure in place to ensure that broadband coverage can be built out to the very last mile. This is a big win for New Hampshire residents, businesses, and municipalities." The Grafton County middle mile backbone will serve twenty-seven municipalities and nearly 32,000 households when it is completed.[65]

3.4.5 Digital Equity

Digital Equity is defined as a condition in which all individuals and communities have the information technology capacity needed for full participation in our digital society, democracy, and economy.

Closing the Digital Equity gap is a critical step to take in tandem with the other goals of deployment, access, adoption, and affordability. Initial and ongoing education with supportive tools is a key component to helping address Digital Equity. Many population sectors would benefit from training in digital literacy and cybersecurity. BEA's effort through the subgrantee process and the ongoing Digital Equity work in the state, is the basis for helping solve Digital Equity issues and close the gaps facing Granite Staters today. This will include the outreach to provide residents with an understanding of the benefits of, and how to use, internet services. By building out broadband infrastructure, providing access to all residents and businesses, fostering adoption, marketing affordability programs, and providing digital literacy and cybersecurity training, New Hampshire will make great strides in closing the Digital Equity gap.

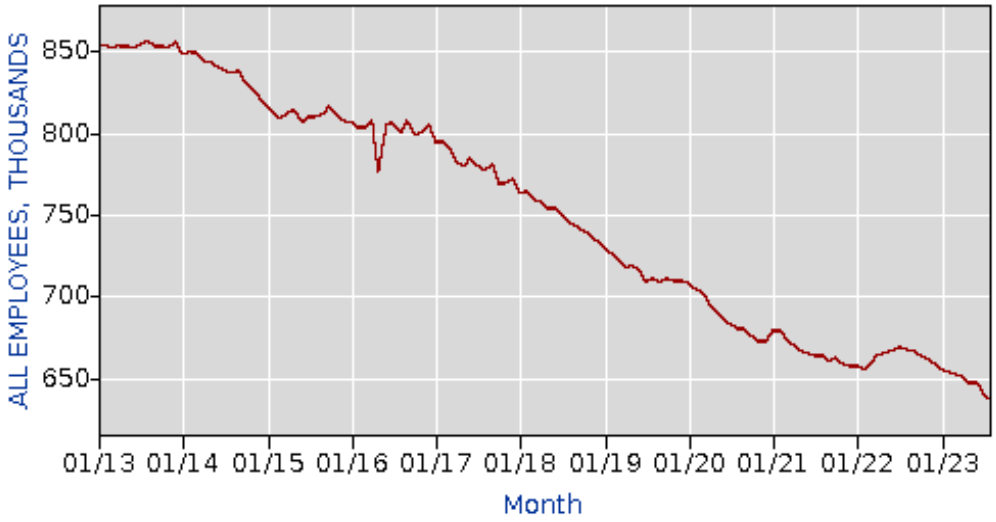
By measuring deployment activities, end user subscriptions, ACP signups, and participation in the Digital Equity outreach efforts, BEA will have a continual measurement of success towards their broadband goals and objectives outcomes.

The BEA office is working diligently on developing the State's Digital Equity Plan. The work includes extensive outreach to an inclusive list of stakeholders and stakeholder groups. This outreach will help BEA to understand Digital Equity gaps as well as outline ongoing work with the stakeholders on closing these gaps. As described in our goals and objectives, New Hampshire's efforts on deployment, access, adoption, and affordability all provide support to help close the Digital Equity gap.

Workforce

As BEAD funding is being distributed for deployment of high-speed broadband networks, New Hampshire will face the same workforce challenges as seen throughout the country in the telecommunications industry.

The U.S. Bureau of Labor Statistics shows a steady decrease in the number of telecommunications employees over a span of the last 10 years, 2013 to 2023.



Source: Workforce

Between 2016 and 2021 the data reflects a 37 percent decrease in Telecommunication Equipment Installers and Repairers, as well as a 26 percent decrease in Telecommunications Line Installers and Repairers.

BEA is working with State agencies on workforce development as well as engaging the higher education sector to further understand workforce needs and opportunities.

Covered Population

Through the state's Digital Equity work, the Covered Populations, as defined by NTIA, will be a focus of outreach to gain a better fundamental understanding of what opportunities the state can create and support to help eliminate the Digital Equity gap for these populations. As an example, a listening session was held by BEA in conjunction with UNH Cooperative Extension (UNHCE) on September 15, 2023, included a variety of participants to include various state agency representatives from Military Affairs and Veteran Services, Health and Human Services, Education and Adult Education and Workforce Development. There were also representatives from the Community College System of New Hampshire (Director of College Access Programs and Apprenticeship Program), Nashua Community College Career and Technical Pathways, and Vocational Rehabilitation. The feedback received focused on affordability and access as it pertains to subscriptions (per the ACP program), devices for education and job opportunities, digital training, and cybersecurity. Takeaways for the state were targeted on support needs for the underrepresented population with a need to include multi-cultural and multilingual support.

The Digital Equity effort will continue with multiple listening sessions, with a variety of participants, to help collect data on the recognized gaps and help shape ongoing work in this area.

According to the U.S Department of the Interior, Indian Affairs, New Hampshire has no federally recognized tribe, though through further research several Tribal groups were identified. These entities were added to the stakeholder list to be included in outreach activities.

The eight different "Covered Populations" defined by the Digital Equity Act of 2021 overall have historically experienced lower rates of computer and internet use.

The Covered Populations named in the legislation include:

- Persons who are 60 years of age or older
- Incarcerated individuals
- Veterans
- Persons with disabilities
- Members of a racial or ethnic minority group
- Rural residents
- Individuals with a language barrier, including those who are English learners or have low literacy levels
- Individuals living in households with incomes not exceeding 150 percent of the poverty level.

The US Census Bureau Digital Equity Act Population Viewer provides the following information about the Covered Populations in New Hampshire:

Total state population: 1,359,711

Total covered population: 1,071,000

Covered population: 78.8%

- In covered households: 12.3%
- Aged 60 or over: 26.3%
- Incarcerated: 0.3%
- Veteran: 6.9%
- With a disability: 13.7%
- With a language barrier: 10.9%
- English learners: 2.5%
- Low literacy: 11.5%

- Racial or ethnic minority: 10.3%
- Rural: 52.9%

Population in households lacking fixed broadband availability: 3.2%

Population in households lacking computer or broadband subscription: 7.6%

Population not using the internet: 15.6%

Population not using a PC or tablet computer: 24.9%

Digital Navigators

Through the Digital Equity work done by BEA, a need for local digital navigators to support community members has been identified. These navigators will need to understand how to browse the internet safely, perform employment research, be well versed in the sign-up process for ACP, recognize and teach ways to protect data through cybersecurity and protect against identity theft threats, and other related internet activities. During a BEA Digital Equity listening session held on August 23, 2023, with the New Hampshire State Librarian and library representatives from across the state, the need for supporting a digital navigator position was applauded from all represented libraries. It was noted that there is a gap in funding for a navigator position, as well as continuing education for the navigator to maintain current skills that would be needed to assist those seeking help. Libraries are an excellent resource to support digital navigators and those who seek help, but the ongoing Digital Equity plan will explore other Community Anchor Institutions where representatives could assist in a digital navigator role.

BEA will work with New Hampshire's nine Regional Planning Commissions for an assignment of representatives from each commission to help ongoing digital navigator efforts.

Communication and Outreach

The Digital Equity gap in New Hampshire is the inability for New Hampshire residents to obtain updated information as it pertains to broadband availability, accessibility, and affordability. Limited awareness of available services adversely impacts a variety of New Hampshire populations. A survey being conducted by the state's Digital Equity efforts in collaboration with UNHCE, will provide data reflecting the understanding of the populations in need of broadband services.

BEAD funding provides an opportunity for the state to continue its outreach work in support of the multiple efforts of communication, covering all geography and all social-economic populations.

4 Obstacles or Barriers

Summary of Barriers

The New Hampshire Office of Broadband Initiatives has identified a list of potential obstacles and barriers facing New Hampshire broadband deployment and adoption efforts that may impact BEAD program efforts. Specifically, unserved populations are the most vulnerable due to the lack of adequate and affordable broadband. The Office of Broadband Initiatives and its state and local partners must prioritize resources to address the more difficult barriers first.

1. **New Hampshire's Broadband Infrastructure Deployment**

- Like other northeast states that have unique geography, demographics, and lack of consistent broadband infrastructure, especially in the most rural and geographically isolated communities, building broadband infrastructure in these areas may be technically and economically challenging. Factors like rugged terrain, low population density, seasonal weather during construction, and long distances between households will increase the cost and complexity of deployment and present challenges.
    - Seeking creative ways to provide broadband to these communities needs a collaborative effort between public and private entities. Existing technologies available to provide fast, reliable, and affordable broadband, as well as new emerging technologies will need to be evaluated as potential solutions.

2. **Access to capital at scale**

- Securing adequate funding for broadband deployment projects has been a significant obstacle since deployment of broadband infrastructure has become a priority. The costs associated with building and maintaining infrastructure, especially in unserved and underserved areas, often exceed the available resources. This makes closing the digital divide extremely difficult.
    - By complementing New Hampshire's past and current broadband deployment strategies, BEAD funding and matching funds will help overcome this traditional barrier, but careful and concise planning will need to be done to maximize the impact of this funding.

3. **Affordability Barriers**

- The cost of broadband services and associated equipment poses a significant obstacle to adoption. Subscription fees, equipment costs, and limited availability of affordable plans may prevent low-income households from accessing reliable high-speed internet connections.
    - Promoting the benefits and implementation of the Affordable

Connectivity Program to get more Granite Staters online is a high priority. The Broadband Office, together with Internet Service Providers (ISPs) and other stakeholders, are encouraging the marketing and advertising of ACP. Making pricing affordable, increasing access to devices, and providing digital skills training are top priorities.

- ISPs having lower priced monthly subscription offerings for qualified households is also paramount to the success of this program.
- The state has received an FCC ACP outreach grant to focus on adoption of this federal program.

4. **Accurate Mapping of Service Locations**

- Inaccurate or incomplete broadband data and mapping has always posed challenges to broadband projects because of an inability to adequately identify unserved and underserved areas and to be able allocate resources effectively.
    - New Hampshire will utilize the FCC Broadband Serviceable Locations (BSLs) map as the baseline for broadband deployment, and thereby improve its ability to identify unserved, underserved, and served locations in a more efficient and cost-effective manner. BEA is also working with UNH to supplement the FCC maps.

5. **Communication and Outreach**

- As outlined in section 3.4, lack of communication can be an obstacle to broadband adoption. Lack of awareness, resistance to change, or misconceptions about the benefits of broadband will impede progress and hinder support for deployment initiatives. Understanding information is best achieved when provided by a trusted source, providing support for local efforts is key element of the communication and outreach plan.
    - This is an opportunity to work inside communities with local organizations and educational institutions to provide support and education to those who need it to get connected and reap all the benefits of that connection.
    - Identifying stakeholders and partners, working closely with local, state, and regional resources, outreach can be done to quantify the needs of the most diverse populations which includes users who may not have access to the technical and educational resources needed to be proficient at using a computer.
    - Engaging and educating communities about the importance of broadband access and adoption is critical. The digital divide in New Hampshire prevents Granite Staters from obtaining updated information as it

pertains to broadband availability, accessibility, and affordability. Limited awareness of available services adversely impacts Granite Staters across the state.

- As part of the coordinated state's Digital Equity effort, a survey is being conducted and will collect data reflecting the understanding of the populations in need of broadband services. BEAD funding provides an opportunity for the State to continue its outreach work to support multiple efforts of communication covering all geography and all social-economic populations.

6. **Digital Literacy, Education and Skills**

- In the Digital Equity efforts on behalf of BEA and UNHCE, a need for localized digital navigators has been realized. This position would support community members with understanding browsing the internet safely, employment research, ACP sign up, cybersecurity/identity theft and other related internet related activities. During a BEA Digital Equity listening session held on August 23, 2023, with the New Hampshire State Librarian and a number of library representatives from across the state, some expressed the need for supporting a digital navigator position. There is a gap in funding for a navigator position as well as the funding needed to continue education for a navigator to maintain current skills needed to assist those seeking help.
    - Libraries are one location for supporting digital navigators, but the ongoing Digital Equity planning effort will explore other Community Anchor Institutions (CAIs) where representatives could assist in a digital navigator role.
    - Through New Hampshire's nine Regional Planning Commissions, there will be representatives assigned from each commission to help ongoing digital navigator efforts.

7. **Regulatory Barriers**

- New Hampshire anticipates that regulatory or statute changes may be needed to ensure successful and timely implementation of the New Hampshire Five-Year Action Plan of deployment of infrastructure on a scale required to complete the New Hampshire goals.
    - The roadblocks experienced in the past during construction of other projects in New Hampshire and in neighboring states included the need for improved and carefully managed data collection, mapping, and coordination among all stakeholders. Permitting is time consuming and expensive especially in areas of railways, interstate highways, and navigable waterways. Deployment of greenfield, as well as expansion of existing infrastructure, will include both aerial and underground

deployment, each requiring unique permitting and permission solutions. Approvals by residents, municipalities, state, and federal agencies may need alterations. Make ready costs, timeframes and foliage management will be a challenge over the next five years.

8. **Workforce**

- New Hampshire is aware of the need for a larger and skilled workforce to ensure successful completion of the BEAD effort. As the BEAD funding is being distributed for deployment of high-speed fiber optic networks nationally, New Hampshire will face the same workforce challenges as all other states.
    - Accordingly, BEA is engaged with key stakeholders to coordinate and improve workforce availability, training, and housing. A BEA report on State of New Hampshire Workforce Assessment. reflects the job growth, median hourly earnings and job growth in the technology sector.

The job growth between 2016 and 2021 shows a 37 percent decrease in Telecommunication Equipment Installers and Repairers as well as a 26 percent decrease in Telecommunications Line Installers and Repairers.

Attachment 2: Technology Cluster Staffing Pattern

The top 44 occupations (e.g. all occupations with more than 75 Technology employees) represent 89% of all employment in the Technology Cluster. Altogether, employment spans 211 occupations for a total of 22,373 jobs.

Staffing Patterns for the Technology Cluster, 2021

SOC	Occupation	Share of Cluster's Jobs	Jobs in Cluster (2021)	Median Hourly Earnings	Job Growth 2016–2021 Change	Job Growth 2016–2021 Rate	Job Growth 2016–2019 Change	Job Growth 2016–2019 Rate
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	20.5%	4,589	$52.70	931	25%	702	19%
15-1232	Computer User Support Specialists	5.8%	1,303	$25.15	252	24%	181	17%
15-1211	Computer Systems Analysts	5.3%	1,189	$44.12	260	28%	284	31%
11-3021	Computer and Information Systems Managers	5.1%	1,144	$68.13	446	64%	332	48%
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	4.3%	955	$30.78	231	32%	181	25%
15-1244	Network and Computer Systems Administrators	3.4%	754	$41.54	120	19%	90	14%
15-1251	Computer Programmers	3.3%	746	$37.33	(103)	(12%)	(40)	(5%)
43-4051	Customer Service Representatives	3.2%	724	$18.39	21	3%	23	3%
11-1021	General and Operations Managers	2.7%	603	$50.64	83	16%	59	11%
15-1299	Computer Occupations, All Other	2.4%	531	$47.49	200	60%	203	61%
13-1198	Project Management Specialists and Business Operations Specialists, All Other	2.3%	512	$36.37	286	126%	171	76%
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	2.3%	507	$33.82	(303)	(37%)	(254)	(31%)
15-1257	Web Developers and Digital Interface Designers	1.9%	432	$28.42	47	12%	(14)	(4%)
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1.8%	410	$45.58	(141)	(26%)	(111)	(20%)
15-1231	Computer Network Support Specialists	1.7%	380	$31.24	151	66%	80	35%
13-1111	Management Analysts	1.7%	379	$44.14	122	47%	96	37%
13-1161	Market Research Analysts and Marketing Specialists	1.6%	358	$30.45	104	41%	68	27%
43-9061	Office Clerks, General	1.4%	318	$19.12	28	10%	25	9%
15-1212	Information Security Analysts	1.1%	248	$49.13	106	75%	64	45%
15-1241	Computer Network Architects	1.1%	247	$62.04	58	31%	34	18%
13-2011	Accountants and Auditors	1.1%	244	$33.25	26	12%	20	9%
13-1071	Human Resources Specialists	1.0%	229	$29.65	77	51%	49	32%

Staffing Patterns for the Technology Cluster, 2021 (continued)

SOC	Occupation	Share of Cluster's Jobs	Jobs in Cluster (2021)	Median Hourly Earnings	Job Growth 2016–2021 Change	Job Growth 2016–2021 Rate	Job Growth 2016–2019 Change	Job Growth 2016–2019 Rate
43-1011	First-Line Supervisors of Office and Administrative Support Workers	1.0%	218	$28.94	12	6%	1	1%
11-2022	Sales Managers	0.9%	212	$71.13	85	67%	59	46%
11-2021	Marketing Managers	0.9%	212	$60.55	69	49%	49	34%
11-3031	Financial Managers	0.9%	204	$58.28	69	51%	46	34%
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	0.9%	203	$18.80	(7)	(3%)	(4)	(2%)
49-9052	Telecommunications Line Installers and Repairers	0.9%	191	$26.19	(66)	(26%)	(60)	(23%)
43-3031	Bookkeeping, Accounting, and Auditing Clerks	0.8%	183	$20.67	(3)	(1%)	(1)	(1%)
15-1245	Database Administrators and Architects	0.8%	174	$47.29	52	43%	34	28%
13-1151	Training and Development Specialists	0.8%	173	$30.79	57	49%	36	31%
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	0.7%	164	$37.19	5	3%	(17)	(11%)
41-1012	First-Line Supervisors of Non-Retail Sales Workers	0.7%	155	$39.94	(1)	(1%)	(5)	(3%)
41-9031	Sales Engineers	0.6%	134	$58.55	(12)	(8%)	(2)	(1%)
43-9021	Data Entry Keyers	0.5%	118	$16.58	(93)	(44%)	(86)	(41%)
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	0.5%	105	$31.48	33	45%	31	43%
13-1028	Buyers and Purchasing Agents	0.5%	104	$32.05	36	54%	20	29%
17-2072	Electronics Engineers, Except Computer	0.4%	98	$53.46	(15)	(13%)	(12)	(10%)
11-1011	Chief Executives	0.4%	90	$65.13	18	26%	4	6%
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	0.4%	87	$34.61	4	5%	(1)	(1%)
15-2031	Operations Research Analysts	0.4%	87	$44.65	(1)	(1%)	3	3%
17-2071	Electrical Engineers	0.4%	86	$48.53	(3)	(4%)	(8)	(9%)
43-3021	Billing and Posting Clerks	0.4%	83	$19.58	32	63%	17	33%
49-2011	Computer, Automated Teller, and Office Machine Repairers	0.4%	82	$23.39	6	8%	(6)	(8%)

Source: Emsi, 2022.1

As stated in the Executive Summary of the State of New Hampshire Workforce Assessment report: "New Hampshire's Department of Business and Economic Affairs (BEA) retained Camoin Associates to conduct a Workforce Assessment of the state's identified target sectors. These sectors include Technology, Construction, Hospitality, Healthcare and Manufacturing. While there are many additional industries that support the state's economy, the intent of this research was to identify and study the high-wage jobs in occupations that have shown strong growth within these industry sectors. With tightening resources and increased demand on workforce and economic development entities, this focus will allow the BEA to make strategic decisions about how and where to pursue proactive strategies."[66]

Working with state agencies on workforce development, as well as engaging the higher education sector to help them understand the workforce's needs and opportunities, are incorporated into both the BEAD Five-Year Broadband Plan and the State's Digital Equity Plan.

5 Implementation Plan

5.1 Stakeholder Engagement Process

BEA worked with their consultant, Mission Broadband, Inc., and the State's Digital Equity Plan contractor, UNHCE to identify a comprehensive list of stakeholders. The teams reviewed NTIA's defined groups of covered population and CAIs as a baseline of stakeholders. State and local knowledge was also used to aid in establishing the full stakeholder list. These lists were cross-referenced against each other to develop the current stakeholder list. This work enables communications with a cross section of individuals, groups, and communities to whom outreach efforts may not have been previously successful. This is an evolving list that expands even as the current work is underway. Ongoing collaboration will be coordinated for developing a continuous review of stakeholders for further inclusion as needed. While New Hampshire does not have any federally recognized tribal entities, some Tribal groups were identified. These were added to the stakeholder list to be included in outreach activities.

Stakeholder Outreach

BEA continues to coordinate meetings with all stakeholder groups and their populations, to discuss the content of the Five-Year plan and Initial Proposal. Feedback from these sessions is reviewed to ensure appropriate representation is incorporated into the deployment plans for broadband services and reflected in the Five-Pear Plan and Initial Proposal. In addition, stakeholder groups will be provided dates and website links for BEA's public comment periods for the Five-Year Plan and Initial Proposal, Volumes 1 and 2. In conjunction with the stakeholder groups, BEA will distribute the public comment dates and website links out to their agencies, representatives, departments, etc., to encompass all areas and populations of the state to ensure they are aware of the request for public comment.

Engage with Regional Planning Commissions

New Hampshire has nine regional planning commissions, which are members of an association, The New Hampshire Association of Regional Planning Commissions (NHARPC).

The main mission of the NHARPC is to provide a forum to coordinate regional planning initiatives on a statewide basis and to disseminate information about RPCs to other agencies and organizations. The NHARPC maintains strategic partnerships with state agencies, develops shared planning policies, and monitors planning related legislation. The NHARPC works on behalf of its member commissions and, by extension, the member cities and towns across New Hampshire.

Public Comment

BEA will be providing a website link and an e-mail address for collection of all public comments. The link will be shared with the states Digital Equity contractors for posting on their web site as well as all stakeholder groups and their populations for a wide-reaching effort. BEA is requesting that Granite State News Collaborative provide public service announcements of all public comment periods. BEA will also utilize their social media accounts as part of the outreach effort regarding public comments.

Workforce

BEA has coordinated a meeting with the State Workforce Office and their consultant, TPMA, who are developing a new workforce plan. Alignment with the development of the state's workforce effort is being incorporated into the Five-Year Plan and Initial Proposal. BEA has also reached out to union representatives to discuss how workforce needs play a critical role in the deployment and operations of broadband networks.

The outreach efforts were aligned with NCDE as well as mapping research identifying unserved and underserved geography throughout the state. As outlined below, outreach has included and continues with a statewide survey, a series of public listening sessions, online education and listening sessions, informative e-mails to stakeholders, an open public comment period, and conversations with specific stakeholder groups. Participant input from this outreach will shape the content and the development of the Initial Proposal.

National Collaborative for Digital Equity (NCDE):

The University of New Hampshire is working with NCDE, headquartered in Weare, New Hampshire. It is a federally tax-exempt nonprofit corporation established in 2013 to support sustained efforts to eliminate the digital divide as a barrier to economic and educational opportunity. NCDE provides free dissemination of research and policy education as well as comprehensive, fee-based consulting services, in support of Digital Equity for economic and educational inclusion. NCDE is committed to "field building, " *i.e.*, generating a sustained national infrastructure to support evidence-based practices to eliminate the digital divide as the crushing barrier it presents to the nation's low- and moderate-income learners and communities. NCDE has three strategic priorities:

1. Mobilizing states and communities to undertake sustained efforts to eliminate the digital divide and strengthen local coordination to build more robust pathways into living wage careers, fostering an inclusive high-skill, high-wage economy for all.
2. Providing empirically based guidance and resource information to state and local leaders on partnership development to foster digital equity for economic inclusion.
3. Generating and disseminating research and evaluation on effective digital equity and economic inclusion practices through GIS mapping, growing clearinghouse on resources, research and evaluation, and dissemination of best and promising practices. Partners such

as the National Coalition of Educators enable the sharing of best practices with every professional educator in the nation.

NCDE listening sessions.

In coordination with NCDE, BEA joined public listening sessions and recorded relevant information to help shape the Five-Year Plan, as well as the Initial Proposal Volumes 1 and 2.

Residents were invited to participate in a regional meeting held Friday September 8th 1:30 to 4:00 pm at Keene Public Library in Keene.

Additionally, there is an open statewide forum on Thursday, October 19th in Concord, NH to provide input.

Additional meetings, forums, and listening/action planning sessions have been held or are scheduled.

- **Tuesday September 5th 2:00-4:00PM "NH Forum on Cybersafe Ty Skills and Systems"**

In this interactive online planning session, over 100 participants explored how best otherwise siloed multiyear grants to NH for cybersecurity and digital equity can together strengthen cybersafety skills for all and the cybersecurity and inclusiveness of NH's public services websites.

- **Friday September 15th Starting at 10AM "NH Forum on Workforce Development and Digital Equity"**

In this interactive online session, NH workforce development leaders examined how to remove digital divide barriers for those in workforce development programs and increase their essential digital literacy skills.

- **Thursday, September 21st, 10AM-noon: "NH Educators' Forum on Digital Access, Skill & Pedagogy: How Best to Deploy Federal Funding to NH for Digital Equity."**

This session features NH educational leaders at all levels — K12, afterschool, adult education, community college, and four-year degree-granting — who will share their priorities for how up to $20 million in federal funds to NH for digital equity over the next four years, starting in 2024, should best be deployed to ensure digital access, skill and pedagogy for all learners and their educators.

- **Friday, September 22nd 10AM-noon: "Forum for NH Broadband Providers: Strengthening Access to Broadband and Computers."**

NH broadband providers were invited to explore how best NH's federally funded digital equity and broadband initiatives can best (1) significantly expand enrollment of NH's low- and moderate-income (LMI) households in the FCC's Affordable Connectivity Program's (ACP) $30/month subsidy; (2) enhance promotion of your affordable pricing options for LMI households, and (3)

significantly expand corporate philanthropic, foundation, state and federal workforce development, college financial aid, and bank Community Reinvestment funds enabling providers to supply new and fully refurbished computers to ACP-enrolled households at no cost to them.

- **Wednesday October 4th Noon-1PM Online NH Brownbag Lunch & Learn Conversation on Digital Equity.**

  This meeting examined local and regional digital divide priorities stakeholders want NH's plan to address.

- **Thursday October 6th 4-6:00PM "NH Forum on Civic Engagement and Digital Equity"**

Participants in this online session considered how to remove digital divide barriers to civic engagement and foster essential digital, media and cybersafety skills.

NCDE is working in conjunction with BEA to develop a comprehensive plan for continued outreach and improving Digital Equity throughout New Hampshire.

5.2 Priorities

As noted in Section 2.1, New Hampshire's core goals for broadband deployment include building out broadband to all unserved BSLs; improving access for underserved BSLs; and ensuring that CAIs have access to 1Gbps symmetrical service (as available funding allows). New Hampshire also embraces non-deployment goals and seeks to prioritize digital inclusion in its approach, factoring in affordability, access to devices, and the digital skills required to help close the broadband adoption gap across the various Covered Populations. Together, these goals will shape a program that gives all Granite Staters the internet access needed for full participation in today's digital society. Following is a high-level listing of priorities.

Priority	Description
Universal Broadband Access	The key priority is to ensure that all New Hampshire individuals, businesses, and community anchor institutions, regardless of their geographic or socioeconomic status, have access to fast, reliable, and affordable broadband connectivity. BSLs that are unserved (service less than 25/3 Mbps) will receive top priority, followed by underserved BSLs (less than 100/20 Mbps), and CAIs (to be able to access 1Gbps symmetrical).
Broadband Affordability	Ensuring that broadband services are affordable for all individuals and families, regardless of their income levels. This will involve initiatives that promote competitive pricing, subsidies, and programs to make broadband more accessible to low-income households as well as disadvantaged and marginalized populations.
Digital Inclusion and Skills Development	Prioritizing efforts to improve digital literacy skills and promote digital equity through inclusion efforts. This includes providing training programs, workshops, and resources to help disadvantaged individuals, communities, and populations to navigate digital technologies and maximize their benefits.
Community Engagement and Collaboration	Encouraging collaboration among governments at the federal, state, and local level, private sector entities, community organizations and anchor institutions, and other stakeholders to develop comprehensive strategies for broadband deployment and digital inclusion. Engaging local communities and stakeholders can also help reduce obstacles to broadband deployment and digital equity.
Data Collection and Mapping	Investing in data collection and mapping efforts to accurately identify areas with inadequate broadband coverage and gaps in digital inclusion. This information helps target resources and investments where they are most needed.
Sustainable, Secure, and Reliable Networks	Addressing concerns regarding networks' resiliency, sustainability, and cybersecurity to build trust and confidence in digital technologies.

Figure 39-Priorities for Broadband Deployment and Digital Inclusion

5.3 Planned Activities

Following is a high-level plan for providing reliable, affordable, high-speed broadband service throughout New Hampshire, reflecting the Priorities outlined in Section 5.2 above.

Priority	Description
Universal Broadband Access	Utilize various funding programs (primarily BEAD and ARPA, in addition to other sources) in conjunction with community and stakeholder outreach to ensure deployment of broadband infrastructure capable of providing at least 100/20 Mbps to all unserved and underserved BSLs with a stretch goal of all *residents* to have service of 100/100 Mbps and at least 1/1 Gbps to all CAIs throughout New Hampshire. Work with stakeholders to develop and implement an effective and competitive subgrantee selection process to provide fast, reliable, and affordable broadband access to all BSLs.
Broadband Affordability	Work with all stakeholders to develop, encourage, and educate households, businesses, and community anchor institutions about affordable options for broadband service. Coordinate with stakeholders to leverage ACP, Lifeline, and other programs that assist with affordability for end-users, especially for marginalized and disadvantaged populations and communities.
Digital Inclusion and Skills Development	Collaborate with all stakeholders to engage in digital inclusion efforts, especially for marginalized and disadvantaged populations and communities. Leverage relationships with strategic stakeholders to promote digital inclusions and skills training to those most in need.
Community Engagement and Collaboration	Hold a series of meetings and webinars with local governments, community anchor institutions, and other stakeholders. Work together to target areas, communities, and populations most in need of assistance, reduce barriers to infrastructure deployment, attract/train a skilled workforce, and promote affordable options and digital training as effectively as possible.
Data Collection and Mapping	Implement an inclusive challenge process in collaboration with other New Hampshire stakeholders to enhance the accuracy and utility of broadband availability data. Leverage relationships with other stakeholders to engage public feedback and participation to enhance the usefulness of the challenge process.

Sustainable, Secure and Reliable Networks	Incorporate resiliency and security measures into broadband deployment approaches in collaboration with broadband service providers and other stakeholders. Incorporate best practices cybersecurity awareness into both workforce training and digital inclusion and education measures.

Figure 40-High level Broadband Deployment Plan

5.4 Key Execution Strategies

What key strategies will you undertake to meet your broadband goals and objectives?

To meet the broadband goals and objectives in New Hampshire of ensuring fast, reliable, and affordable broadband connectivity to every unserved and underserved locations, several key strategies will be undertaken and serve as the guiding principles for the state's broadband initiatives:

1. Infrastructure Development: Prioritize the development and expansion of broadband infrastructure to increase coverage and capacity. This includes deploying fiber-optic networks, hybrid fiber-coaxial and wireless technologies, or traditional cable to reach all underserved areas and improve broadband speeds. Infrastructure development will be focused and prioritized as follows:
    a. 26,123 unserved locations at less than 25/3 Mbps
    b. 10,153 underserved locations at less than 100/20 Mbps
    c. Underserved CAIs (less than 1 Gbps symmetrical- as available funding allows)
    d. Allowable non-deployment efforts.
2. Public-Private Partnerships: Foster collaborations among the public sector, private companies, and community stakeholders. Encourage and support existing partnerships and establish additional partnerships to leverage resources, expertise, and infrastructure for broadband deployment and ensure efficient investment.
3. Funding and Grants: Secure funding from various sources to support broadband initiatives before reliance on BEAD funding or in conjunction with BEAD funding. Establish a robust and competitive subgrantee selection process in accordance with the NOFO. Encourage maximum matching funding to be provided by subgrantees. Explore state budgets, municipal and county budgets, federal programs, grants, loans, and public-private partnerships to allocate resources effectively and maximize funding opportunities.
4. Broadband Mapping and Data Collection: New Hampshire conducted comprehensive broadband mapping analysis to accurately identify areas with inadequate coverage and gaps in broadband connectivity utilizing the FCC fabric data and the latest available data per the FCC Broadband Data Maps published December 31, 2022, updated October 10, 2023. These data include location, availability, and speeds to inform decision-making and prioritization of the issuance of subgrants and the ability to monitor ongoing compliance.
5. Broadband Affordability Initiatives: Implement strategies to ensure alignment with all goals related to the Digital Equity requirements of BEAD to address broadband affordability, particularly for low-income households and underserved communities, including an emphasis on the utilization of the Affordable Connectivity Program (ACP).

Explore discounted plans, subsidies, or programs that make broadband services more accessible and affordable. Enforce participation in these plans where appropriate through subgrantee requirements for funding.

6. Digital Inclusion Programs: Develop and implement programs that ensure alignment with all goals and strategies with the Digital Equity requirements of BEAD to promote digital literacy, skills training, and digital inclusion. Provide training initiatives, workshops, and resources to bridge the digital divide and ensure all communities can fully participate in the digital economy.
7. Policy and Regulatory Reforms: Review policies and regulations and initiate action where needed, to create an enabling environment for broadband deployment. Streamline permit processes, address rights-of-way issues, address infrastructure make ready issues where needed, and promote fair competition in the broadband market.
8. Stakeholder Engagement and Collaboration: Ensure alignment and coordination with common goals and strategies with the Digital Equity requirements of BEAD. Engage with a wide range of stakeholders, including industry associations, government agencies, community organizations, and advocacy groups. Seek their input, involve them in the planning process, and foster collaboration to ensure diverse perspectives are considered.
9. Public Awareness and Outreach: Conduct public awareness campaigns to educate individuals and communities about the benefits of broadband access and digital inclusion. Coordinate with Digital Equity on the creation, distribution, and analysis of a statewide New Hampshire survey. Raise awareness about available resources, programs, and support to encourage broadband adoption.
10. Monitoring and Evaluation: Establish processes and mechanisms to monitor and evaluate compliance with allowable uses of BEAD funding including the progress of broadband deployment activities. Regularly assess the impact of interventions, track broadband access and adoption rates, and measure the effectiveness of strategies. Use this data to inform adjustments and improvements.

How will the key execution strategies comply with BEAD program requirements?

New Hampshire will take the following steps to ensure compliance with all BEAD requirements:

1. Enhanced Data Collection: New Hampshire will adopt robust data collection practices that align with BEAD requirements. This involves collecting accurate and granular data on broadband deployment, budget, availability, speeds, and service areas, and collaboration with broadband service providers to obtain reliable and up-to-date information.
2. Mapping and Reporting: New Hampshire will utilize mapping methodologies in coordination with FCC mapping updates and alterations that adhere to BEAD guidelines for visualizing broadband coverage and service areas. Ensure the data collected is accurately

represented on broadband maps and aligns with the reporting requirements specified by BEAD.

3. Data Verification and Validation: Establish processes to verify and validate the accuracy of broadband data. This will involve incorporating user feedback, speed tests, and cross-referencing data with other sources to ensure data integrity.
4. Collaboration with Federal Agencies: Work closely with federal agencies responsible for implementing BEAD, such as the Federal Communications Commission (FCC) and the

National Telecommunications and Information Administration (NTIA). Stay updated on any additional guidance or requirements issued by these agencies regarding compliance with BEAD.

5. Reporting and Transparency: Prepare and submit reports on broadband coverage, availability, and other relevant data, to comply with BEAD reporting requirements. Ensure transparency in reporting methodologies, data sources, and limitations to maintain credibility and accountability.
6. Continuous Improvement: Continuously evaluate and refine data collection, mapping, and reporting processes to align with evolving BEAD requirements. Stay informed about any updates or revisions to BEAD guidelines and adjust strategies accordingly.

New Hampshire will stay updated on the specific requirements and guidelines outlined in the Infrastructure Investment and Jobs Act (IIJA) as it pertains to BEAD and any subsequent guidance provided by NTIA, FCC and other federal agencies. Working in alignment with BEAD requirements will ensure accurate broadband mapping and reporting, and the most efficient and meaningful resource allocation for broadband deployment efforts.

5.5 Estimated Timeline for Universal Service

Access to high-speed internet at just, reasonable, and affordable rates must be available by November 30, 2029, End of Period of Performance for BEAD. The State of New Hampshire received a ninety-day extension from NTIA for the submission of the Five-Year Action Plan. Access and adoption to fast, reliable, and affordable broadband in New Hampshire is an ongoing process through the programs listed in section 3.11 on the Five-Year Action Plan.

The Capital Projects fund program will award grants in late 2023 / early 2024 for completion of high-speed broadband expansion to unserved areas by the end of 2026. Following the timeline outlined below access to high-speed broadband of at least 100/20 Mbps will be available to all New Hampshire BSLs by November 30, 2029. (Five-year Action Plan submitted to NTIA (NH granted extension) by October 30, 2023)

- Initial Plan Volume 1 Q4 2023

• Initial Plan Volume 2	December 27, 2023
• Challenge Process implementation	Q1 2024
• Subgrantee Selection	Q2-Q3 2024
• Final Proposal Submission	Q3 2024
• Award of Subgrants	2025
• Project monitoring compliance reviews	2025-2029
• Broadband Available to all NH locations	2029

5.6 Estimated Cost for Universal Service

Estimating the cost of providing access to fast, reliable, and affordable broadband throughout the entire State of New Hampshire is a complex task. The cost will vary based on factors such as the current infrastructure in place, New Hampshire's desire to maximize fast, reliable, and affordable broadband deployment, the topography of the region, population density, and the timeframe for implementation. To determine the cost, the following aspects are considered:

- Infrastructure Development: The cost of deploying preferred fiber broadband infrastructure, such as installing fiber-optic cables, constructing fixed wireless, traditional cable, or other technology capable of meeting desired bandwidth falls into the extremely high-cost area. This includes topology and density of the deployment area, costs for equipment, installation, labor, permitting, make ready costs and easements. Make ready costs for example, have ranged from zero to tens of thousands of dollars per mile in New Hampshire and neighboring New England states.
- Equipment and Network Components: The cost of necessary equipment and network components, such as routers, switches, access points, and customer premises equipment (CPE), will need to be factored into the overall cost.
- Backhaul and Connectivity: The cost of establishing backhaul connections, which connect the local networks to the wider internet infrastructure, will be considered. This includes costs associated with leasing or building the necessary connections.
- Permitting, Regulatory and Grant Compliance: Costs associated with obtaining permits, rights-of-way access, and compliance requirements including Build America, Buy America, can be very costly and time consuming and must be factored into the overall cost estimate.
- Digital Inclusion Initiatives: Additional costs may arise from implementing digital inclusion programs, such as providing training, support, and resources to bridge the digital divide and ensure equitable access and adoption for underserved communities.

New Hampshire will continue to incorporate the latest available data per the FCC Broadband Data Maps, most recently published December 31, 2022, updated October 10, 2023, and the fabric map to monitor and ensure broadband subgrant deployment meets all BEAD requirements for deployment. Cost data provided in the National Broadband Availability Map and referenced in NTIA Broadband 101, indicates that aerial cost per mile ranges from $32,000 per mile to $47,500/ mile, or an estimated cost of $6,400 - $10,000 per homes passed.

The estimated cost and timing of universal broadband service throughout New Hampshire is based on the results of the mapping unserved and underserved locations, estimated dates of ongoing projects outlined in Section 3.1 above, and the average costs of completed projects or estimated projects from around the country including neighboring New England states and data available from sources such as the ACA Connects/Cartesian National Overview Framework.

The estimated cost per location from these sources' ranges from $6,400 in the more populous areas to over $12,000 in the very rural, less populated areas. New Hampshire data is clear that the majority of unserved and underserved BSLs are in the most rural areas of the state where populations are more variable by season and lower overall. Therefore, the cost per location does not vary a great deal from unserved to underserved. The estimated cost ranges from $6,400 to $10,000 with an average of $8,000. Estimated unserved locations – 26,123

Estimated underserved locations-10,153

Total unserved and underserved locations-36,276

Estimated cost per location $6,400 to $10,000Total estimated cost to serve all locations - $232,000,000 to $363,000,000

5.7 Alignment

As mentioned in Section 3.4, multi-sector strategies to further broadband access and adoption will support and complement several of New Hampshire's broader existing and planned efforts and goals related to economic and workforce development, education, health, civic and social engagement, and the delivery of other essential services.

Successfully implementing the BEAD goals of expanding broadband access and adoption will require coordination between BEA and other New Hampshire government agencies. The BEA will facilitate alignment between BEAD implementation and New Hampshire's other existing priorities and efforts across several dimensions to include the State's Digital Equity Plan.

Each of the programs outlined have set the basis for BEA to continue its work as BEAD funding becomes available to ensure that broadband deployment resources are efficiently and properly targeted to unserved or underserved locations that lack an enforceable broadband deployment funding commitment from another government program.

5.7.1 Alignment with New Hampshire's Broadband Access Programs

Connecting New Hampshire

In 2020, New Hampshire allocated short term Coronavirus Aid, Relief, and Economic Security Act (CARES) Act Funds to broadband expansion – dedicating $13 million to 16 projects that benefited over 4,500 households.[67]

Statewide Broadband Build Program

New Hampshire was announced as the first state in the nation to receive approval for its broadband expansion plan. The $90 million plan is focused on the buildout of unserved and underserved locations utilizing funds from the American Rescue Plan Act's (ARPA) Coronavirus Capital Projects Fund (CPF). The program is designed to provide internet service to the most rural parts of the state lacking internet service. The program prioritized applicants that encourage the maximum number of locations to be served at the lowest cost.

BEA, through the competitive bid process, awarded two contracts totaling $90 million to the New Hampshire Electric Co-op (NHEC) and Consolidated Communications (CCI). The contracts aim to connect unserved and underserved addresses in 8 of 10 counties identified across the State. These eight counties have the highest need for Broadband connection, NHEC and CCI have identified 48,016 locations to be serviced through this program.

Broadband Matching Grant Initiative (BMGI)

The BMGI program is utilizing $25 million from the American Rescue Plan's (ARPA's) Capital Projects Fund (CPF) to expand broadband access to unserved locations in New Hampshire. BMGI continues efforts begun by the Statewide Broadband Build Program and Connecting New Hampshire.

5.7.2 Alignment with the Digital Equity Plan

New Hampshire's BEAD Five-Year Action Plan has been developed concurrently with the ongoing development of the State's Digital Equity Plan. The broadband adoption components of the Five-Year Action Plan are drawn from the Digital Equity Plan. Since BEA is responsible for both plans, the State will work cohesively to meet their shared objectives. Community stakeholders have also been engaged in a coordinated effort for their critical input on broadband deployment, adoption, and digital equity. The digital equity goals of the Five-Year Action Plan are consistent with the goals of the Digital Equity Plan, seeking to ensure that Covered Populations have the access, training, and skills needed to benefit from the use of robust broadband networks.

5.7.3 Alignment with Other State Priorities

Achieving the State's vision for Digital Equity, outlined above, will support and advance several of New Hampshire's broader existing and planned efforts and goals related to economic and workforce development, education, health, civic and social engagement, and the delivery of other essential services. Specific examples are outlined below.

5.7.4 Economic and Workforce Development

New Hampshire's strategies to bolster its economy and develop its workforce are largely dependent on and will be advanced by increased access and adoption to broadband and closing the digital divide. Resources to develop skills, find jobs, and conduct business are increasingly located online. As such, fast and reliable broadband is a vital component to a thriving economy and workforce. The BEAD initiative's goals, in closing the digital divide by making broadband accessible and affordable, will boost New Hampshire's short- and long-term plans for its economy and workforce, as detailed below.

ApprenticeshipNH

ApprenticeshipNH through the support of U.S. Department of Labor (USDOL) grants, is enhancing statewide apprenticeship resources and networks by establishing four Regional Apprenticeship Hubs that align with the geographic locations of New Hampshire's community colleges. The Regional Hub model supports a coordinated, national investment strategy that aims to strengthen and modernize the USDOL's Registered Apprenticeship system and promotes RAPs as a workforce solution. ApprenticeshipNH will serve as an intermediary within each Hub to provide technical assistance and financial support for the development of apprenticeship programs across a spectrum of sectors and occupations. This includes New Hampshire's in-demand industries of construction, education/childcare, healthcare, hospitality, manufacturing, technology, and transportation/logistics.

The BEA may explore opportunities for students to participate in apprenticeships to learn about how to deploy broadband infrastructure and provide ongoing technical support as high-speed internet is expanded throughout New Hampshire in accordance with the BEAD and Digital Equity plans.

5.7.5 Education

Given New Hampshire's rurality and low population density, digital instruction is a powerful tool in providing students with the educational opportunities they deserve. In many places, there is a shortage of instructors trained to provide classes required or desired by students. By improving access to broadband, New Hampshire will make it possible for students in remote areas to take online classes they would not otherwise be able to access. This is highlighted in the state's education plans outlined below.

Virtual Learning Academy Charter School (VLACS)

VLACS is a 501(c)3 nonprofit, state-approved public charter school offering free programs to all New Hampshire residents in grades K-12 and under the age of 21. The school is also available for tuition to all others. VLACS sole motivation is the success of their students.

The New Hampshire Board of Education approved the first charter application of the Virtual Learning Academy Charter School on May 9, 2007. The school opened to students in January 2008

with approximately 700 enrollments (an enrollment is considered a half-credit course). Five years later, the NH Board of Education unanimously approved the charter renewal application and extended the school's charter for an additional five years. The charter renewal application also included an outline of plans including the addition of a full-time middle school program, expanding the curriculum to include selected elementary school courses, and expanding the program to include adult education.

During 2018-2019, the Virtual Learning Academy served approximately 13,000 students and close to 30,000 half-segment enrollments, making it one of the largest statewide virtual schools in the country.

Broadband is a foundational requirement for Virtual Learning Academy Charter Schools as it serves as the medium through which students access educational content, interact with teachers and peers, and engage in a flexible and personalized learning experience. Without reliable and high-speed broadband connectivity, the effectiveness and success of virtual learning programs would be severely compromised.

Early College Online (formerly eStart)

Early College Online allows high school students to take online community college courses for both high school and college credit. Courses offered through the Early College Online program are 100 percent online college courses. The program's course catalog expands access to Advanced Placement® and specialized elective courses that may be less available to rural students.[68]

VHS Learning

VHS Learning (VHS, Inc.) is a nonprofit organization providing supplemental online classes to high schools and students. VHS Learning partners with schools and districts to create programs in their schools and works directly with parents and students that want to enroll in the classes individually. Their vision is to prepare students for college, careers, and life.

The BEAD initiative's efforts to increase broadband and device availability and affordability will directly support VHS Learning education goals, by enabling students to fully participate in their classes, and by expanding the school's ability to train additional instructors around the state to magnify VHS Learning's impact.

5.7.6 Health

The State of New Hampshire includes miles of expansive and sparsely populated land. Many residents live in remote areas, many hours away from healthcare facilities. Making the trip for routine checkups can be both time consuming and costly. For rural residents in particular, telehealth may be the key to making healthcare affordable and accessible. Increasing the availability of affordable high-speed internet can support the state's telehealth goals, as highlighted in the Department of Health and Human Services' (DHHS) plans. "In most cases, access to

telehealth to identify and treat COVID-19 will not change. Healthcare providers and patients may continue to utilize telehealth services for this purpose."[69]

DHHS Roadmap 2023

The New Hampshire Department of Health and Human Services (DHHS) is prioritizing the continued expansion of telehealth services for behavioral health, primary care, and other health related needs and recognizes telehealth's importance in increasing access to timely, affordable, and effective health services. Given New Hampshire's low population density, residents—particularly in rural areas—face considerable barriers to accessing medical care. These geographic challenges not only impede residents' access to healthcare, but to other essential services, including those offered by Child Protective Services (CPS) and the Office of Public Assistance (OPA). With adequate broadband and internet-capable devices, these Granite Staters could access these services remotely, saving a great deal of time and resources, which would in turn encourage more frequent use.

Lack of broadband and cell service is also a challenge for state agency employees. CPS representatives may lose connectivity when conducting wellness checks, posing serious security challenges. OPA employees face obstacles enrolling residents in programs like SNAP or Medicaid often travel upwards of 100-150 miles to provide support that could be easily offered online. Many of the agencies overseen by DHHS face resource challenges, lacking the technical equipment, such as signal boosters, hotspots, and tablets, necessary to perform their duties. Universal broadband access would significantly improve these agencies' ability to conduct their business and their safety while doing so.

Rural Health & Primary Care

The New Hampshire State Rural Health & Primary Care Program stresses the importance of access to and use of telehealth in serving New Hampshire's largest covered population, rural individuals. In many areas, internet connections that are not sufficient to maintain a live video call are all too common.

Main goals of the Rural Health Plan & Primary Care Program include expanding telehealth for rural populations and veterans, encouraging providers and health care facilities to adopt and use telehealth, and increasing access to behavioral health telehealth services.

Individuals who live in rural areas may lack the time and resources necessary to travel long distances—sometimes several hours—to visit healthcare professionals, particularly for ailments that could be addressed through a video call. By increasing ease of access to telehealth, rural residents may feel encouraged to address their health issues faster or more frequently, leading to better outcomes in the short- and long-term.

10-Year Mental Health Plan

The primary gateway to mental health and substance misuse care for most adults is primary care, which is often ill-equipped to recognize and treat mental health and substance misuse disorders. Integrated primary care – the provision of behavioral health services and expertise in primary care and vice versa – can improve mental health access and outcomes and, in the long-term, can produce cost-offsets in the form of reduced Emergency Department (ED) and inpatient visits. Many strategies are available to support these outcomes, including expert psychiatric consultation for pediatricians and primary care physicians as well as increasing telepsychiatry services in outpatient mental health settings. All of this could reinforce and extend the DSRIP's emphasis on infusion of behavioral health expertise and support throughout the healthcare and social service system. Federally Qualified Health Centers (FQHCs), which receive funding to expand behavioral health services, are a particularly ripe context for integrated primary care for underserved patients. For persons with severe mental illness, CMHCs tend to be the most appropriate healthcare home, and therefore, the site for integration. For older individuals, integration in elder care settings is helpful. Key integration strategies across settings, especially in rural areas, are tele-medicine and tele-consultation.

Enhanced consultation and support in EDs, using psychiatric consultation and peer support specialist navigators, can help stabilize and expedite safe discharge of mental health-related ED admissions. Psychiatric consultation helps elevate care for mental health crises in EDs. Given the psychiatrist shortage nationwide and in New Hampshire, videoconference technology is the most feasible way of bringing this expertise into EDs. The stakeholders recommend establishing 24/7 videoconference access to psychiatric consultation for complex mental health-related cases in EDs[70].

5.7.7 Civic and Social Engagement

New Hampshire Fish and Game

Fishing, hunting, and spending time in the great outdoors are central tenets of life in New Hampshire. The New Hampshire Fish, Wildlife, and Parks Agency has an Online Licensing System "to provide a comprehensive business and customer service portal for hunting, angling, and recreation opportunities." Hunters and those who fish rely on affordable and accessible broadband and devices to access this updated system.

5.7.8 Delivery of Other Essential Services

New Hampshire's Statewide Strategic Information Technology Plan states: "New Hampshire citizens and business organizations use modern technology to access state websites and various applications to conduct their business. They expect applications to be easy to use and available through current forms of access, including standard websites, portals, or specially designed apps for mobile devices. Citizens expect the state to utilize current forms of social media and provide access that is compatible with today's modern devices."

The BEAD initiative's objectives of increasing the availability of high-speed internet will support the state agencies' transition to online platforms, enable residents to take advantage of the agencies' online services, and advance additional goals laid out in the plans detailed below.

Department of Motor Vehicles

As the DMV[71] works to make its services more accessible, it has created an online portal to enable Granite Staters to perform simple services like renewing their driver licenses, accident insurance verification, duplicate license or ID, online document checker for REAL ID, non-driver ID renewal, motorcycle training classes, requesting driving records, appointments, and services, and responding to a ticket.

Department of Environmental Services

The Department of Environmental Services uses digital resources to provide access to quality geographic data and mapping tools through Geographic Information System (GIS), the Environmental Monitoring Database (EMD) and the New Hampshire Geological Survey (NHGS) which allow users to find, explore and share data, and keep citizens up to date on pertinent safety guidelines related to air, energy, mining, waste management and remediation, and water quality.

E-Z Pass

EZ-PASS is New Hampshire's electronic toll collection system. It is a safe and environmentally friendly way to pay tolls online. EZ-PASS NH provides an online link to New England 511, a real-time map of major corridor activity, including live traffic, planned construction and rest area locations.

New Hampshire FEMA Region 1

New Hampshire FEMA Region 1-provides information to help prepare for, respond to, and recover from disasters specific to locations including local disaster recovery centers, flood maps, fact sheets, FEMA contacts, jobs, and other resources.

The value of adequate broadband infrastructure and support as related to emergency and disaster relief in the State of New Hampshire is critical. The lack of redundancies in the broadband infrastructure makes the state vulnerable before, during, and after disasters. The inability to communicate quickly with New Hampshire residents puts the state at a disadvantage in conveying warnings ahead of natural disasters and in providing emergency response in the wake of those disasters.

Military Affairs and Veterans Services

The Department of Military Affairs and Veterans Services helps veterans access benefits. Veterans are often older, lack adequate technology in their homes, as well as the digital skills necessary for them to access resources online. The BEAD Digital Equity initiatives related to the expansion of broadband availability and digital skills may offer significant benefits to several Covered

Populations with whom the Department of Military Affairs often interfaces—veterans, individuals who live in rural areas, aging populations, and individuals living with disabilities.

5.8 Technical Assistance

New Hampshire established a collaborative partnership with the NTIA Federal Program Officer (FPO) that considers the requirements of the BEAD NOFO alongside the realities of implementation in the topographically challenging and dispersed State of New Hampshire. The BEA especially values having a single point of contact to minimize the risk of conflicting guidance.

New Hampshire understands that the FPO will provide clear guidance supporting an efficient use of New Hampshire resources with an effort to avoid rework in development of the plan. BEA will provide the FPO context on New Hampshire's progress to date on both the Five-Year Plan and Digital Equity Plan efforts.

New Hampshire will benefit from a meaningful and generative input on items not limited to the following:

- Feedback on New Hampshire's stakeholder engagement process: New Hampshire has designed an extensive stakeholder engagement process to obtain feedback from a wide range of stakeholders and potential partners on the draft plans. New Hampshire anticipates that this process will more than meet the BEAD requirements for stakeholder engagement.
- Feedback on New Hampshire's proposed timeline: New Hampshire has clearly laid out the timeline by which it anticipates beginning broadband deployment.
- Feedback on New Hampshire's proposed BEAD Eligible Entity challenge process as to whether a particular location within the state is unserved or underserved and thus eligible for grant funds, in accordance with section IV.B.6 of the NOFO.
- Feedback on New Hampshire's proposed subgrantee process: New Hampshire will design a competitive subgrantee process that is to be efficient, transparent, and fair.
- Feedback on New Hampshire's plans and proposals, including the design choices involving proposed deployment scenarios: while New Hampshire plans to serve as many broadband serviceable locations (BSLs) as possible with fiber while also bringing lasting, reliable high-speed broadband to all Granite Staters, some trade-offs are inevitable. New Hampshire anticipates input on the scale and technologies of its proposed deployment.

New Hampshire values and appreciates timely input on all matters from the NTIA and FCC in its response to the BEAD Notice of Funding Opportunity. Timely broadband deployment will be facilitated by prompt approval of plans and proposals, especially as labor and materials shortages may exacerbate the impact of any delays. BEA appreciates the guidance released by the NTIA to date, as well as the mapping data the FCC has released thus far.

6 Conclusion

The New Hampshire Five-Year Action Plan establishes the broadband deployment and implementation goals and priorities and provides a comprehensive needs assessment. It will inform and complement New Hampshire's Initial and Final Proposals as well as the States Digital Equity Plan. This Five-Year Action plan represents snapshot of available high-speed broadband in the State of New Hampshire. This plan is augmented by intense outreach and digital equity efforts overseen by BEA. The next step is to use this information to create an intricate action plan, as described in the Initial Proposal, to ensure that every resident will have access to, and the skills to use, reliable, affordable, high speed broadband connections.

The vision of the New Hampshire Department of Business and Economic Affairs (BEA) is to close the digital divide in support of New Hampshire's economic, workforce, health, and education goals by ensuring fast, reliable, and affordable internet access for all Granite Staters, businesses, and Community Anchor Institutions (CAIs).

The Initial Proposal will clarify and verify the current state of broadband in New Hampshire to fully understand current resources and relationships, identify gaps and barriers that may exist, and inform and improve future planning and implementation efforts to deploy broadband and close the digital divide.

The Initial Proposal will include an outline of the long-term objectives for the State of New Hampshire in deploying broadband, closing the digital divide, addressing access, affordability, equity, and adoption issues, and enhancing economic growth and job creation.

For the elderly, those with disabilities, those who are underrepresented in our society and economy, those struggling to make ends meet, those who are remote and rural, those in the LGBTQI+ community, Native Americans, the incarcerated, minorities, veterans, and immigrants, we are driven by our passion for your success. You are New Hampshire.

Respectfully submitted: New Hampshire Department of Business and Economic Affairs (BEA)

7 Appendix

1. **Key Terms and Definitions**
2. **Digital Glossary**
3. **Endnotes**

Key Terms & Definitions

The following definitions are from the NTIA BEAD Notice Of Funding Opportunity.

1. Broadband; Broadband Service—The term "broadband" or "broadband service" has the meaning given the term "broadband internet access service" in Section 8.1(b) of title 47, Code of Federal Regulations, or any successor regulation, meaning it is a mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up internet access service. This term also encompasses any service that the Commission finds to be providing a functional equivalent of the service described in the previous sentence or that is used to evade the protections set forth in this part.
2. Broadband DATA Maps—The term "Broadband DATA Maps" means the maps created by the Federal Communications Commission under Section 802(c)(1) of the Communications Act of 1934 (47 U.S.C. § 642(c)(1)).
3. Community Anchor Institution (CAI)—The term "community anchor institution" means an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals. An Eligible Entity may propose to NTIA that additional types of institutions should qualify as CAIs within the entity's territory. If so, the Eligible Entity shall explain why it has determined that the institution or type of institution should be treated as such and affirm that the institution or class of institutions facilitates greater use of broadband service by vulnerable populations, including low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals.
4. Digital Equity—The term "Digital Equity" means the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States.
5. Eligible Community Anchor Institution—The term "eligible community anchor institution" means a community anchor institution that lacks access to Gigabit-level broadband service.
6. Eligible Entity—The term "Eligible Entity" means any State of the United States, the District of Columbia, Puerto Rico, American Samoa, Guam, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands or, in the case of an application failure, a political subdivision or consortium of political subdivisions that is serving as a Substitute Entity.z
7. Extremely High Cost Per Location Threshold— An "Extremely High Cost Per Location Threshold" is a BEAD subsidy cost per location to be utilized during the subgrantee selection process described in Section IV.B.7 of this NOFO above which an Eligible Entity may decline to select a proposal if use of an alternative technology meeting the BEAD Program's technical requirements would be less expensive.
8. Funded Network—The term "Funded Network" means any broadband network deployed and/or upgraded with BEAD Program fund.
9. High-Cost Area—The term "high-cost area" means an unserved area in which the cost of building

out broadband service is higher, as compared with the average cost of building out broadband service in unserved areas in the United States (as determined by the Assistant Secretary, in consultation with the Commission), incorporating factors that include— (I) the remote location of the area; (II) the lack of population density of the area; (III) the unique topography of the area; (IV) a high rate of poverty in the area; or (V) any other factor identified by the Assistant Secretary, in consultation with the Commission, that contributes to the higher cost of deploying broadband service in the area. For purposes of defining "high-cost area," the term "unserved area" means an area in which not less than 80 percent of broadband-serviceable locations are unserved locations. NTIA will release further information regarding the identification of high-cost areas for purposes of BEAD funding allocations at a later date.

10. Location - Broadband-Serviceable Location—The terms "location" and "broadband serviceable location" mean "a business or residential location in the United States at which fixed broadband Internet access service is, or can be, installed."
11. Middle Mile Infrastructure—The term "middle mile infrastructure" (A) means any broadband infrastructure that does not connect directly to an end-user location, including a community anchor institution; and (B) includes—(i) leased dark fiber, interoffice transport, backhaul, carrier-neutral internet exchange facilities, carrier-neutral submarine cable landing stations, undersea cables, transport connectivity to data centers, special access transport, and other similar services; and (ii) wired or private wireless broadband infrastructure, including microwave capacity, radio tower access, and other services or infrastructure for a private wireless broadband network, such as towers, fiber, and microwave links.
12. Non-Traditional Broadband Provider—The term "non-traditional broadband provider" means an electric cooperative, nonprofit organization, public-private partnership, public or private utility, public utility district, Tribal entity, or local government (including any unit, subdivision, authority, or consortium of local governments) that provides or will provide broadband services.
13. Program—The term "Program" means the Broadband Equity, Access, and Deployment Program.
14. Project—The term "project" means an undertaking by a subgrantee to construct and deploy infrastructure for the provision of broadband service. A "project" may constitute a single unserved or underserved broadband-serviceable location, or a grouping of broadband-serviceable locations in which not less than 80 percent of broadband-serviceable locations served by the project are unserved locations or underserved locations.
15. Reliable Broadband Service—The term "Reliable Broadband Service" means broadband service that the Broadband DATA Maps show is accessible to a location via:10 (i) fiber-optic technology;11 (ii) Cable Modem/ Hybrid fiber-coaxial technology;12 (iii) digital subscriber line (DSL) technology;13 or (iv) terrestrial fixed wireless technology utilizing entirely licensed spectrum or using a hybrid of licensed and unlicensed spectrum.
16. State—The term "State" means, for the purposes of the BEAD Program, any State of the United States, the District of Columbia, and Puerto Rico.
17. Subgrantee/Subrecipient—The term "subgrantee" or "subrecipient" means an entity that receives grant funds from an Eligible Entity to carry out eligible activities.
18. Underrepresented Communities—The term "underrepresented communities" refers to groups that have been systematically denied a full opportunity to participate in aspects of economic, social,

and civic life, including: low-income households, aging individuals, incarcerated individuals, veterans, persons of color, Indigenous and Native American persons, members of ethnic and religious minorities, women, LGBTQI+ persons, persons with disabilities, persons with limited English proficiency, persons who live in rural areas, and persons otherwise adversely affected by persistent poverty or inequality.

19. Underserved Location—The term "underserved location" means a broadband serviceable location that is (a) not an unserved location, and (b) that the Broadband DATA Maps show as lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 100 Mbps for downloads; and (ii) a speed of not less than 20 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds.

20. Underserved Service Project—The term "Underserved Service Project" means a project in which not less than 80 percent of broadband serviceable locations served by the project are unserved locations or underserved locations. An "Underserved Service Project" may be as small as a single underserved broadband serviceable location.

21. Unserved Location—The term "unserved location" means a broadband-serviceable location that the Broadband DATA Maps show as (a) having no access to broadband service, or (b) lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 25 Mbps for downloads; and (ii) a speed of not less than 3 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds.

22. Unserved Service Project—The term "Unserved Service Project" means a project in which not less than 80 percent of broadband serviceable locations served by the project are unserved locations. An "Unserved Service Project" may be as small as a single unserved broadband-serviceable location.

NH STATE DIGITAL EQUITY SURVEY GLOSSARY

Accessibility means that people with different abilities have an equal opportunity to the physical tools and virtual environments needed to acquire the same information, visit the same places, engage in the same interactions, and enjoy the same services as persons without different abilities.

Affordability means the ability to pay the cost of connecting to high-speed, reliable Internet.

Digital equity is the condition in which individuals and communities have the information technology (IT) capacity that is needed for full participation in the society and economy of the United States. Digital equity is necessary for civic and cultural participation, employment, lifelong learning, and access to essential services.

Digital literacy means the necessary skills associated with using technology to enable people to find, evaluate, organize, create, and communicate information.

Devices are types of equipment that can be used to connect to the internet. Examples include desktop computers, laptop computers, tablets, netbook computers, notebook computers, handheld computers, and smartphones.

Accessible/Adapted device means a computing device that is designed to be used by an individual with a disability. For example, a person who is blind may use a braille keyboard device to read text on the screen.

Skills training means any online or in-person opportunity to learn new skills or build knowledge about the internet or how to use it.

Broadband means a high-bandwidth connection to the Internet at your home by using a cable (fiber or coaxial) connected to an Internet service provider such as Spectrum, AT+T, Frontier, etc.

Cyber security means everything you do to make sure your devices and information are safe and secure.

Household means all the people who live in your home, apartment, or dwelling.

Cell phone data plan is a way to get Internet access without wires or cables. It uses cellular towers or a cell phone provider. It can provide the Internet to phones, computers and other devices.

Cable Internet service is a way to connect your home to the internet. It uses a TV or coaxial cable.

Fiber optic Internet service is a way to connect your home to the Internet. It uses a cable that holds strands of glass fibers to provide service.

Digital Subscriber Line (DSL) is a way to connect your home to the Internet. It uses a telephone wall jack and a telephone line. It allows phone calls to be made while the Internet is being used.

Fixed wireless Internet service is a way to connect your home to the Internet. It uses a dish at your home to point to a local tower that provides service.

Satellite Internet service is a way to connect your home to the internet. It uses a satellite dish at your home that points to satellites in space.

About Us

Dr. Robert McLaughlin
NCDE
rmclaughlin@digitalequity.us
Mobile: 802-249-1159
Office: 1-866-922-8750

[1] https://www.nheconomy.com/getmedia/63901f48-b717-459c-a3ae-c4672bcdf28a/New-Hampshire-ARPA-CPF-Annual-Performance-Report-2023.pdf

[2] United States Census Bureau estimates as of 01 July 2021: Land area and Population. U.S. Census Bureau QuickFacts: New Hampshire; United States

[3] New Hampshire Geography. https://www.netstate.com/states/geography/nh_geography.htm

[4] Within the parameters of the BEAD Program, covered populations include the following:

Individuals who live in covered households, the income of which for the most recently completed year is not more than 150 percent of an amount equal to the poverty level, as determined by using criteria of poverty established by the Bureau of the Census

- Aging individuals
- Incarcerated individuals, other than individuals who are incarcerated in a Federal correctional facility
- Veterans
- Individuals with disabilities
- Individuals with a language barrier, including individuals who—
- Are English learners; and
- Have low levels of literacy
- Individuals who are members of a racial or ethnic minority group; and
- Individuals who primarily reside in a rural area.

[5] United States Census Bureau. Digital Opportunity Act Population Viewer, Digital Equity Act Population Viewer (census.gov)

[6] https://broadbandmap.fcc.gov/data-download/nationwide-data?version=dec2022

[7] https://broadbandmap.fcc.gov/data-download/nationwide-data?version=dec2022

[8] https://www.internetforall.gov/funding-recipients?program_status=3&state=NH&form_build_id=form-I6C4KBhMPViKxZMF9KepP5ksv9uNNXKCwgp1VpnHOqY&form_id=ntia_interactive_map_state_and_program_selection

[9] The American Community Survey Household Adoption Rate, https://mtgis-portal.geo.census.gov/arcgis/apps/webappviewer/index.html?id=233ad09d77e14150be143b9447ed5074

[10] "Fixed broadband adoption drove 10.9% of the accumulated growth in the U.S. gross domestic product (GDP) between 2010 and 2020, according to a new economic study from Telecom Advisory Services…. If broadband adoption and speeds had remained at the 2010 level, the 2020 U.S. GDP would have been $1.3 trillion lower, which is equivalent almost $4,000 less per year for the average American." Engebretson, Joan; *Study Finds Broadband Has a Major Impact on U.S. Economic Growth*, Telecompetitor, June 29, 2022, https://www.telecompetitor.com/study-finds-broadband-has-a-major-impact-on-u-s-economic-growth/

[11] https://home.treasury.gov/system/files/136/Allocations-States.pdf

[12] https://www.internetforall.gov/news-media/biden-harris-administration-awards-more-55-million-new-hampshire-internet-all-planning

[13] https://www.internetforall.gov/funding-recipients?program_status=3&state=NH&form_build_id=form-I6C4KBhMPViKxZMF9KepP5ksv9uNNXKCwgp1VpnHOqY&form_id=ntia_interactive_map_state_and_program_selection

[14] https://www.internetforall.gov/funding-recipients?state=NH

[15] https://www.internetforall.gov/news-media/biden-harris-administration-announces-197-million-new-hampshire-high-speed-internet-0

[16] https://broadbandusa.ntia.doc.gov/news/latest-news/biden-harris-administration-announces-state-allocations-4245-billion-high-speed

[17] Education Superhighway, Affordability Connectivity Program Enrollment Dashboard, https://www.educationsuperhighway.org/no-home-left-offline/acp-data/#dashboard.

[18] https://tools.e-ratecentral.com/us/stateInformation.asp?state=NH

[19] https://www.internetforall.gov/sites/default/files/2023-06/New%20Hampshire_June%202023_FINAL.pdf

[20] https://internetforall.gov/news-media/biden-harris-administration-awards-nearly-50-million-expand-and-strengthen-regional-and

[21] https://www.internetforall.gov/sites/default/files/2023-06/New%20Hampshire_June%202023_FINAL.pdf
[22] https://data.usac.org/publicreports/caf-map/
[23] https://docs.fcc.gov/public/attachments/DA-23-717A1.pdf
[24] https://data.usac.org/publicreports/caf-map/
[25] https://data.usac.org/publicreports/caf-map/
[26] https://data.usac.org/publicreports/caf-map/
[27] https://fundingmap.fcc.gov/data-download/funding-data
[28] https://www.nbrc.gov/userfiles/files/2021/State%20EID%20Award%20Summary%20for%20Website-New%20Hampshire%20Rev%2020211116.pdf
[29] https://www.nbrc.gov/userfiles/files/2022%20SEID/State%20EID%20Award%20Summary%20for%20Website-NH%20CORRECTED%2020221020.pdf
[30] https://www.nhsl.dncr.nh.gov/services/library-directory
[31] https://www.dover.nh.gov/services/online-services/dovernet-public-wireless/
[32] https://www2.ntia.doc.gov/New-Hampshire
[33] https://www.nhbroadband.com/
[34] https://www.usnh.edu/ibeamnh/
[35] https://www.usnh.edu/ibeamnh/
[36] https://www.unh.edu/broadband/
[37] https://www.techgoeshome.org/
[38] https://www.goferr.nh.gov/covid-expenditures/connecting-nh#:~:text=TheConnectingNewHampshire–Emergency,totheCOVIDD19pandemic
[39] https://www.nhsl.dncr.nh.gov/services/federal-funding
[40] https://www.ccsnh.edu/paying-for-college/tuition
[41] https://apprenticeshipnh.com/
[42] https://www.girlscoutsgwm.org/en/discover.html
[43] https://www.nhbroadband.com/
[44] https://www.hudexchange.info/programs/connecthomeusa/
[45] https://drcnh.org/issue-areas/assistive-technology/
[46] https://www.icanconnect.org/how-to-apply/new-hampshire/
[47] https://iod.unh.edu/ATinNH
[48] https://www.firstinspires.org/
[49] https://www.education.nh.gov/partners/education-outside-classroom/nh-career-academy
[50] https://www.education.nh.gov/who-we-are/division-of-learner-support/bureau-of-instructional-support/educational-technology-and-digital
https://www.usac.org/e-rate/resources/tools/#Open-Data
[51] US Census Data, 2021 ACS 5-Year Estimates, https://data.census.gov/table?q=internet&g=040XX00US33
[52] Pew Research Center, https://www.pewresearch.org/internet/2015/04/01/us-smartphone-use-in-2015/
[53] American Library Association, "Digital Literacy"
[54] American Library Association, "Digital Literacy"
[55] Federal Communications Commission, https://getinternet.gov/apply?ln=RW5nbGlzaA%3D%3D
[56] Federal Communications Commission, https://www.affordableconnectivity.gov/do-i-qualify/
[57] Education Superhighway, Affordability Connectivity Program Enrollment Dashboard,
[58] ACP Households by County, https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/#enrollment-and-claims-by-zipcode-and-county
[59] FCC Total EBB & ACP Support by Geographic Region, https://www.fcc.gov/reports-research/maps/total-ebb-acp-support-by-geographic-region/
[60] Education Superhighway, Affordability Connectivity Program Enrollment Dashboard, https://www.educationsuperhighway.org/no-home-left-offline/acp-data/#dashboard accessed September 17, 2023; Total: 142,046 Eligible Households X 12 months X $30 per month; Allocated: 35,017 Enrolled Households X 12 months
[61] https://www.usac.org/lifeline/resources/program-data/#Participation
[62] https://apps.usac.org/li/tools/disbursements/results.aspx

[63] https://apps.usac.org/li/tools/disbursements/results.aspx
[64] https://tools.e-ratecentral.com/us/stateInformation.asp?state=NH
[65] Department of Commerce National Telecommunications and Information Administration https://www.ntia.gov/press-release/2023/biden-harris-administration-awards-nearly-50-million-expand-and-strengthen
[66] https://www.nheconomy.com/getmedia/90db0638-52a5-4e4b-ba51-fd06719d30df/Final-Workforce-Assessment-State-of-New-Hampshire-v2.pdf
[67] Connecting New Hampshire – Emergency Broadband Expansion Program.
[68] Community College System of New Hampshire. https://www.ccsnh.edu/colleges-and-programs/programs-for-high-school-students-to-earn-college-credit/estart/
[69]New Hampshire Department of Health and Human Services. New Hampshire Marks the End of the COVID-19 Public Health Emergency. Dated May 11, 2023. Available from: https://www.dhhs.nh.gov/news-and-media/new-hampshire-marks-end-covid-19-public-health-emergency
[70] New Hampshire DHHS. New Hampshire Ten Year Mental Health Plan.
[71] New Hampshire Division of Motor Vehicles. https://www.dmv.nh.gov/online-service