

CONNECTICUT'S
FIVE-YEAR
BROADBAND
ACTION
PLAN

2023



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Executive Summary

Connecticut's continued prosperity relies on establishing a robust and resilient broadband network that can handle rapidly increasing demands for bandwidth and service.

Governor Ned Lamont has highlighted the expansion of high-speed Internet access as a top priority for the State, recognizing that, "From education and healthcare to economic development and civic engagement, broadband connectivity is the thread that weaves our communities together. I'm focused on ensuring this thread reaches everyone in Connecticut." To this end, Connecticut's Department of Energy and Environmental Protection (DEEP) has been collaborating with the Commission for Educational Technology (the Commission), the Office of Policy and Management (OPM), the Office of Consumer Counsel (OCC), and engaging with a diversity of stakeholders to identify obstacles to universal broadband access and digital equity throughout the state.

Thanks to the extensive groundwork laid by OCC's Office of State Broadband (OSB), DEEP and its partner agencies have a strong foundation to build upon as the State works to connect all communities with the benefits and opportunities of a digital world. Moreover, the anticipated expansion of broadband infrastructure and increased funding for digital equity initiatives will reduce barriers for the most under-resourced and vulnerable in Connecticut by increasing access to critical services and enabling families, businesses, and communities to connect with one another, regardless of their circumstances.

The State took an important step toward this goal in 2021 with the passage of "An Act Concerning Equitable Access to Broadband" (Public Act 21-159)¹ which established DEEP's Office of Telecommunications and Broadband to administer federal broadband infrastructure grants, and has continued to invest in its vision with the development of a multi-agency approach to deploying the BEAD and Digital Equity Programs. Since establishing these agency partnerships, the State has published its own availability and adoption maps under the leadership of the Office of Policy and Management, advocated for regulatory improvements to streamline infrastructure deployment, and initiated comprehensive stakeholder engagement activities so that this plan reflects the needs of those that should benefit from its efforts.

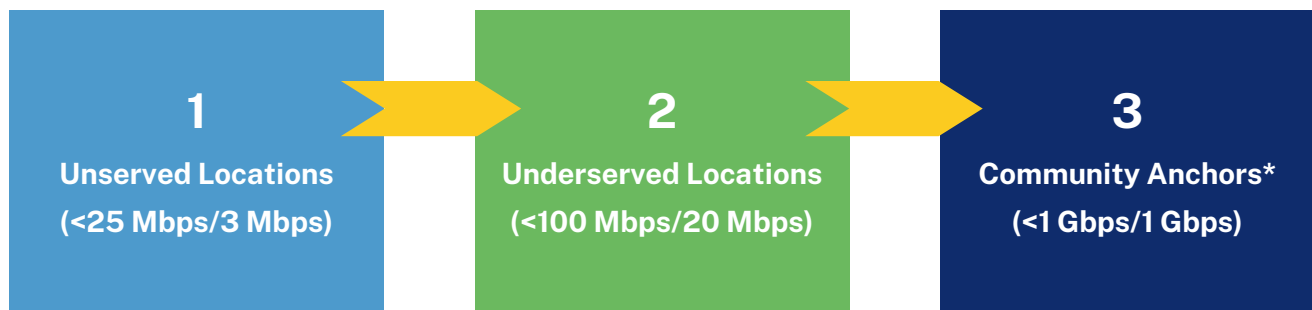
Even though the majority of Connecticut residents have access to broadband internet, it is crucial to acknowledge the disparities in terms of affordability and accessibility that remain. Some Connecticut residents either live in areas with no service, lack access to speeds of at least 25 Mbps/3 Mbps (considered unserved), or lack access to 100 Mbps/20 Mbps (considered underserved). Current estimates show 1.5% of all locations in Connecticut are unserved or underserved. Broadband coverage is not equitably available across the state, with extremely rural areas and low-income city neighborhoods most impacted.

The landmark Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA), established six broadband programs with the goal of closing the digital equity gap and providing broadband access to the country. The largest of the BIL programs is the BEAD Program, which provides Connecticut \$144.2 million to support broadband infrastructure deployment and adoption in unserved areas, underserved areas, and community anchor institutions (CAIs). Also included in the BIL is the Digital Equity Act which provides \$2.75 billion nationally, approximately \$18 million of which will be allocated to the State of Connecticut and administered by the Commission for Educational Technology to establish programs that promote digital equity and inclusion. These programs aim to ensure that all people and communities have the skills, technology, and capacity needed to reap the full benefits of a digital economy.

On November 9, 2022, the National Telecommunications and Information Administration (NTIA) approved Connecticut's Initial Planning Funds Application for the BEAD Program, commencing a 270-day deadline to submit a Five-Year Action Plan that establishes the State's broadband goals and priorities and serves as a comprehensive needs assessment that will inform further elements of the program. A key component of the plan is the identification of digital equity and inclusion needs, goals, and implementation strategies, including ways in which the State plans to utilize BEAD funding, Digital Equity Act funding, and other funding streams in concert to remedy inequities and barriers to inclusion.

Accordingly, Connecticut's Five-Year Action Plan sets forth a vision for increased broadband access and digital equity consistent with the requirements in the BEAD Program Notice of Funding Opportunity. Connecticut's approach will be informed by the results of a needs assessment for underrepresented communities and an asset inventory of ongoing activities.¹ This Five-Year Action Plan details holistic strategies around deployment, affordability, devices, digital skills, technical support, and digital navigation. DEEP is working closely with the Commission to align these activities with the State Digital Equity Plan.

BEAD Program Priorities



*and digital equity programming

Under the direction of Conn. Gen. Stat. § 16-330c, DEEP administers grant programs that will support the deployment of broadband service with the **goal of one gigabit download and one hundred megabits upload** speeds. DEEP also oversees broadband infrastructure programs and develops equitable policies and programs to bring the economic and social benefits of broadband access to the residents and businesses of Connecticut.

BEAD Program Process

1. Five-Year Action Plan

Describes Connecticut's broadband goals and priorities and serves as a comprehensive needs assessment that will inform the State's Initial Proposal.

2. Initial Proposal

Explains how Connecticut intends to administer BEAD subgrants (i.e., challenge process, eligibility requirements, scoring criteria for subgrantee selection) and ensure that every resident has access to a reliable, affordable, high-speed broadband connection.

3. Challenge Process

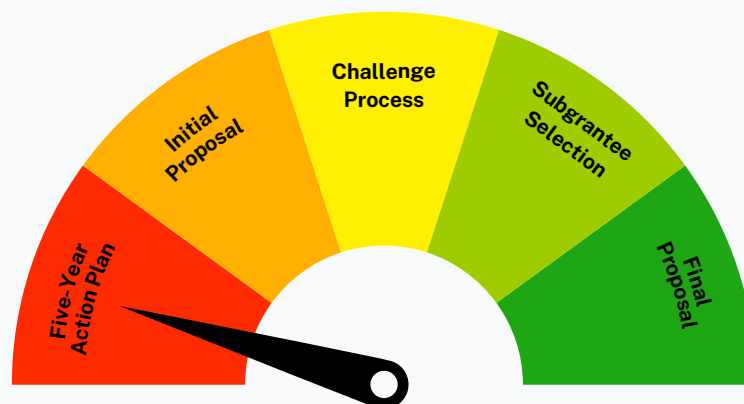
A transparent and evidence-based challenge process under which a unit of local government, nonprofit organization, or broadband service provider can challenge a determination in the Initial Proposal as to whether a location or community anchor institution within Connecticut is eligible for grant funds.

4. Subgrantee Selection

A fair, open, and competitive processes for selecting subgrantees.

5. Final Proposal

The outcome of the subgrantee selection process and its detailed plan for administering the BEAD grant program.



2. Overview

2.1 Vision

Connecticut's Five-Year Action Plan and complementing digital equity strategies aim to overcome existing barriers and leverage the State's strengths to facilitate equitable access to the digital world for all state residents and businesses, especially underrepresented communities that have historically been marginalized.

DEEP, under the Governor's direction and pursuant to the goals of the state set forth in Conn. Gen. Stat. §§ 16-247a and 16-330c, is prioritizing the following:

- Leveraging federal programs to progress to Connecticut's universal access goal of 1 Gbps download speeds and 100 Mbps upload speeds
- Ensuring that state-wide high-speed broadband services are readily available and economically viable for residents and businesses
- Promoting healthy competition to increase the number of broadband service providers to facilitate a variety of services for consumers to choose from
- Enabling the seamless and equitable implementation of cutting-edge broadband infrastructure that encompasses open networks with maximum interoperability and connectivity
- Promoting the utilization of current infrastructures and collaborative construction of new infrastructures within the confines of the law, taking into account technical and economic feasibility
- Implementing customized digital literacy training and device access programs that cater to the specific needs of residents

To accomplish this, Connecticut will embrace the following values:

Equity Give priority to the needs of unserved, underserved, under-resourced, and underrepresented populations.

Collaboration Promote collaboration between the public and private sectors and communities to develop long-term strategic partnerships.

Sustainability Develop an all-encompassing sustainability plan to achieve long-term digital equity and ensure grantees have a viable strategy beyond the initial investment phase to maintain and improve broadband infrastructure and digital equity over time.

Accountability Ensure consistent, accessible, and transparent updates on the State's BEAD Program funding, the decision-making process, and the progress made towards decreasing the number of areas in Connecticut without adequate service.

2.2 Expected Outcomes



Education

From pandemic-era stories of students doing homework from the curb of fast-food chains to teachers engaging students remotely from their vehicle, the importance of access to high-speed internet has never been clearer. Digital connections and the devices to use them went from a ‘want’ to a ‘need’ in a matter of weeks. Although full-time remote learning has generally ended, the State needs to ensure that all students have the support and resources to make full use of the digital tools for personalized learning. Designing and implementing long-term solutions to digital equity issues in the state will help to end inequality in educational outcomes, a strategic investment in Connecticut’s future.



Economy

Inequality in educational outcomes leads to inequality in opportunities, where career options and opportunities for growth are limited due to educational differences in K-12, college, and technical training programs. According to the Department of Education, “The quality and type of home broadband access has shown to directly impact learner school participation, performance outcomes, and digital literacy. Learners with insufficient access are also less likely to plan for postsecondary education, impacting their lifetime potential for high earnings.”² These inequities are detrimental to the individual and community as well as the economy as a whole, and symptomatic of the systematic (and often generational) exclusion of diverse talent from economic security, quality jobs, and career mobility over a lifetime. By focusing on equitable broadband access and adoption, Connecticut can lead by example, building a stronger workforce and economy in the process.



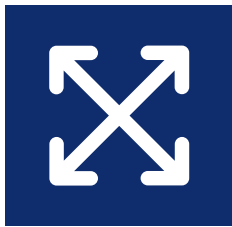
Quality of Life

The ability to benefit from the social and economic opportunities of digital connectedness promotes a higher quality of life for all who work and reside in state. This ‘digital prosperity’ positively affects the social determinants of health - the conditions that impact a wide range of health and quality of life risks and outcomes: healthcare access and quality, education access and quality, social and community context, economic stability, and neighborhood and built environment including access to housing and transportation.³ Beyond the immediate benefits, the expansion of access to broadband today positions the State to take advantage of the growing catalog of digital technologies in order to remain competitive well into the future.

2.3 Goals & Objectives

The Five-Year Action Plan outlines strategies to facilitate broadband deployment and support digital equity in order to achieve internet for all.

The goals and objectives below have been refined from DEEP's existing strategic goals and incorporate newly developed broadband and digital equity goals that have emerged from this planning process. Planned Activities and Key Strategies to achieve these goals are discussed in [Section 5.3](#).



GOAL 1: ENHANCE BROADBAND DEPLOYMENT

Fund projects that support high-performance technologies, equitable access to services, maximum interoperability, and network interconnectivity. The infrastructure should support emerging technologies for at least a 10-year timeframe to maximize the efficient and effective use of State and federal funds.



GOAL 2: PROMOTE AFFORDABILITY

Improve the affordability of high-speed internet so residents and business can access high-quality broadband services at reasonable rates within the federally established timeline for the BEAD Program.



GOAL 3: FACILITATE ADOPTION

Reduce barriers to adoption by leveraging existing state and federal resources, supporting the development of new programs, and enhancing stakeholder outreach and engagement.



GOAL 4: IDENTIFY OPPORTUNITIES TO LEVERAGE EXISTING ASSETS TO INCREASE NETWORK RESILIENCY AND RELIABILITY

Employ strategies for the efficient use of state assets and resources with stakeholder input.



GOAL 5: IMPLEMENT THE STATE DIGITAL EQUITY PLAN

Continue collaboration and coordination efforts with community organizations, educational institutions, and other community anchor institutions to support digital equity programs and resources in the state.

3. Current State of Broadband & Digital Inclusion

3.1 Existing Programs & Initiatives

This section details the State’s current programs and initiatives that facilitate equitable access of broadband for Connecticut’s residents and businesses.

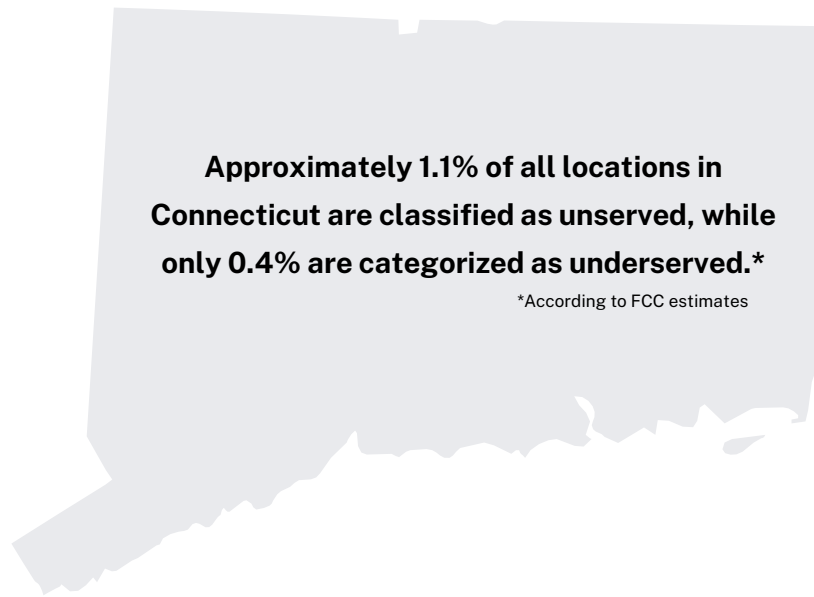


Table 1: Current Activities undertaken by the State of Connecticut

Activity	Description	Intended Outcome(s)
Active State Grant Programs		
<p>CEN Connect Administered by CEN</p>	<p>Connecticut Education Network (CEN) was allocated American Rescue Plan Act funds to execute five programs, which will provide robust opportunities for municipal entities, community partners, and charter schools to benefit from new fiber connections and wireless services.</p>	<p>To fund fiber build-out to municipalities, charter schools, and libraries not already connected to CEN; grant opportunities for municipal entities to build wireless internet access in their communities; and infrastructure updates to provide high-capacity internet to more than 670 anchor institutions.</p>

Activity	Description	Intended Outcome(s)
Data Collection Initiatives		
<p>2022 Data Collection Effort</p>	<p>Conn. Gen. Stat. § 16-330b directed the Office of Policy and Management to develop a comprehensive map of broadband accessibility and adoption by December 1, 2022. A central part of this process was the collection of service area and adoption data from service providers in Connecticut. OPM also used existing, public sources of data to create resources that allow for all stakeholders to understand the state's challenges and assets in relation to broadband access.</p>	<p>To develop and maintain an up-to-date broadband map, with accompanying data, showing the availability and adoption of broadband Internet access service, including broadband internet download and upload speeds, in the state.</p>
<p>2022 Broadband Availability & Adoption Maps</p>	<p>A resource to provide transparency in the State's efforts to promote universal broadband access and provide access curated data sources on broadband access and adoption.</p>	<p>To collect and analyze credible and relevant data on broadband access and adoption and use this data to inform residents, policymakers, and local stakeholders.</p>
<p>2023 Community Organization Survey</p>	<p>The survey inventories digital equity resources, identifies potential recipients of BEAD Program and Digital Equity Act funding, gathers data for the State Digital Equity Plan, and collects contact information for future outreach.</p>	<p>To identify potential community anchor institutions facilitating the adoption of broadband, and to inform the BEAD Program and State Digital Equity Plan.</p>
<p>2023 Resident Survey on Digital Equity</p>	<p>The survey is intended for Connecticut residents and was developed to identify individual and demographic barriers to broadband connectivity. It is available in both digital and print formats in English and Spanish and was approved by the UConn-Storrs Institutional Review Board within the UConn–Storrs Human Research Protection Program.¹¹</p>	<p>To inform the BEAD Program and State Digital Equity Plan.</p>

Activity	Description	Intended Outcome(s)
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Stakeholder Outreach & Engagement

Quarterly Stakeholder Roundtable Discussions	A series of discussions to share program updates, identify opportunities and obstacles, and solicit input from broadband service providers, state and local governments, and community organizations.	To ensure communities are informed on State efforts and federal programs, collect data about current and planned broadband efforts at the regional and local level, understand the primary drivers of the digital divide in Connecticut communities, and use this data to inform the broadband plan, objectives, and implementation approach.
Special Informational Meetings	Virtual and/or hybrid events related to specific milestones such as the BEAD Program's Initial Proposal public comment period.	To share information and resources related to unique events and milestones to keep stakeholders engaged and informed.
Regional Community Forums	In-person and/or hybrid events hosted in each of the nine Council of Government (COG) regions in the state to gain feedback on access, connectivity issues, affordability, and digital equity.	To engage underrepresented communities and vulnerable populations that are unable to attend virtual meetings.
Broadband Working Group	A monthly interagency meeting of State agencies to coordinate ongoing and planned broadband initiatives.	To enable a coordinated and streamlined approach to broadband projects proposed across State agencies.
Tribal Consultations	Nation-to-Nation meetings to open a dialogue in order to identify and understand tribal priorities and needs.	To identify and understand tribal priorities and coordinate broadband deployment and digital equity initiatives.

Activity	Description	Intended Outcome(s)
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Regulatory Processes

<p style="text-align: center;">Public Utilities Regulatory Authority (PURA) Special Informational Meetings Regional Community Forums</p>	<p>In Docket No. 19-01-52RE01, 'PURA Investigation of Developments in the Third-Party Pole Attachment Process – Make Ready,' DEEP and OCC advocated for the establishment of a one-touch make ready process to enable pole attachers to obtain access to utility poles for expeditious and cost-effective broadband deployment.</p>	<p>PURA adopted the FCC's one-touch make ready process with some modifications for state-specific concerns, such as an allowance for field-side attachments. The Authority established a Policy Working Group to identify, address, and resolve large-scale pole attachment policy issues. DEEP and OCC are voting members of this Working Group.</p>
	<p>In Docket No. 21-07-29, 'Single Visit Transfer Process for Double Poles,' PURA established a process that allows pole attachers to make a "single visit" to transfer attachments when a utility pole is replaced to effectuate a more expeditious, cost-effective, and safe transfer of facilities.</p>	<p>PURA authorized a single visit transfer pilot process to address the proliferation of double utility poles in CT. That pilot process is underway. OCC and DEEP are serving as members of the statewide Pole Attachment Working Group.</p>
	<p>In Docket No. 21-12-21, 'PURA Implementation of Process and Procedures for Conduit Excavations for Telecommunications Service Providers and Broadband Internet Access Service Providers,' DEEP and CTDOT jointly advocated for a notice process for projects initiated by telecommunications and broadband service providers, the adoption of measures to expand open access, and the adoption of roadway moratoriums to support "Dig Once."</p>	<p>As a result of this proceeding, PURA established procedures that include a notice process to allow for greater communication and coordination among stakeholders, a moratorium on newly constructed roadways to support the concept of "Dig Once," and an application process for approval of proposed projects.</p>

Activity	Description	Intended Outcome(s)
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Regulatory Processes

Federal Communications Commission (FCC) and National Telecommunications & Information Administration (NTIA)

In NTIA Docket No. 220105-0002, NTIA’s Notice of Request for Comments on the (IIJA) Implementation, DEEP and the OCC jointly submitted comments on February 4, 2022, responding to various issues to guide the NTIA’s implementation of the broadband provisions of the IIJA.

These joint comments were general in nature yet specific enough to ensure that the interests of Connecticut were considered in fashioning the rules that were eventually adopted by the NTIA in May 2022.

In FCC Docket No. WC 21-450, In the Matter of Implementation of the Affordable Connectivity Program, of December 2021, the OCC filed reply comments to support effective enrollment processes, eligibility requirements, transition from the predecessor EBB program to the ACP, bulk purchasers, and on the development of consumer protections and a robust complaint process. In July 2022, OCC also responded to a Notice of Proposed Rulemaking (NOPR) with comments in the same docket, which focused on data collected from households enrolled in the program and participating internet service providers.

OCC advocated for increased protection of consumers’ personally identifiable information as well as urging the FCC to continue its practice of only granting protective status of provider’s proprietary information when strict conditions are met. Finally, OCC recommended the FCC heighten its internal security measures to avoid cyber-crimes and inter-agency leaks, particularly in connection with ACP.

In FCC Docket No. RM 21-69, Implementing the Infrastructure Investment and Jobs Act: Preventing Digital Discrimination, OCC provided responses to the NOPR and reply comments advocating for a uniform legal approach to claims of digital discrimination and the adoption of a model policy developed in California. OCC also advocated for sufficient resources to enforce digital discrimination regulations and joint federal-state jurisdiction with respect to enforcement measures.

In its reply comments, OCC supported measures to evaluate and track claims of digital discrimination set forth by other stakeholders as well as strict scrutiny of providers that claim exemptions from digital discrimination regulations. OCC also brought to highlight legacy state laws that may contribute to digital discrimination, such as those that eliminated cable franchise requirements and meaningful oversight.

In FCC Docket No. CG – 22-2, In the Matter of Empowering Broadband Customers Through Transparency, OCC and DEEP submitted comments in response to an FCC NOPR related to broadband “nutrition labels,” which are being designed to provide consumers with sufficient information to make informed plan choices when shopping for broadband services.

The Offices advocated for standardized and transparent labeling disclosures for households to have when considering internet service providers.

Through the expertise and strategic vision of the Office of the Governor, and under the leadership of DEEP’s Commissioner, DEEP has been proactive in recognizing the importance of broadband access as an essential service and building the capacity to administer the BEAD Program. Their support and guidance have provided valuable insights and recommendations that have shaped the program’s direction.

DEEP’s strong partnerships with other agencies have further enhanced the program development process. These collaborative efforts have ensured a holistic approach and created a strong foundation for the successful implementation of the State’s broadband initiatives.

The following agencies make significant contributions to program success:

- **The Connecticut Bipartisan Infrastructure Law Team (CT BILT)** is coordinating a multi-agency approach to administering funds from the Infrastructure Investment and Jobs Act.
- **The Commission for Educational Technology (DAS)** is leading the development of the State Digital Equity Plan and efforts to ensure that all communities will have access to the tools, skills, and support they need to participate fully in today’s digital society.
- **The Data and Policy Analytics Unit’s GIS Office (OPM)** is developing the data and mapping tools necessary to address the digital divide.

Table 2: Current and Planned Full-Time and Part-Time Employees Administering the BEAD Program

The table below details the current and planned employees that will directly assist in implementing and administering the BEAD Program and the duties assigned to those employees.

FT/PT	Position	Description of Role
Current		
PT	Bureau Chief for the Bureau of Energy and Technology Policy	Development and oversight of all bureau programs, policies, and staff, including telecommunications and broadband.
FT	Director of the Office of Telecommunications and Broadband	Leads telecommunications and broadband program and policy development, provides technical support to DEEP’s legal team, and coordinates with other offices in DEEP as well as other states’ broadband offices.
FT	Research Analyst	Supports the Office Director with research, design and implementation, data requests and managing community outreach, communications, and stakeholder activities and events.
FT	Research Analyst	Supports the Office Director with research, design and implementation, data requests and managing community outreach, communications, and stakeholder activities and events.
PT	Staff Attorney	Provides legal counsel and advice; monitors legislative proceedings; develops grants and contracts; and analyzes new and proposed laws, and regulations to determine impact on agency operations.

FT/PT	Position	Description of Role
Current (continued)		
PT	Staff Attorney	Provides legal counsel and advice; monitors administrative proceedings; and analyzes court decisions, new and proposed laws, and regulations to determine impact on agency operations.
PT	DEEP's Office of Communications	Assists the Bureau of Energy and Technology Policy with outreach, communications, and engagement activities.
PT	DEEP's Business Office	Supports contracting and reporting activities.
Planned		
FT	Grants and Contracts Specialist	Responsibilities will include program development, planning, implementation, management, monitoring and assessment, liaison and coordination with federal, state and community agencies and organizations; completing and submitting grant reports on behalf of, or in coordination with, the Office Director (as allowable and appropriate); archiving grant-related documents and documentation; preparing for and supporting any activities related to grant monitoring, audit, or compliance requests; compiling, reconciling, and managing the submission of subgrantee reports and documents.
FT	Research Analyst	Supports the Office Director with research, design and implementation, data requests and managing community outreach, communications, and stakeholder activities and events.
FT	Connecticut Careers Trainee	Supports the Research Analyst and Office Director with research, implementation, data requests, outreach, and communications.

Table 3: Current and Planned Contractor Support for the BEAD Program

The table below details current and planned contractors that will assist in implementing and administering the BEAD Program and the duties assigned to those employees.

Current	Program Development and Administration Consultant	Assists in developing a Five-Year Action Plan, Initial Plan, Challenge Process, and Final Proposal. Assists in administering sub-grant programs.
Current	Communications and Outreach Consultant	Local public engagement support
Planned	Translation Consultant	Translation Support

Table 4: Broadband Funding

The table below details the funding sources that the State of Connecticut and/or eligible entities operating in the state have currently have allocated for broadband deployment and other broadband-related activities. Figures are as reported, or estimated, by administering agencies and/or per available data as of the date of Plan submission to the NTIA and subject to change.

Source	Purpose	State Subgrant Administrator	Total	Expended	Available
American Rescue Plan Act Administered by the U.S. Department of the Treasury					
Capital Projects Fund (CPF)	To fund broadband infrastructure that delivers reliable internet service that meets or exceeds symmetrical download and upload speeds of 100 megabits per second (Mbps).	DEEP	\$42,966,125	\$0 Program expenses incurred as of date of Plan submission under review and pending processing for payment.	\$42,966,125
Capital Projects Fund (CPF)	To fund broadband infrastructure upgrades of (1) CEN backbone connecting 670 existing member institutions (2) Expand Access to Municipalities and Libraries not currently directly connected to CEN (3) Expand Access to Charter Schools not directly connected to CEN (4) administer a grant program to expand public Wi-Fi access in municipalities.	The Commission for Educational Technology (DAS)	\$73,966,489 Pending Program Plan approval and Award	n/a	n/a
State and Local Fiscal Recovery Funds (SLFRF) Program	To support the local response to and recovery from the COVID-19 public health emergency.	The State of Connecticut and Municipalities	\$29,673,781	\$2,324,266 Expended \$6,934,307 Obligated	\$22,739,474
Bipartisan Infrastructure Law Administered by the National Telecommunications and Information Administration					
Broadband Equity, Access, and Deployment Program Initial Planning Funds	To support the development of a Five-Year Action Plan that identifies Connecticut's broadband access, affordability, equity, and adoption needs; build the capacity of the State's broadband office; and support local engagement with unserved, underserved, and underrepresented communities to better understand barriers to adoption. Please note that the \$5,000,000 in Initial Planning Funds is included in the total allocation described in the following row.	DEEP	\$5,000,000	\$0 Program expenses incurred as of date of Plan submission under review and pending processing for payment.	\$5,000,000

Source	Purpose	State Subgrant Administrator	Total	Expended	Available
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Bipartisan Infrastructure Law (continued)
Administered by the National Telecommunications and Information Administration

Broadband Equity, Access, and Deployment Program Total Allocation (including Initial Planning Funds)	To deploy or upgrade broadband networks to ensure that everyone has access to reliable, affordable, high-speed internet service. Once deployment goals are met, remaining funding may be used to pursue eligible access, adoption, and equity-related uses.	DEEP	\$144,180,792	\$0	\$144,180,792
Digital Equity Act Planning Grant Program	To develop a State Digital Equity Plan, including a needs assessment and stakeholder engagement strategy.	The Commission for Educational Technology (DAS)	\$736,568	\$80,729	\$655,839

Other

Tribal Broadband Connectivity Program (TBCP) Administered by the NTIA	To be used for broadband deployment on tribal lands, as well as for telehealth, distance learning, broadband affordability, and digital inclusion.	Tribes	\$493,008	\$191,975.72 As reported by the Mashantucket Pequot Tribal Nation Federally administered Program)	\$301,032.28
Connecting Minority Communities (CMC) Pilot Program Administered by the NTIA	For Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), and Minority-Serving Institutions (MSIs) for the purchase of broadband internet access service and eligible equipment or to hire and train information technology personnel.	n/a	\$2,864,285	n/a – Federally administered Program	
Connecticut Rural Digital Opportunity Fund (RDOF) Administered by the FCC	To bring fixed broadband and voice service to unserved homes and small businesses in rural America. *Space Exploration Technologies Corp. and Frontier Communications Corporation DIP were awarded funding in Connecticut.	n/a	\$4,210,410*	n/a – Federally administered Program	
Emergency Connectivity Fund (ECF) Administered by the FCC	To help schools and libraries provide the tools and services their communities needed for remote learning during the COVID-19 emergency period, and to help close the Homework Gap for students who currently lack necessary internet access or the devices they need to connect to classrooms.	n/a	\$55,200,957	n/a – Federally administered Program	



3.2 Partnerships

Partnerships are critical to broadband deployment in Connecticut. These relationships will ensure efforts throughout the state are aligned, reflect community needs, and are collaborative in nature. DEEP will leverage relationships with these various entities to accomplish its goals as stated in [Section 2.3](#).

Table 5: Partners

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Public Service Sector	
<p>Broadband Working Group</p>	<p>The Broadband Working Group provides insight and feedback required to assess the State’s resources to ensure a comprehensive understanding of existing initiatives and opportunities for coordination are identified. Agencies represented include DEEP, the Commission, the Connecticut Bipartisan Infrastructure Law Team, OPM’s GIS Office, and OCC (General & Office of State Broadband).</p>
<p><u>The Commission for Educational Technology within the Department of Administrative Services</u></p>	<p>The State’s Commission for Educational Technology, an interagency body within the Department of Administrative Services (DAS), is administering the Digital Equity program in close concert with other broadband initiatives under the Bipartisan Infrastructure Law and American Rescue Plan Act. The Commission envisions, coordinates, and oversees the integration of technology in Connecticut’s schools, libraries, colleges, and universities</p>
<p><u>Connecticut Bipartisan Infrastructure Law Team (CT BILT)</u></p>	<p>Commissioner Boughton acts as the Lamont Administration’s senior voice on infrastructure and coordinates multi-agency approaches to administering funds from the IIJA. The Commissioner and his infrastructure team work to ensure the investments made with these federal funds are coordinated, strategic, and equitable, including funding to help ensure high-speed internet coverage across the state.</p>
<p><u>Connecticut Conference of Municipalities (CCM)</u></p>	<p>CCM is the state’s largest, nonpartisan organization of municipal leaders, representing towns and cities of all sizes from all corners of the state, with 168 member municipalities. The Connecticut GIS Office has previously partnered with CCM to develop a survey to help both the State and local governments identify problem areas for broadband service and improve our understanding of the challenges residents face in accessing and using high-speed internet services. CCM will continue to be a key partner to reach local government leaders and use them as a trusted channel to communicate directly with residents. CCM is invited to serve on the DEEP Broadband Advisory Group.</p>
<p><u>Connecticut Department of Education (CSDE)</u></p>	<p>The Connecticut State Department of Education (CSDE) moved quickly to support K-12 students with internet access during the COVID-19 pandemic. The Office of the Governor, CSDE, DAS, OPM, and the Commission coordinated with internet companies and school districts to ensure students received the learning devices and internet coverage to meet their needs to participate in high-quality remote learning.</p>

Partners

Description of Current or Planned Role in Broadband Deployment and Adoption

Public Service Sector (continued)

Connecticut Department of Labor (CTDOL)

The mission of CTDOL is to protect Connecticut’s workers from labor law violations and promote global economic competitiveness through strengthening the state’s workforce. CTDOL collaborates with business and industry leaders on Registered Apprenticeship programs and other workforce pipeline initiatives, and conducts U.S. Bureau of Labor Statistics research including collecting, analyzing, and disseminating workforce data.

Connecticut Department of Social Services (DSS)

DSS delivers and funds a wide range of programs and services as Connecticut’s multi-faceted health and human services agency. DSS serves about 1 million residents of all ages in all 169 Connecticut cities and towns and supports the basic needs of children, families, older and other adults, including persons with disabilities.

Connecticut Department of Transportation (CTDOT)

The mission of CTDOT is to provide a safe and efficient intermodal transportation network that improves the quality of life and promotes economic vitality for the State and the region.

Connecticut Education Network (CEN)

The Connecticut Education Network (CEN) is a state-owned middle-mile network providing non-discriminatory open-access service throughout the state and is primarily focused on connectivity to community anchor institutions (CAI).

Data and Policy Analytics Unit (DAPA) GIS Office within the Office of Policy and Management

The GIS Office leads efforts to map broadband access, adoption, and use in Connecticut. It is supported by federal and state agencies, internet service providers, and a wide variety of local governments, advocacy organizations, and research institutes.

Department of Administrative Services (DAS)

DAS is committed to providing cost-effective services to State agencies, municipalities, and the people of Connecticut. This department oversees Digital Equity efforts through the Commission for Educational Technology.

Department of Economic and Community Development (DECD)

DECD is the lead agency responsible for strengthening Connecticut’s competitive position in the rapidly changing, knowledge-based global economy.

Department of Energy and Environmental Protection (DEEP)

DEEP is administering the BEAD Program and works to remove barriers to broadband by developing equitable policies and programs that will expand access to fast, affordable, and reliable internet service.



Partners

Description of Current or Planned Role in Broadband Deployment and Adoption

Public Service Sector (continued)

Office of Workforce Strategy (OWS)

The Office of Workforce Strategy (OWS) is an executive branch that serves as the administrative staff to the Governor’s Workforce Council (GWC), which has been tasked with setting strategy and policy for the state’s Pre-K through retirement workforce pipeline, and to serve as the prime coordinator for businesses, educators, trainers, state agencies, state workforce boards, non-profits, and others.

Local Governments

City and town municipal leaders will be key to understanding each community’s current broadband needs and barriers. Municipal support will also provide opportunities for collaboration and local engagement with residents through trusted partners.

Neighborhood Revitalization Zones (NRZs)

The objective of NRZs is to revitalize neighborhoods through the collaborative involvement of residents, businesses, and government to determine the vision and priorities of the individual neighborhoods and to develop a strategic plan to revitalize their neighborhood. These are valuable partners to engage with Covered Populations and identify barriers to broadband adoption and access.

Office of Policy and Management (OPM)

OPM functions as the Governor’s staff agency and plays a central role in state government, providing the information and analysis used to formulate public policy and assisting agencies and municipalities in implementing policy decisions around broadband on the Governor’s behalf.

Office of State Broadband within the Office of Consumer Counsel

The Office of State Broadband is housed in the OCC and advocates for the public interest with broadband service providers and provides consumers with information to promote that interest.

Public Utilities Regulatory Authority (PURA)

PURA is a quasi-judicial agency that interprets and applies the statutes and regulations governing all aspects of Connecticut’s utility sector, including the expansion of telecommunications infrastructure. PURA is charged with ensuring that Connecticut’s investor-owned utilities, including the state’s electric, natural gas, water, and telecommunications companies, provide safe, clean, reliable, and affordable utility service and infrastructure.

Connecticut Council of Government (COG)

Connecticut’s nine planning regions provide a geographic framework within which municipalities can jointly address common interests and coordinate such interests with state plans and programs. Coordination with COGs is critical to understand the state of broadband in their regions, barriers for their residents, and any broadband programs or projects that are currently underway.

Regional, Municipal and Community-Based Broadband Advisory Groups

Local broadband advisory groups have been developed to support efforts on the ground to expand broadband access. Depending on location, committees may be in early planning or already have broken ground on projects. Serving as a resource for these committees and listening to their barriers will help advise State efforts and initiatives.

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
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Private Sector

Chambers of Commerce Organizations	Partnerships with Chambers of Commerce will connect DEEP to various stakeholders within the business community.
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Internet Service Providers (ISPs)	Through a Request for Information (RFI), meetings, and roundtables, DEEP has developed relationships with providers in Connecticut. Working closely with this group allows DEEP to understand the unique challenges to building broadband infrastructure at a local level. Open discussions and feedback have been incorporated into developing strategies and plans to provide all Connecticut residents with affordable high-speed internet access.
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Community-Serving Sector

<u>Connecticut Equity and Environmental Justice Advisory Council (CEEJAC)</u>	The purpose and mission of the CEEJAC is to advise the Commissioner of DEEP on current and historic environmental injustice, pollution reduction, energy equity, climate change mitigation and resiliency, health disparities, and racial inequity issues.
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<u>Connecticut Libraries and Partners for Digital Equity</u>	Connecticut Libraries and Partners for Digital Equity advances the collaboration of libraries, community organizations, state agencies, and philanthropic groups to advocate the achievement of digital equity through universal affordable residential broadband adoption, the provision of devices to all who lack them, digital life skills training, and technical support. They aim to amplify community voices and needs through educational presentations and conversations with libraries, library organizations, library partners, and library stakeholders around the state. The group works to ensure that Connecticut residents have the tools necessary to support education, health, well-being, economic prosperity, and the ability to function fully in society.
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Faith-Based Organizations	Organizations within the faith community can play a role as a trusted partner, providing digital skill training and promoting broadband adoption among their members. Trusted community partners are critical in promoting digital inclusion and ensuring all community members can access broadband services.
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Healthcare Institutions	Many healthcare institutions also serve as centers for community support. There are already efforts underway by many institutions to teach digital skills as an aspect of promoting their telehealth services to deliver healthcare services remotely and are essential in promoting access to healthcare services and improving health outcomes for community members.
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Higher Education Academic Institutions	Higher Education Institutions throughout the state are aware of the need for broadband in a modern and connected world. These institutions will be used for data collection and sharing and may be used in the future for digital literacy and skill building initiatives. Currently, the University of Connecticut (UConn) is working with DEEP to gather information from residents regarding digital equity topics such as internet access, barriers, devices, and internet use.
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Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
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Community-Serving Sector (continued)

Nonprofit Organizations	Nonprofit organizations will serve as trusted community partners for local coordination outreach to Connecticut residents. Examples include but are not limited to AARP Connecticut, CT Family Support Network, Communications Workers of America (CWA) Local 1298, EdAdvance Adult Education, International Brotherhood of Electrical Workers (IBEW), Stamford Public Education Foundation, Independence Northwest, Inc., New Horizons Village, Inc.
Primary and Secondary Academic Institutions	The Everyone Learns Initiative provided funding for primary and secondary schools to help close the digital divide during the pandemic school closures. Working with educational leaders who are already familiar with the barriers to broadband in their community will help DEEP identify areas with digital disconnects and lead to ensuring that all students can access high-speed internet.
State & Public Libraries	Libraries throughout the state have made large efforts to support digital equity and inclusion. According to CEN's 2021 Annual Report, 72% of libraries in the state are members, providing them high-speed internet access in rural areas that may not otherwise have it. Many libraries across the state also have device borrowing programs and digital skills education offerings.
<u>The University of Connecticut (UConn)</u>	UConn is serving as a research partner for Connecticut's Digital Equity program.

3.3 Asset Inventory

The State of Connecticut possesses numerous assets that can be used to support the expansion and deployment of affordable and equitable broadband access. This asset inventory was intended to capture both existing hard assets (e.g., dark fiber and rights-of-way) and soft assets – or efforts (e.g., programs, activities, strategies, skills, technical assistance) that can be leveraged to close the digital divide. Information about assets were collected from private and public stakeholders through detailed interviews and surveys. Additional research and extensive document review were also used to identify relevant assets at the statewide and local levels. This discovery has produced a comprehensive asset inventory which will be leveraged throughout the BEAD program to ensure the strategic utilization of resources. The asset inventory is an ongoing process that will continue to inform the development of the BEAD Program’s Initial and Final Proposals.

Section 3.3.1: Deployment Assets

Section 3.3.2: Adoption Assets

Section 3.3.3: Affordability Assets

Section 3.3.4: Access Assets

Section 3.3.5: Digital Equity Assets

3.3.1 Broadband Deployment Assets

The State of Connecticut owns and manages significant assets to support the expansion of broadband infrastructure, including fiber-optic networks; rights-of-way; and an availability and adoption data clearinghouse. The most relevant deployment resources are described below.

Fiber and Conduit Deployed by the State

The Connecticut Education Network operates a 3,500 route mile, IRU-based network with attachment points in every municipality and leases an additional 500+ route miles of fiber from local providers. CEN is planning a system-wide upgrade of its middle mile infrastructure, including new optical and packet equipment, and additional fiber IRUs. The project will deliver major capacity, resiliency, and performance improvements, and:

- Raise the connection standard to support both 1Gbps and 10Gbps symmetrical dedicated service
- Reduce the cost of connecting unserved and underserved areas to the internet backbone
- Promote resiliency through alternative network connection paths that prevent single points of failure
- Reduce service prices resulting from nondiscriminatory open-access middle mile infrastructure
- Reduce latency experienced by end users in remote or insular areas
- Offer access to the middle mile infrastructure, in perpetuity, on an open access basis
- Enable connection of unserved and underserved anchor institutions
- Utilize community benefit agreements in support of broadband expansion and adoption

The Public Safety Data Network (PSDN), an ultra-high speed and flexible fiber optic data network, serves as a base transport infrastructure and interconnectivity pathway for public safety related applications and services throughout the state. Its primary purpose is to provide the required connectivity for Next Generation 9-1-1 (NG9-1-1) services. In addition, the PSDN provides a single connectivity source to allow the integration of systems, applications, and disparate networks so that vital information and resources can be more easily shared among the various public safety entities throughout the state. The installation of fiber and required network equipment is now complete at every Public Safety Answering Point (PSAP) in the state.

Municipal Gains

Pursuant to Conn. Gen. Stat. § 16-233, a municipality may, at no cost, occupy “one gain upon each public utility pole or in each underground communications duct system installed by a public service company within the limits of any such town.”¹¹¹ Given this ability, there may be opportunities for a municipality to promote the building of broadband networks to support high-speed internet access for services used by residents, businesses, health care providers, and government services.

Mapping & Data Collection

The State of Connecticut initiated the collection of broadband availability and adoption data from ISPs in March 2022, following the enactment of PA 21-159 (“An Act Concerning Equitable Access to Broadband”) in the previous year. As of June 1, 2023, three rounds of submissions have been completed by providers. The State publishes its comprehensive broadband data on the website <https://broadbandmaps.ct.gov/>. Additionally, the State incorporates ancillary data from sources such as the American Community Survey, ACP, and State surveys to gain a more comprehensive understanding of the broadband landscape. This data was processed and matched with the GIS Office’s address layer to create the State’s broadband maps. This data is a step towards improving the understanding of the state’s broadband strengths and weaknesses. However, in concert with other publicly available data sources, the State now has the clearest picture yet of where issues lie.

Existing Rights of Way

Broadband networks are built along public land that runs alongside roads and railways or private land and facilities, known as the Rights of Way (ROWs). Access to public infrastructure such as utility poles, ROWs, and underground conduits makes it easy and cost-effective for incumbent broadband providers to deploy new fiber cable and reach customers. Since the pandemic, PURA has accelerated its multi-pronged approach to addressing pole integrity and pole access issues in CT through various pole attachment adjudicative proceedings and enforcement proceedings. Equal access to public infrastructure by all telecommunications providers, including new entrants, promotes competition and expedites the building of fiber networks. Lowering the financial and technical hurdles to pole access would reduce discrimination among potential providers.

Available Funding

DEEP seeks to strategically leverage funding supporting broadband expansion and digital equity. This includes funding leveraged in concert with the Commission. The funding sources, amounts, and descriptions of current programs (at the time of publication) are articulated in [Table 4 of Section 3.1](#). Additional details on upcoming programs, including the BEAD and Digital Equity Programs can be found in [Section 5.3](#). DEEP anticipates the need to raise additional funds to supplement future activities as the programs grow.

3.3.2 Broadband Adoption Assets

The State of Connecticut continues to identify resources that facilitate broadband adoption, including trusted community partner organizations and initiatives to connect students and their families. The most relevant adoption resources are described below.

86.7% of eligible locations in Connecticut have adopted broadband^{iv}

Community Anchor Institutions (CAIs)

Community Anchor Institutions^v serve as both a resource and champion for broadband adoption. In Connecticut, CAIs benefit from access to gigabit connections through various providers, including CEN, Crown Castle, Frontier, and several cable providers. At present, CEN serves over 760 member institutions connecting thousands of CAIs to the Internet and Internet2 backbones. The State has officially mapped 4,142 CAIs based on the BEAD Program definition and has been actively identifying potential CAIs through surveys and community outreach since the summer of 2022. Currently, the State is conducting a survey to gather information about potentially BEAD-eligible CAIs and the extent of programs aimed at facilitating the greater use of broadband by vulnerable populations.

Everybody Learns Initiative

In 2020, Governor Ned Lamont's administration launched the Everybody Learns Initiative to support remote learning by providing a computer and home internet connection to every K-12 public school student who needed one.^{vi} Throughout the 2020-2021 school year, school districts distributed 140,000 computers and nearly 13,000 hotspots to students across all districts, with priority to communities hardest hit by the COVID-19 pandemic. Eligible families received vouchers for cable internet connections which provided 24 months of connectivity. School districts own the computers and cellular hotspots, and they could be deployed again to support student connectivity and computing needs.

Currently, the Everybody Learns Initiative is working to implement phase two by offering free, outdoor Wi-Fi to eligible towns and locations through CEN's statewide connectivity infrastructure. The build out of community wireless networks through CAIs provided free, and public wireless hotspots at nearly 200 community sites to enable distance learning, business development, and telehealth. The public-private partnership with CEN leverages community assets such as public libraries, municipal buildings, and schools. CEN's public Wi-Fi initiatives are discussed in greater detail in [Section 3.3.4](#).

3.3.3 Broadband Affordability Assets

The State of Connecticut has facilitated the utilization and expansion of numerous affordability mechanisms with the goal of reducing the financial burden of internet service on residents and businesses. The most relevant affordability resources are described below.

The Affordable Connectivity Program (ACP)

The ACP is the FCC's benefit program that replaced the Emergency Broadband Benefit program created during the height of the COVID-19 pandemic. The benefit provides a discount up to \$30 per month towards internet services for eligible households. Qualifying tribal households could receive up to \$75 towards internet services.

Within Connecticut, an estimated 789,397 (22.5%) residents are eligible for ACP with 153,882 (4.4%) residents actively enrolled in ACP as of May 2023.^{vii} Discount device programs are offered by service providers and provide a discounted laptop, desktop computer, or tablet. To be eligible for this discount, a resident must pay more than \$10 and no more than \$50 toward the purchase price and the device must be purchased through the provider. Connecticut has 27 broadband providers that offer plans that are free for end users when combined with ACP.

Lifeline

Lifeline is an FCC-mandated program for telephone customers on state or federal assistance programs. The program reduces their recurring monthly charges by \$9.25 per month for local exchange service and up to \$34.25 per month for those on tribal lands. To qualify, a customer must either have an income that is at or below 135% of the federal poverty level or participate in one of the federal assistance programs such as SNAP, Supplemental Security Income (SSI), Medicaid, Federal Public Housing Assistance, Tribal-specific programs, or Veterans Pension and Survivors Benefit programs. All providers of local telephone service are required to offer the Lifeline credit to qualifying customers who request it. Within Connecticut, an estimated 410,540 (11.7%) residents are eligible to receive Lifeline credits with only 65,748 (16%) of those eligible residents receiving credits in April 2023, according to the Universal Service Administrative Company.

Free and Low-Cost Service Plans

After the Biden-Harris Administration announced that 20 ISPs would offer at least one service plan with a minimum of 100 Mbps download for no more than \$30 per month with no additional fees or data caps, many ISPs followed suit with discounted plans of their own. These plans typically have eligibility requirements linked to income or program enrollment and offer plans at or below \$30 per month which can be fully subsidized when combined with the ACP. Potential beneficiaries of these offers can find participating companies by using a search tool supported by the FCC.

Transparency in Service Plan Pricing

In the process of expanding high-speed internet access, the State of Connecticut is considering strategies to end hidden internet fees and protect consumers from unsavory marketing and sales tactics. The State has engaged in legal and regulatory proceedings to address deceitful practices by telecommunications and broadband service providers as recently as 2022, successfully requiring the provider to mitigate their offenses by expanding and upgrading service in economically distressed communities, improving customer service, and removing hidden fees. DEEP will continue to work with the Office of Consumer Counsel, the Public Utilities Regulatory Authority, and the Office of the Attorney General to investigate and confront these instances in order to protect consumers and facilitate equitable access to services.

Potential Local Affordability Models

Towns, cities, and other municipalities can play an important role in increasing affordability of broadband access for residents. Many states and municipalities across the country have leveraged the benefit of partnerships where financial partners, infrastructure builders, network operators, and service providers come together to deliver affordable and robust broadband solutions. Three types of local models, described below, have already been adopted. Expansion and increased adoption of these models, as well as exploration of new models, could be encouraged through BEAD efforts.

Town of East Hartford: SiFi Networks (FiberCity®) and the town of East Hartford have joined forces to build East Hartford FiberCity®, an open-access fiber network that will span the entirety of the town. This network will provide high-speed internet, television, and phone services that are approximately 50 times faster than the national average and will be the fastest available in the State. East Hartford FiberCity® will pass by every home and business, enabling everyone the opportunity to connect. The open-access network may help foster increased competition among ISPs, enterprises, and carriers, which could lead to improved connectivity and competitive pricing for town residents.

City of New Britain: GoNetspeed (a high-speed fiber ISP) won the New Britain City-Wide Fiber Project bid in June 2022 to build a 175-mile fiber optic internet network throughout the city. The network will have the ability to provide high-speed fiber internet to more than 30,000 families and businesses and reach more than 70,000 residents. As of March 2023, over 5,500 addresses through the South End of New Britain are eligible to sign up for the new fiber internet service. The project is funded by ARPA funds and represents Connecticut's first, and most extensive, public-private fiber optic internet partnership. GoNetspeed will be offering affordable pricing to residents connected to their fiber network, with plans starting at \$39.99 a month including a free router. GoNetspeed participates in the ACP, which will allow eligible residents to access the same high-quality service at a discount.

Town of Sharon: The Sharon Connect Task Force is an all-volunteer task force of concerned residents formed in 2019 to advise the Town's Board of Selectmen on options to provide high-speed connectivity to all residents. The Task Force has meticulously researched connectivity options, including multiple models with varying degree of public-private partnership. Models evaluated and presented to the community include a municipal (Town-owned) network and potential partnerships with two ISPs for a private network build (Comcast and Frontier). Options were evaluated on multiple criteria including cost to build the network, number of underserved homes that would be connected, service options and monthly pricing models, project timeline, and projected impacts on real estate prices and emergency safety. Comcast was selected as the Town's private partner and construction of the new, high-speed internet service began in May 2023.

3.3.4 Broadband Access Assets

The State of Connecticut is working to enhance public access to the internet through a variety of initiatives. The most relevant resources related to access are described below.

Public Wi-Fi via Connecticut Education Network (CEN)

CEN was established in 2000 and has played a critical role in the broadband landscape for over 20 years as a part of the State's education technology program to achieve technology goals statewide. CEN, as discussed in [Section 3.3.1](#), will be instrumental in connecting emerging last mile projects and community anchor institutions through their middle-mile infrastructure, and currently provides connectivity to public K-12 school districts, public and non-profit private universities, public libraries, municipalities, cultural arts institutions, and open-access entities. CEN does not receive annual state appropriations and operates in a cost-recovery not-for-profit model. Episodic funding for installation and updates of the infrastructure comes from a combination of self-sustaining, federal, state, and other sources.

CEN's network benefits over 760 member institutions by providing secure, high-capacity, and ultra high-performance connectivity. The network was designed to meet the rigors required by research and education institutions, with a minimum of 1 Gigabit symmetrical speeds and has plans underway to upgrade to a dedicated 10 Gigabit connection standard. The CEN serves approximately 1.9 million residents in the State through its connected network of community anchor institutions.

During the COVID-19 pandemic, CEN extended its support to CAIs by providing free outdoor public Wi-Fi to nearly 200 sites as part of Governor Lamont's Everybody Learns Initiative. CEN attached Wi-Fi access points to its backbone network to provide walk-up or drive-up internet access to residents with distance learning, business development, and telehealth needs. Existing community assets such as public libraries, municipal buildings, and public schools were leveraged to provide to two Wi-Fi networks over the same access points, eduroam and CTPublicWIFI, to support public education institution needs and general citizen needs, respectively. Subsidized support for both wireless access point networks continued through December 31, 2022. CEN continues to subsidize eduroam licenses for public K-12 schools, public libraries, and cultural arts institutions.

CEN is one of two purpose-built statewide networks in Connecticut, the other being the Public Safety Data Network (PSDN). Together, these networks form the Nutmeg Network, connecting over 1,000 points of presence across the state and providing service to nearly every CAI through resilient, flexible, fiber-based, high-performance networks.



CEN Connect

The State of Connecticut has allocated ARPA CPF to CEN to implement five programs, collectively called CEN Connect. CEN Connect will include both new projects and expansion of previous efforts.

- **CEN Next Generation Infrastructure (NGI)** An update to the CEN infrastructure network to expand capacity, accommodate new members, and serve as the backbone and attachment point for high-performance community wireless projects. The network will provide high-capacity internet to more than 670 member intuitions connecting thousands of CAIs and roughly 50% of all Connecticut residents.
- **Community Wireless Project, Phase 2 (CWIFI)** A funding opportunity for entities to build wireless internet access in underserved areas, economically disadvantaged communities, and communities of color. Municipal partnerships and models of sustainability will be encouraged.
- **Municipality Fiber Internet Connectivity Program (MFICP)** A program to provide fiber builds to connect all municipalities not yet directly connected to the CEN infrastructure network.
- **Library Fiber Internet Connectivity Program (LFICP)** A program to provide fiber builds to connect all public libraries not yet connected to the CEN infrastructure network.
- **Charter School Fiber Internet Connectivity Program** A program to provide fiber builds to connect all public charter schools not yet connected to the CEN infrastructure network.

CEN Connect will play a significant role in increasing secure, high-quality, and high-speed broadband access for public organizations and CAIs by utilizing CEN's existing statewide infrastructure and access to the public Internet and Internet2.

Fiber to the Library | Internal Connections

CEN uses its open-access, fiber infrastructure to support community coalition initiatives. Fiber to the Library - Internal Connections (FTTL-IC) is a joint effort between CEN, the Connecticut State Library, and Novus Insight, a Managed Service Provider (MSP) specializing in IT services in the East Hartford area. The primary goal of this initiative is to improve the internet and network-based experience of local libraries by assessing, addressing, and optimizing internal connections within the network infrastructure. FTTL-IC aims to upgrade network data infrastructure, provide cost-effective network solutions, maximize available bandwidth, implement standardized solutions to minimize complexity, and streamline support processes. These upgrades to public library infrastructure will significantly enhance library operations, increase patron usage, and narrow the digital divide in communities throughout the State.

3.3.5 Digital Equity Assets

The State of Connecticut supports numerous partnerships and initiatives to increase digital equity and inclusion via digital navigation and skills-building programs. The most relevant digital equity resources are described below.

Connecticut Libraries and Partners for Digital Equity (CTLPDE)

CT Libraries and Partners for Digital Equity, a project of the CT State Library, is an alliance that seeks to bring together libraries and community organizations to advocate digital equity through universal affordable residential broadband adoption, the provision of devices to all who lack them, digital life skills training via one-on-one and long-term mentorship, and technical support. The task force came together in anticipation of the growth of the digital equity ecosystem under the leadership of the State of Connecticut and funding from the Infrastructure Investment and Jobs Act, the Digital Equity Act, and philanthropy. It aims to lift-up the role of libraries and to amplify community voices and needs through educational presentations and conversations with stakeholders within our communities. CTLPDE is working to ensure that all Connecticut residents have the tools necessary to support their education, health, well-being, economic prosperity, and ability to fully function in society. The coalition's priorities include broadband access, device access, digital skills training, and technical support through community digital navigation programs and services.

CTLPDE convenes monthly meetings for community organizations, libraries, government agencies, and other public-serving institutions to collaborate on digital equity efforts, learn from pilot projects, and increase statewide alignment on digital equity initiatives. Educational presentations and conversations with stakeholders have been held in the community, to ensure that all voices and perspectives are heard and represented. The CTLPDE website provides free, comprehensive resources for libraries, community organizations, and local government agencies looking to start or sustain digital equity and navigation projects in their communities.

Digital Navigator Programs

Individuals facing digital exclusion experience significant challenges accessing essential online services and resources. To overcome this, digital navigators can provide invaluable assistance. Digital Navigators are experts in guiding users through the entire digital inclusion process, from home connectivity and device access to digital literacy skills. By building ongoing relationships with community members, digital navigators become trusted guides who can provide sustained support and guidance to those in need. To ensure the effectiveness of these programs, it is recommended that community anchor institutions host and support digital navigator initiatives. These institutions are well-equipped to provide the necessary resources and infrastructure to help support digital inclusion efforts and can ensure that these programs are available to those who need them most.

The Connecticut State Library was granted ARPA funds from the Institute of Museum and Library Services in 2021 to deploy digital navigators who work one-on-one with residents. These navigators assist in establishing connectivity and teaching individuals how to utilize telehealth, employment assistance, social services, educational resources, and cultural enrichment websites. The grant includes activities such as mapping community needs, providing staff professional development, and deploying navigators to assist residents who may have been traditionally disenfranchised. The overall objective of the program is to aid community members in achieving their connectivity goals, which may range from work and academic endeavors to community involvement.



Local Digital Skills Programs

Public libraries are particularly suited to support digital skills training and assistance, as they may be the community's only free resource for the internet, technology, and education. Libraries serve as important CAIs that strengthen the local and regional network of learning. Given their essential roles in communities, public librarians must have the resources and education support they need to support residents learning digital skills for the first time.

To support Connecticut's digital equity efforts, the Connecticut State Library, Division of Library Development has purchased a subscription for librarians to Northstar Digital Literacy. This service provides assessments, instructor-led curricula, and self-directed online learning for basic digital literacy skills. Northstar Digital Literacy provides standards relevant to libraries that offer digital navigation support, such as Essential Computer Skills, Essential Software Skills, and Using Technology in Daily Life.

Local and regional non-profit organizations are also incorporating digital literacy into community engagement initiatives and services. Examples include:

[Literacy Volunteers of Greater Hartford \(LVGH\)](#) has provided adult literacy services in Greater Hartford since 1972 to help build a stronger, more resilient, and fully literate community. LVGH's Educational Technology program provides individualized, volunteer-led tutoring for students interested in learning basic internet navigation and word processing skills. Students may also learn how to set up an email address, search for a job, and obtain a driver's license online.

For adult residents of Greater Waterbury, the non-profit organization [Waterbury Opportunities Industrialization Center, Inc. \(WOIC\)](#) offers no cost computer training courses. WOIC has worked since 1974 to provide free life skills and job preparation programs for low-income communities. Another opportunity available to residents of Waterbury includes free computer workshops for job seekers, hosted by American Job Centers.

Since 2011, [CfAL for Digital Inclusion](#) has offered free computer literacy classes for youth and adults in New Haven. Courses offered support a variety of learning styles and abilities, ranging from hands-on one-on-one support to instructor-led courses up to six weeks in duration. Students looking to focus on job seeking skills and workforce development can receive free, in-person training to bolster their computer skills. In 2020 CfAL expanded their training support to residents of the Fair Haven neighborhood by opening a new computer lab. Graduates of training courses there have learned how to apply for jobs online, use Microsoft Word and Excel, build a household budget, and create a resume. Over 615 students have graduated from CfAL's programs. To further support students, CfAL donates a refurbished computer or tablet to each graduate, including one year of technical support. CfAL is just one project overseen by the New Haven Innovation Collaborative and grant-funded by the CTNext Innovation Places program. Other Innovation Collaborative technology projects include Girls Who Code chapters, a virtual Learn to Code series, a Tech4Teens virtual summer camp, and more.

3.4 Needs & Gaps Assessment

To obtain a comprehensive understanding of the state of broadband in Connecticut, DEEP designed and conducted a needs assessment that includes existing broadband data (both qualitative and quantitative), several in-depth stakeholder engagement sessions, a community organization survey for CAIs, close research of available local data, the solicitation and validation of local ISP provided data under non-disclosure agreements (NDAs), resident feedback, an RFI process, and analysis of national data trends. The results of this needs assessment show the current state of broadband in Connecticut, the needs of communities, and the high-level solutions to bridge the gap between them. The needs assessment is an ongoing process that will continue to inform program design, but this section represents the most recent data at the time of publishing.

Section 3.4.1: Deployment Needs & Gaps

Section 3.4.2: Adoption Needs & Gaps

Section 3.4.3: Affordability Needs & Gaps

Section 3.4.4: Access Needs & Gaps

Section 3.4.5: Digital Equity Needs & Gaps

3.4.1 Broadband Deployment Needs & Gaps

Service Availability Barriers

Overall, Connecticut is in a strong position to narrow the digital divide. The availability of high-speed internet surpassing the FCC's definition of served (100 Mbps download/20 Mbps upload) is widespread and the State is making significant progress toward its goal of universal access to 1 Gbps/100 Mbps. There are significant problem areas for availability in a handful of rural, low density concentrated areas throughout the state. Adoption and use are still a significant issue and are, in large part, a reflection of poverty and income inequality issues or exist in rural areas where quality service is not readily available.

Despite significant progress, the State faces challenges to improve its broadband infrastructure. There is still need for greater service options so that residents and businesses alike can choose the service that is most suited to their needs while pricing becomes more affordable, as well as the need for future-proof technologies like high-capacity fiber optic that meet the State's universal access goals and the requirement of the BEAD program. Rural areas in the eastern part of the state still have significant concentrations of unserved locations. The Northwest Hills planning region is home to five of the 10 towns in the state with the highest percentage of unserved homes. Additionally, the Northeastern Connecticut planning region is home to four of the 10 towns in the state with the highest percentage of unserved homes. There is still work to do to collecting data on locations that are at the edge of incumbent providers service areas or maximum driveway length for a no-cost installation in other rural areas of the state. Finally, there are still questions about the level of access available to residents in older multi-dwelling units where old wiring and construction materials can reduce access to high speeds.

Service to Unserved and Underserved Locations

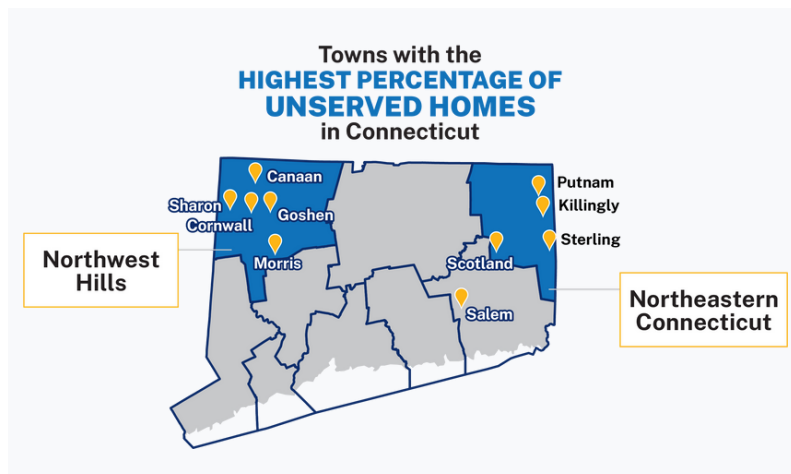
Based on State-collected data and analysis, the number of unserved locations is reported to be fewer than 10,000 as of December 2022. According to the latest release of the FCC National Broadband Map data (June 15, 2023), there are approximately 11,693 unserved and 4,065 underserved Broadband Serviceable Locations (BSLs) in Connecticut. This illustrates disparities between publicly available data sets, including those from the FCC and CostQuest, and state collected data solicited from ISPs.

The discrepancy between these numbers can be attributed primarily to four factors:

- 1. Changes in ISP submissions:** The variations in reported data may arise from updates or modifications in the submissions made by ISPs to the FCC.
- 2. Analyses indicating the co-location of unserved and BSLs:** Certain analyses demonstrate instances where unserved areas and areas with existing broadband service overlap, leading to differences in classification.
- 3. Co-location of unserved BSLs that have speed tests indicating connections at "served" speeds:** In some cases, supposedly unserved BSLs may also show speed tests that indicate internet connectivity at speeds considered to be "served," further complicating the classification process.
- 4. Incorrect identification of remaining "unserved" BSLs:** Some BSLs that are still categorized as "unserved" may be incorrectly identified due to data collection or interpretation errors.

These factors contribute to the conflict in numbers between the FCC and the State's broadband mapping program regarding the classification of unserved and underserved locations in Connecticut and will be addressed during the BEAD challenge process.

Despite notable disparities, there are common findings that highlight key areas of focus for state broadband programs. For example, all datasets support the finding that many of Connecticut's unserved locations are concentrated in Northwest Hills and Northeast Connecticut planning regions. These regions possess a more rural character than other areas of the state, which is exemplified by the fact that the Northwest Hills and Northeast Connecticut planning regions have the



lowest population densities in the state. When evaluating the percentages of unserved and underserved BSLs, the Northwest and Northeast regions have over twice the percentage of unserved and underserved BSLs of any other region, with these BSLs being more frequently characterized by large-lot and agricultural properties that require non-standard installations by ISPs.

Moreover, a considerable portion of all unserved locations are likely non-standard installations. Due to the absence of precise data regarding ISP infrastructure, the estimation of these numbers relies on rough approximations, such as identifying structures located more than 300 feet away from the public right of way. According to the State's analysis, non-standard installations constitute over 60% of unserved locations.

Key characteristics of locations in Connecticut that lack adequate service:

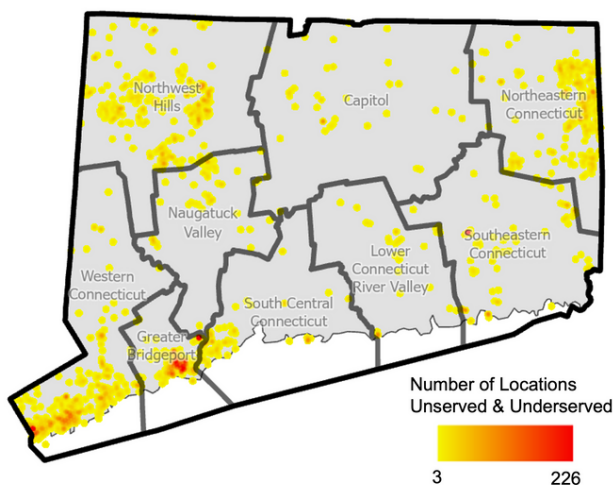
1. **"Long-driveway" unserved locations:** There are a significant number of unserved locations that may have installation issues related to a business or residence's distance from existing infrastructure, often imposing a greater financial burden on the potential customer. According to both the State and the FCC's Broadband Data Maps, these account for an estimated 5,000 to 6,000 unserved locations.
2. **Region-specific challenges:** The Northwest Hills Region and the Northeastern Connecticut Region exhibit the most notable concentrations of unserved locations. Due to several geographic challenges, these areas have experienced a higher concentration of communities that lack access to reliable broadband services.

According to the FCC's latest data, approximately 1.1% of all locations in Connecticut are classified as unserved, while only 0.4% are categorized as underserved. There are approximately 4,065 underserved BSLs in Connecticut. Concentrations exist in the Northwest Hills and Northeastern Connecticut planning regions. Additionally, concentrations of underserved locations exist in the Bridgeport and Stamford urban areas. In these urban areas, adoption of broadband by marginalized populations may be the primary obstacle to overcome.

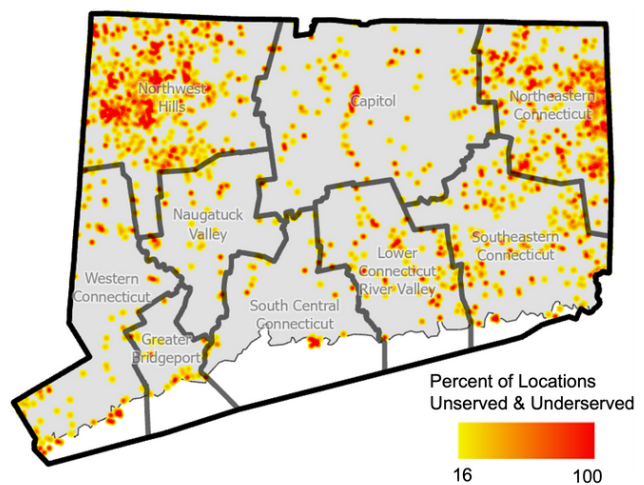
When visualizing data of the locations of unserved and underserved areas, two methods prevail. Unserved and underserved locations can be viewed as either a raw count of locations or as a percentage of total locations. These methods produce contrasting results that both give valid insight into the state of broadband in Connecticut.

Some areas, namely the Greenwich, Stamford, and Bridgeport urban areas, possess a large number of unserved and underserved locations even though the overall percentage of unserved and underserved locations is relatively low in dense urban settings where most locations are served.

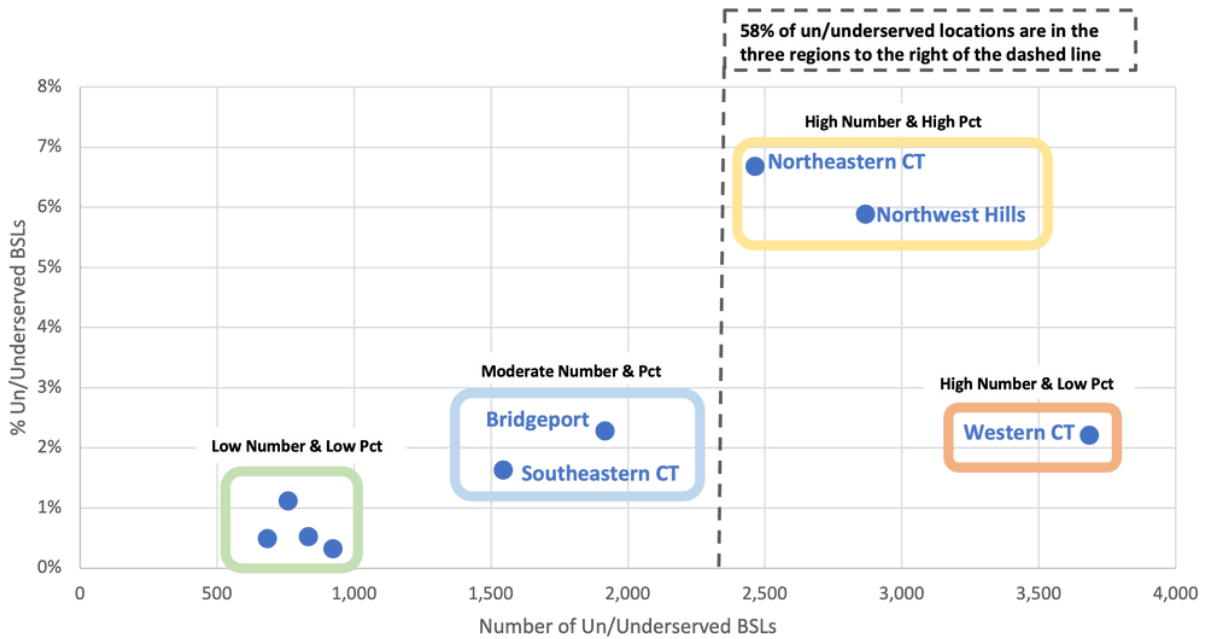
Number of Unserved & Underserved Locations



Percent of Unserved & Underserved Locations



In contrast, when the data is viewed as a percentage, issues in the more rural northwest and northeast regions become apparent. In these areas, there are a lower number of total broadband serviceable locations. But the prevalence of broadband service is also lower.



As shown above, the majority (58%) of unserved and underserved locations are located in three COGs: Northeastern Connecticut, Northwest Hills, and Western Connecticut.

Unserved & Underserved Locations by COG

COG	Unserved	Underserved	Unserved Underserved	Total Locations	Percent Unserved and Underserved
CT Metropolitan	952	868	1820	84016	2%
Capitol Region	719	207	926	287519	0%
Lower CT River Valley	637	106	743	67107	1%
Naugatuck Valley	535	144	679	137790	0%
Northeastern CT	1878	506	2384	36706	6%
Northwest Hills	2470	403	2873	48641	6%
South Central CT	524	300	824	159867	1%
Southeastern CT	1336	309	1645	95804	2%
Western CT	2532	1113	3645	167719	2%
Locations included in CT Fabric that are not within CT boundaries	33	1	34	74	46%
Totals	11616	3957	15573	1085243	1%

Supply Chain Interruptions

The state of Connecticut is subject to the same material supply chain issues that the rest of the nation is facing. According to new data from the Fiber Broadband Association's [Strategies to Mitigate Bottlenecks in the Current Fiber Broadband Supply Chain](#) white paper, some categories of broadband equipment have seen up to 92% faster lead times compared to 2022. However, delays in manufacturing and shipping times caused by the COVID-19 pandemic have not been fully resolved. The broadband equipment market is volatile, like other markets, and unforeseen circumstances may also cause future supply chain issues. As the implementation phase of BEAD approaches, DEEP will continue to monitor fluctuations in supply chain availability to minimize predictable delays.

Permitting

For all construction projects including broadband projects, permits are required to access ROWs. Typically, permits are obtained from the authority having jurisdiction (AHJ) and can be a state, county, local or other political subdivisions. Providers are required to obtain permits from these AHJs which often take weeks or months depending on how many permits are needed. Smaller municipalities tend to have limited staffing to process permitting applications. Ultimately, obtaining permits and the associated costs may lead to delays in project progression and an increase for internet service providers/subcontractors. Streamlining the process of obtaining permits and hiring additional employees to process applications can reduce delays but municipalities typically lack funding to hire additional help.

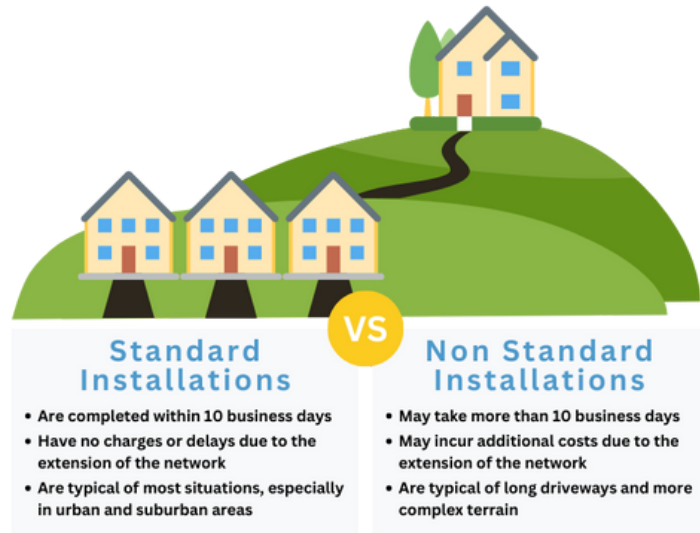
To mitigate these challenges, DEEP has developed a [Client Concierge Service](#) with a dedicated team to help guide stakeholders through the permitting process for complex projects. The team specializes in priority projects with ambitious time frames, projects with a significant economic impact, and projects involving multiple permit programs. They also help applicants coordinate across multiple divisions within DEEP or between DEEP and other State agencies, as needed, to expedite the permitting process while upholding DEEP's core mission of protecting and enhancing the quality of Connecticut's air, water, and lands.

Pole Attachments

An estimated 85% of telecommunications and broadband infrastructure in Connecticut is aerial. However, the process of obtaining attachments can be challenging and time-consuming, leading to delays. To address this issue, PURA initiated docket 19-01-52RE01 to investigate the development of a third-party pole attachment process. OCC and DEEP advocated for the establishment of a one-touch make ready process to enable pole attachers to obtain access to utility poles for expeditious and cost-effective broadband deployment. The State will continue to identify opportunities to benefit broadband consumers, facilitate timely project completion, and maximize the utilization of available federal funds. DEEP has joined the pole attachment working group which was established by PURA and consists of representatives of the pole owners and attachers, OCC, and some municipalities. PURA's EOE division moderates the working group and also serves as a pole attachment complaint mediator.

Funding Barriers & Solutions for High-Cost Locations

Some rural homeowners in Connecticut lack access to broadband due to the difficulties and cost related to their homes having long driveways. Typically, broadband infrastructure is built under or along public roads and doesn't require much cabling to get a resident access directly to their home, which would be considered a "standard installation." A standard broadband installation is defined in the Broadband DATA Act (47 U.S.C. § 641(14)) as "[t]he initiation by a provider of fixed broadband internet access service [within 10 business days of a request] in an area in which the provider has not previously offered that service, with no charges or delays attributable to the extension of the network of the provider." Having a long driveway often calls for construction that takes more than the ten business days, and therefore categorized as "non-standard." In many cases, ISPs are reluctant to build in areas where they must incur additional cost to run broadband infrastructure and may charge the end user the additional cost to connect their home via non-standard installation means. Some homeowners are unwilling or unable to pay to bring service to their home.



Existing and potential future solutions for funding high-cost areas:

- **FCC Universal Service Program for High-Cost Areas:** The federal universal service high-cost program (also known as the Connect America Fund) is designed to ensure that consumers in rural, insular, and high-cost areas have access to modern communications networks capable of providing voice and broadband service, both fixed and mobile, at rates that are reasonably comparable to those in urban areas. The program fulfills this universal service goal by allowing eligible carriers who serve these areas to recover some of their costs from the federal Universal Service Fund.
- **Universal Service Administrative Company (USAC) High-Cost Program:** The High-Cost program provides support through more than a dozen separate legacy and modernized funds to eligible telecommunications carriers (ETCs) to deliver affordable voice and broadband service in rural areas that would otherwise be unserved or underserved. The legacy funds support voice service and the modernized funds that make up the Connect America Fund (CAF) program are bringing broadband to rural America.
- **Set Threshold for Extremely High-Cost Locations:** Connecticut will establish its Extremely High Cost Per Location Threshold for the BEAD Program in a manner that maximizes use of the best available technology while ensuring that the program can meet the prioritization and scoring. To meet NTIA expectations, Connecticut will work to set the Extremely High Cost Per Location Threshold as high as possible to help ensure that end-to-end fiber projects are deployed wherever feasible. This process will be detailed in the BEAD Initial Proposal.

Workforce Gaps

Assessing Connecticut's available workforce to deploy broadband is integral to the success of the BEAD program. The BEAD Program will require skilled professionals from several backgrounds collaborate to plan, design, and deploy the infrastructure needed to get all residents connected. The US Bureau of Labor Statistics (BLS), projects positive growth. However, the telecommunications industry specifically is currently experiencing a shortage of skilled professionals, which could potentially hinder the nation's efforts to expand wireless broadband coverage across urban, suburban, and rural areas. According to the BLS, in 2022, the last year of data available, there were 2,900 Telecommunications Equipment Installers, Repairers and Line Installers employed in Connecticut.

With regard to developing the telecommunications workforce, DEEP has identified two fiber training programs, one offered by BTS Training in Wallingford, CT and the other by BDI Datalynk. Both training programs offer courses that will prepare participants for a successful career in telecommunications and will be used as a local resource to build the workforce along with local resources such as the Office of Workforce Strategy and the Governor's Workforce Council.

To fill this gap, Connecticut will explore utilizing existing resources such as the local Office of Workforce Strategy and the Governor's Workforce Council. In addition, as Connecticut continues to develop formalized broadband training programs within the state, DEEP will consider recommending that incumbent ISPs participate in the Telecommunications Industry Registered Apprenticeship Program (TIRAP). This program is jointly funded by the DOL and Wireless Infrastructure Association and provides technical assistance, training resources, support, and access to incentive funding for registered employers. The State will also explore training partnerships with IBEW, who is constructing a broadband-specific infrastructure training facility in Connecticut to facilitate the development of trained technicians. Finally, the State will also explore facilitating partnership programs with community colleges and technical schools as modeled by service providers and other states in the New England region.

As DEEP continues to develop the Initial Proposal, it will work closely with local workforce development agencies to produce a strategy to ensure a highly skilled workforce is available to deploy broadband in the state. Ultimately, this multi-faceted workforce strategy will assist service providers and contractors in developing the workforce and ensuring adequate broadband-related labor is available for the implementation of the BEAD program.

3.4.2 Broadband Adoption

Connecticut Broadband Adoption Overview

According to the American Community Survey, approximately 87% of all Connecticut households have a broadband connection. State-collected data shows a similar figure of 86.7% when accounting for subscriptions at all mass-market locations in the state – residential and business. However, unlike the ACS, State-collected data from ISPs also offers a window into the speeds adopted by residents. While access to service is high statewide, adoption at the broadband speeds is lower: only 30.2% of locations hold subscriptions that meet the FCC’s definition of served while nearly half (47.3%) of locations have subscriptions to service plans with speeds considered underserved.

The lowest adoption rates are concentrated in census tracts with high poverty rates. Both ACS and State-collected data sources show that undersubscription is concentrated in rural areas in the northwest corner and east of the state and more primarily in large cities with higher-than-average poverty levels as seen below. These geographic trends point to the relationship between access to high quality service and adoption and the importance of affordability in increasing broadband adoption. Affordability is discussed in greater depth in [Section 3.4.3](#).

The state’s capitol of Hartford symbolizes this relationship. Hartford has both the highest percentage of residents living under 150% of poverty in the state and the lowest subscription rate in the state (according to both ACS and OPM 2022 data). Even within Hartford, the variation of subscription rates and income is instructive. Areas with the highest poverty rates, such as the west side of Blue Hills, Frog Hollow, Sheldon Charter Oak, Clay Arsenal and Upper Albany also exhibit the lowest levels of internet subscriptions, while lower poverty areas such as the West End, Behind the Rocks, and Southwest have broadband subscription rates closer in line with the rest of the state. In considering how adoption rates correlate to affordability, further research is needed to determine whether a lack of internet infrastructure in low-income areas has impacted these communities’ ability to adopt service. To that end, the state would benefit from a comprehensive map of broadband infrastructure to help track the relationship between availability and adoption.

Adoption Barriers

DEEP has identified three major barriers to broadband adoption for households and businesses that have an available connection.

Affordability

**Digital Skills
& Devices**

Trust



Affordability

According to a 2022 analysis by the NTIA's Office of Policy Analysis and Development, households without a broadband subscription would prefer to pay a mean price of \$10 for a monthly plan, while households that cited a lack of need or interest in home internet service were only willing to pay \$6 per month on average, with 83 percent of the group giving an answer of \$0.56. However, the average monthly cost of service in Connecticut is \$50-70.57. This cost is too high for Connecticut residents most in need of affordable access to broadband internet. Given the strong association between income and affordability of broadband service, financial assistance for low-income consumers will be explored as a potential strategy to increase adoption in conjunction with the BEAD Program. Affordability is discussed in greater depth in [Section 3.4.3](#).

Digital Skills and Devices

Digital Skills-Building

While access to high-speed internet is increasingly available, a considerable portion of the population remains unable to fully utilize these services because they have not had access to skill building related to digital technologies. Without the necessary skills and knowledge to navigate the online world safely, individuals face difficulties in benefiting from the wide range of opportunities offered by broadband connectivity. Participation in society, democracy and the economy of the state, a condition of digital equity, necessitates learning the skills to utilize a computer, connection, and software. One recent study suggests that, even for entry-level jobs, 95 percent of positions require proficiency in digital skills. From online education and remote work to e-commerce and accessing essential services, the digital divide created by insufficient digital skills further exacerbates existing socio-economic disparities. Bridging this gap requires concerted efforts by State and local partners in providing digital literacy training programs and resources to empower individuals and communities.

Disability and the Digital Divide

According to a 2022 report from the United State Department of Labor, people with disabilities use the internet at lower rates and more often cite cost as a barrier to home use than those without a disability. The report also found that from 2015 and 2019, 91.5 percent of people without documented disabilities lived in a household with an internet subscription, as opposed to only 78.4 percent of people with disabilities. Connecticut is home to a number of critical organizations working on programs and initiatives to increase the independence and improve the lives of individuals with disabilities such as the Connecticut Tech Act Project which operates out of the Department of Aging and Disability Services, and Disability Rights Connecticut, a nonprofit advocacy organization, and will continue to utilize their expertise to help bridge the digital divide.

Community-level Access to Translation Services

Throughout Connecticut, there are significant populations with limited English proficiency (LEP). The portion of the population who primarily speak a language other than English at home ranges from 10.3% to 29.5%, depending on the locality. Some regions have large Spanish-speaking populations, some have large Portuguese- or Italian-speaking populations, some have large Chinese- or Polish-speaking populations. There is also a need for community interpreters for people with impaired hearing or vision. Each region has a unique constituency with unique needs. Connecticut is working to increase access to needed community translation services across agencies. These efforts will facilitate increased broadband adoption rates by reducing language barriers.

Sustained Access to Appropriate Devices

There are several programs that provide residents in need with devices such as smartphones, desktops, and tablets to access the internet. However, some programs distribute lower-quality refurbished devices, which may not last as long as new devices. In certain cases, these devices are their only connection to the internet and when they experience issues with the device, or it has reached its end of life, they have no other way to access essential activities. The State will explore opportunities to utilize funding from the Digital Equity Program to mitigate this issue by providing more functional devices to community members.

Americans are diversifying the types of computing devices used at home, adopting smart TVs and digital accessories at record rates, and yet significant disparities continue to affect who can connect to the internet and benefit from its use. Not all devices are created equal – students connected with a computer to wireline internet (as opposed to relying on a cellphone) have a higher-grade point average and adults overwhelmingly use a desktop or laptop for personal and professional pursuits, likely due to the devices' functionality and ease of use. Despite these advantages, a [2021 NTIA Internet Use Survey](#) found that 71% of White non-Hispanics used a PC or tablet compared to 57% of African Americans and 54% of Hispanics. Unless and until Connecticut households have an appropriate device and the training needed to connect, broadband access alone will not solve the digital divide.

The Everybody Learns Initiative was a \$43.5 million investment by the State in remote learning solutions. Through the Governor's Emergency Education Relief Fund and the Elementary and Secondary School Emergency Relief Fund, which was funded by the federal CARES Act, the program was able to acquire 80,000 laptops for students, provide almost 50,000 students with 24 months of at-home internet access, supply cellular hotspots for over 14,000 students, establish free public wireless hotspots at about 200 community sites throughout the state, and offer social and emotional learning resources to school districts statewide. Despite these investments, many families did not take advantage of the free broadband offered, pointing to the need for outreach and support from trusted community partners.

Lack of Trust in Providers and Government Services

Many unconnected households are concerned about sharing personal information as part of the sign-up process for service, including and especially the enrollment process for the ACP. Concerns about privacy, data security, and online scams also hinder individuals' willingness to embrace an internet connection and the devices required for its use. The fear of personal information being compromised or misused, combined with the uncertainty surrounding the protection of digital identities, creates a substantial barrier to broadband adoption. To overcome this challenge, it is crucial for service providers, government agencies, and regulatory bodies to prioritize robust data protection measures, transparent policies, and effective enforcement of regulations. Additionally, credit checks and initial fees can be an obstacle or barrier to broadband adoption, building frustration rather than trust, and causing a potential user to abandon the enrollment process. Through the BEAD Program, DEEP will work with the Commission for Educational Technology to increase awareness of governmental programs and build trust by partnering with community-based organizations already serving residents in these communities. Trusted community partners are discussed in greater depth in [Section 3.3.5](#).

3.4.3 Broadband Affordability

Affordability for Low-Income Households

Equitable access to affordable, high-quality service plans must be prioritized. One of the most prominent explanatory factors driving differences in broadband adoption rates as of December 2022 is affordability. For each percentage increase of a town's population under 150% of the poverty line, there is a corresponding increase of unsubscribed locations of 0.6%. In census tracts with poverty rates of 16.4% or higher, 25% of locations lack a broadband subscription. For the highest poverty areas, over one-third of all locations lack a subscription. Affordability barriers particularly affect households with school-age children under age 18. Nearly one third of households that have children and have a yearly income of less than \$50k have no internet connection and a 2022 broadband survey led by the Connecticut Council of Municipalities found that more than two-thirds of the respondents (67.3%) ranked "affordability" as the number one reason for not having internet at their home. Less than 10% of upper income households do not have a connection.

In Connecticut, distribution of income is most unequal and most severe in cities with high levels of poverty, such as Hartford, New Haven, Bridgeport, New Britain, and Waterbury. Where households in poverty are geographically clustered together, further pressure is put on broadband adoption barriers than expected by income alone. Cities with poverty rates more than twice the State figure contain 25% of the State's total number of households without subscriptions.

Lack of Competition

In response to DEEP's [2022 Broadband Infrastructure Programs Request for Information](#), several municipalities and community organizations indicated lack of provider competition in their area as a barrier to broadband access and adoption. When only a single provider offers service to a location, the resulting plans may be expensive and ultimately unaffordable.

Areas of Connecticut with one internet service provider option are those that may not yield high or attractive returns on investment (ROI), including rural areas, low-income areas, and Multi-Dwelling Units (MDUs). Incumbent MDU ISPs often inflate service plan prices due to lack of competition from other ISPs. This reality leaves residents with no choice but to subscribe to that provider, or for those who cannot afford the monthly subscriber fee, remain unconnected.

Conversely, the deregulated nature of the ISP industry may result in the same service plans being offered at different prices in different areas of the state, as has been demonstrated in other states.⁴ Even though residents may have more than one service plan available to them, non-standard pricing models still contribute to inequitable access. Additionally, the deregulated environment allows providers to selectively require credit checks and variable fees by location which can reduce or remove service options, especially in low-income areas.

As part of the ConneCTed Communities Grant Program, DEEP has factored affordability in the scoring matrix and will award applicants points for offering entry-level service plans at a rate that is competitive and promotes affordability. A similar scoring methodology will be used for the future Connecticut BEAD Grant Program to promote equity by awarding ISPs who are committed to equitable access and offer the same prices for the same service plans across the state.



Affordable Connectivity Program Registration & Utilization

As of October 2022, Connecticut residents received over \$1.6 million in device subsidies through the ACP to purchase nearly 16,500 devices. While the benefit of this program cannot be understated, it is important to note barriers that residents have faced when attempting to utilize the benefit. According to public library leaders, the registration process for the ACP can be difficult to complete. Even with the individual support of a digital navigator, it often takes 45-90 minutes to help one community member apply. The time commitment needed to complete this intensive application process could be prohibitive to a resident who desperately needs assistance but has limited time. Additionally, the number of community members digital navigators and other resources who can assist per day is limited and dictated by the registration process.

Barriers to access and adoption can continue after the initial registration and application process is complete because the process of receiving ACP benefits varies by ISP. Some have simple application and approval processes, while others require income verification, long waiting periods, and more personal information than some residents are willing to give out. Another complicating factor is the public's perception of, and openness to, the ACP.

There are several organizations that have shared helpful one-pagers and information about ACP, including [AARP](#) and [United Way](#). The Connecticut Department of Social Services has also posted information from the federal Centers for Medicare & Medicaid Services (CMS), which is working to help build awareness about the Affordable Connectivity Program. Lastly, ACP sign-up information is also present on the DEEP website, which directs users to USAC ACP sign-up resources. DEEP will work to develop more specific strategies for increasing ACP adoption based on existing resources, including the Affordable Connectivity Program Outreach Toolkit for Governmental Partners. Some potential specific strategies may include a letter inviting pre-qualified applicants to participate in ACP, as well as outbound call and text solicitations.

3.4.4 Broadband Access

Everybody Learns Wi-Fi Initiative

CEN is helping Governor Lamont bridge the digital divide by bringing free outdoor public Wi-Fi to eligible towns and locations across the state as part of the 'Everybody Learns' Initiative. The project has helped provide internet access in support of learning, business development, and telehealth by leveraging and continuing to invest in CEN's statewide connectivity infrastructure. The program includes:

- 20 Urban and 20 Rural towns with the most need of connectivity help (Target towns provided by Governor's office based on American Community Survey data from the 2014-2018.)
- Wi-Fi access points attached to CEN's high performance network
- Walk-up/drive-up internet access
- Leveraging community assets like public libraries, municipal buildings, and schools

The Everybody Learns Wi-Fi Initiative website includes detailed records including an interactive map for users to locate participating locations where public Wi-Fi is available for use.

Increasing Mobile Broadband Access

According to the June 8, 2023, release of the FCC National Broadband Map data, approximately 98.4% of BSLs in the state are covered by 4G or 5G cellular networks. This includes 98.2% of underserved and 96.2% of unserved BSLs that are covered by either 4G or 5G. Areas that are not served by cellular networks are scattered sporadically throughout the state, with a slight concentration existing in the Northwest Hills planning region.

DEEP recognizes the critical nature of ensuring that residents have access to both wired and wireless technologies to support mobile use of the internet. When people do not have access to a wired network, they are relegated to use of only mobile networks, and will be subject to cost, data caps, and lack of reliability in some cases. Strategic use of non-fiber bound connectivity methods, such as cellular 4G and 5G, as well as use of other wireless spectrum technologies, needs to be considered closely.

Governor Lamont's multi-modal, ten-year [CT2030](#) transportation plan includes partnering with the state's major telecommunications companies to implement faster data signals along the New Haven Line – the busiest commuter rail line in the United States. CT2030 calls for the purchase of 132 new rail cars designed in partnership with industry experts and equipped with rooftop antennas that enhance cellular connectivity by amplifying 4G and 5G signals throughout the cars.

The vision to expand reliable internet access for commuters on the New Haven Line is consistent with Governor Lamont's vision to accelerate the deployment of the ultra-fast technology throughout the state. Governor Lamont successfully lobbied the Connecticut General Assembly to adopt legislation which sets up a process to set 5G infrastructure on state property and establishes a method for municipalities that are interested in taking advantage of the technology in cases where utility or light poles are not available. The state will continue to champion and facilitate the expansion of wireless networks to ensure all benefit from universal service.



3.4.5 Digital Equity

The State Digital Equity Plan Overview

The Commission for Educational Technology is leading a multi-year effort to design and implement a statewide Digital Equity Plan. The plan, due November 30, 2023, will center around the vision statement signed into law (Public Act 21-159): that “all individuals and communities have the information technology capacity needed for participation in society, democracy, and the economy of the state.” The goal is to help ensure that all residents have access to and can utilize technology for learning, career advancement, leveraging State services, health and wellness, and overall participation in society.

Planning and Research

The Commission has conducted significant research to identify the barriers to technology access and adoption, as well as the resources in place to help residents engage in today’s digital society. In addition to partnerships with other State agencies, including and especially DEEP, the Commission has engaged a core planning team of digital equity experts from other agencies and community-based organizations.

Since receiving Planning Grant funds, the Commission has engaged in the following outreach and research activities:

- **Agency and Partner Engagement:** The Commission has hosted events and engaged in direct meetings with more than 100 organizations and agencies statewide in order to gauge the availability of digital inclusion programs and services to Connecticut residents. In October 2022, the Commission hosted a Digital Equity Summit, inviting more than 200 leaders of state agencies, the General Assembly, education organizations, libraries, and advocacy and community groups who represent the most marginalized in Connecticut.
- **Data Analysis:** Digital engagement data from those State agencies that directly serve Connecticut’s covered populations, publicly available data sets such as those from the American Community Survey (ACS), and third-party sets such as those from utilities have all helped paint a picture of the digital divide in the state. Instrumental in this research, OPM’s Broadband Mapping Hub (<https://broadbandmaps.ct.gov>) has provided a baseline of Internet availability and adoption that helps frame the challenges that lie ahead.

The Commission has also established, in partnership with the University of Connecticut’s School of Public Policy, the Connecticut Center for Digital Equity Research (CCDER). Through the CCDER, the following research activities have taken place:

- **Focus Groups:** From April through June, UCONN designed and conducted — with approval from its Institutional Review Board — more than a dozen focus groups of members of covered populations.
- **Resident Survey:** With input from the Digital Equity core planning team, UCONN designed and launched a resident survey to identify barriers to technology adoption, use, and support. To date, the survey has received more than 4,500 responses, following a cross-media outreach campaign that leverages the trusted relationships of other State agencies and community organizations.



Guiding Principles

Based on the research findings to date, the Commission will follow these guiding principles:

- **Holistic Approach:** Research points to the significance of digital connectivity in residents' lives. For the disconnected, solving the problem will likely require equipping residents with both devices and support. The plan will account for the interwoven nature of these digital equity components.
- **Continuum of Connectivity:** The plan will account for the needs of people where they are and advance availability as a continuum. Taking a human-centric approach and solving problems based on actual, as opposed to assumed need will advance digital equity most effectively.
- **Accelerate, Scale, and Replicate - Not Duplicate:** Exemplary programs exist in the state, though research to date has not revealed large-scale, comprehensive digital inclusion programs. Creating incentives through competitive grant programs will help to scale up or replicate financially challenged initiatives. The State seeks to reward and amplify the work in place rather than creating programs that duplicate or undermine existing successful initiatives.
- **Centralized Versus Local Investments:** A concern in maximizing impact statewide is balancing the efficiencies of State and regional efforts with the human-centered, trust-based work happening at the local level. To that end, identifying the need for affordable broadband, devices, training, and support will determine at what level we can deliver on these needs. For example, encouraging the creation or expansion of existing regional efforts through teams of existing entities like Councils of Government, regional service centers, housing authorities, etc., must also require their partnership with hyper local, trusted organizations such as neighborhood revitalization zones, which best understand the needs of residents.

4. Obstacles or Barriers

Strategic Priority	Obstacle/Barrier
Deployment	There are a significant number of so-called " long-driveways " locations that will require costly nonstandard installations due to a business or residence's distance from existing infrastructure.
	The industry may continue to experience supply chain shortages for broadband equipment, brought about by the COVID-19 pandemic.
	The process of obtaining the required permits to access ROWs and utility poles can take weeks to months, delaying project completion.
	A shortage of skilled workers in the telecommunications industry may cause delays in infrastructure deployment.
Adoption	For households whose primary barrier to broadband access or adoption is the expense , the only affordable price may be \$0.
	Communities remain unable to fully utilize online services due to a lack of digital skills and/or devices .
	Some households are concerned about sharing personal information and lack trust in affordability programs and government services.
Affordability	There is a lack of competition in areas where only one ISP option exists. Incumbent ISPs can and have set higher prices than other areas for the same plan knowing consumers have no other choice for broadband service.
	Some ISPs have set strict eligibility criteria forcing low-income customers to pay additional fees and/or perform credit checks or remain disconnected.
	For many, the ACP enrollment process is too confusing and time consuming to complete without assistance.
Access	When people do not have access to a wired network , they may be forced to use mobile networks which are subject to additional costs, data caps, and a lack of reliability.
Digital Equity	Digital Navigator Programs and other digital skills programs have been constrained due to limited funding.
	Connecticut currently lacks large-scale, comprehensive digital inclusion programs .

5. Implementation Plan

5.1 Stakeholder Engagement

Stakeholder Engagement Process Overview

The outreach and engagement process for the BEAD Program focuses on communication, coordination, and collaboration across diverse stakeholder groups using inclusive engagement strategies. This comprehensive effort is in coordination with DEEP and the Commission which is leading the digital equity efforts in the State.

Our public engagement model aims to ensure we assess the conditions of the broadband landscape, have meaningful engagements, share information with our stakeholders, and deliver community-based solutions and documentation for the Five-Year Action Plan and BEAD Initial Proposal.

Engagement Goals & Objectives

Public engagement is critical to ensure that broadband infrastructure is deployed in a way that is responsive to the needs and priorities of those without access to an adequate internet connection or who are struggling to pay for internet service. By setting clear goals and objectives for public engagement, we can work collaboratively toward a shared vision for expanding affordable, resilient, and reliable high-speed internet to all residents, community organizations, and businesses in Connecticut.

Goals:

- Full geographic participation in engagement activities, including Tribal, rural, suburban, and urban areas.
- Meaningful engagement and outreach to diverse stakeholder groups.
- Utilization of multiple awareness and participation tactics, and different methods to convey information and conduct outreach.
- Establishment, documentation, and adherence to clear procedures to ensure transparency.
- Outreach to, and engagement of, unserved and underserved communities, especially those that have been historically underrepresented.

Objectives:

- Establish and implement a process to identify key external stakeholders and stakeholder groups to develop an inclusive long-term engagement model and associated metrics (e.g., feedback mechanism).
- Update and adapt the stakeholder engagement process throughout the life of the BEAD Program.
- Solicit a wide range of input on, and identify and reconcile concerns with, the major milestones, such as this Five-Year Action Plan, Initial Proposal, Challenge Process, and Final Proposal.
- Coordinate among state agencies to ensure that stakeholder engagement efforts are aligned. For example, appropriate entities should assemble comprehensive lists of stakeholders, identify overlaps, and coordinate or combine outreach to those stakeholders through combined listening sessions, surveys, and site visits, as possible. This will be particularly important to avoid confusion and reduce the burden on communities.

Stakeholders

This plan targets specific stakeholder groups with tailored messaging to raise awareness, cultivate collaboration, solicit feedback, maintain transparency in the process, and ultimately connect communities throughout Connecticut with high-quality broadband services.

Public Service	Private Sector	Community-Serving
<ul style="list-style-type: none"> • Federal Government • State Agencies • Elected Officials • Localities • Tribal Government • Public Utilities or Regulatory Authority 	<ul style="list-style-type: none"> • Broadband Service Providers • Economic Development Organizations • Chambers of Commerce • Local Business • Labor Unions 	<ul style="list-style-type: none"> • Nonprofit Organizations • Community-based Organizations • Community Anchor Institutions • Coalitions or Associations • Faith-based Organizations • Workforce Development • Community activists, residents, and other community leaders

The organizations listed above serve or represent those who need broadband the most. These critical stakeholders are additionally considered as one or more of the following:

- **Champions:** Individuals and organizations who will assist directly in promoting funding opportunities, raising public awareness, and/or building trust in our communities. Examples include elected officials, local leaders, CAIs (i.e., schools, libraries, health care providers), workforce development organizations, and community advocacy groups.
- **Partners:** Individuals and organizations involved in implementing state and federal funding programs, deploying broadband infrastructure, providing internet service and cyber security resources, and facilitating digital equity initiatives.
- **Recipients:** Residents, business owners, and organizations that will directly benefit from the forthcoming broadband infrastructure and digital equity programs

Populations of Concern

The "Covered Populations" identified by the Digital Equity Act Program and the "Underrepresented Communities" identified by the BEAD Program are critical stakeholders in the State's pursuit of digital equity. The State will prioritize the populations in consideration of these historical inequities as it works to ensure equitable access to digital resources and technologies. By prioritizing these groups, we acknowledge the barriers they face and work towards creating a more inclusive digital landscape. Ensuring that these populations are actively engaged and empowered is an essential step towards achieving digital equity for all.

Underrepresented Communities

Groups identified in the BEAD Program as having been systematically denied a full opportunity to participate in aspects of economic, social, and civic life:

- Low-income households
- Aging individuals (individuals 60 years of age or older)
- 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
- Persons otherwise adversely affected by persistent poverty or inequality

Covered Populations

Groups identified in the Digital Equity Act Program as having lived experience with being disconnected:

- Individuals who live in covered households (the income of which for the most recently completed year is not more than 150% of an amount equal to the poverty level, as determined by using criteria of poverty established by the Bureau of the Census)
- Aging individuals (individuals 60 years of age or older)
- 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
- Individuals who have low levels of literacy
- Individuals who are members of a racial or ethnic minority group
- Individuals who primarily reside in a rural area

Engagement Tactics

Informing & Raising Awareness

A fundamental step in public engagement is providing stakeholders with the tools and information they need to participate meaningfully. Connecticut has employed the following tactics and is developing methods of communication to reach communities both directly and through trusted partners, as appropriate.

- **Setting up an email and telephone hotline** aids accessibility and speeds response time to questions and concerns from stakeholders. The data and questions collected will inform the State's goals, initiatives, and public resources.
- **Developing a stakeholder database** allows state agencies to regularly update key audiences throughout the planning and deployment processes.
- **Providing regular website and digital media updates** keep stakeholders informed on program details, timelines, and activities.
- **Engaging traditional media** through press events and written releases to announce major program milestones and opportunities for public engagement helps to reach local audiences and demographics with fewer digital skills.
- **Distributing communications and promotional materials** helps to raise awareness and increase engagement. To date, the State has developed a one-page flyer that provides an overview of State initiatives and a toolkit to assist community champions at key program milestones. Future toolkits may include newsletter content, advertisements, social media posts, promotional flyers, and/or printed pieces.

Connecting with Stakeholders

The goal for engagement is to meet with diverse statewide stakeholders where they are geographically, culturally, demographically, and economically to ensure resources are allocated equitably.

Opportunities for Public Comment

The Initial Plan and Final Proposal will be made available and promoted for public review.

Regional Community Forums

Community forums will be hosted in each of the nine COG regions of the state. Venues will be identified with a preference for those that can offer hybrid (virtual and in-person) meeting options to involve community members who are unable to physically attend. These events focus on the lived experiences of community members, and the State will gather feedback on issues with access, performance, affordability, and digital skills. Sessions will touch on unique local challenges and opportunities. The COGs will serve as Champions to help promote events to their communities.

Quarterly Stakeholder Roundtables

These roundtable discussions, held virtually, bring together key stakeholder groups for two-way communication. DEEP will offer program updates and in turn, stakeholders can share their feedback and insights on opportunities and obstacles to universal service. Holding the roundtables virtually provides scheduling flexibility and allows more stakeholders to attend.



Table 6: Quarterly Stakeholder Roundtable Examples

Stakeholder Group	Example Topics of Focus/Discussion Questions
<p>Telecommunications and Broadband Service Provider Roundtables</p>	<ul style="list-style-type: none"> • What do you see as the barriers to affordability in Connecticut, and what types of affordable service plans and other digital inclusion measures are currently in place? • How does geography impact infrastructure deployment, especially in unserved and underserved areas? • What workforce barriers exist in Connecticut, and what workforce planning initiatives are currently taking place across the industry? • Are there remaining regulatory barriers (such as permitting and pole attachment issues) complicating broadband implementation?
<p>State & Local Government Roundtables</p>	<ul style="list-style-type: none"> • Are you aware of unserved or underserved areas in your locality? • How can the State help overcome barriers to service? • Does your office plan to be involved in broadband deployment and digital equity initiatives? If yes, how so? • What types of digital equity and digital inclusion efforts already exist in your communities and how are they funded? • How can DEEP engage more effectively with underrepresented populations in your community? • What resources or guidance does your office need now and in the near future?
<p>Community-Based Organization Roundtables</p>	<ul style="list-style-type: none"> • Do poor internet connections or a lack of internet access affect the community you serve? • What are the barriers to good internet in your community? • Does your organization currently engage in digital equity programming? • What kind of programs do you offer? • How would resolving broadband connectivity challenges impact the communities you serve? • Would better internet connectivity help your organization serve the community? • What resources are needed to support digital inclusion programs among underrepresented populations (e.g., staffing, meeting space, curriculum, devices, funding, etc.) in your communities?

Broadband Working Group

DEEP will expand upon an existing monthly broadband meeting of interagency representatives to facilitate discussions regarding the development and implementation of broadband-related programs. The working group will meet approximately once per month depending on need. While the scope of each meeting will be different, the overall focus of the working group sessions will be to:

- Discuss the group's scope and identify communications and outreach goals
- Obtain input and support for the BEAD Program design and implementation strategies
- Coordinate statewide initiatives related to broadband infrastructure and digital equity, including but not limited to data collection and funding opportunities
- Guide the development of the State's goals and strategies that respond to existing problems, meet documented needs, and build upon available funding sources

Broadband Advisory Group

DEEP is in the planning stages of developing a Broadband Advisory Group to engage key external stakeholders in discussions regarding the expansion of broadband throughout the state, especially regarding critical programmatic milestones. The advisory group would meet approximately four times annually to offer feedback and review program progress. While the scope of each meeting would be different, the overall focus of the advisory group sessions would be to:

- Discuss major milestones and related communications and outreach goals/barriers
- Review known barriers to universal service and potential solutions
- Provide program updates, including anticipated fieldwork and data collection efforts, mapping initiatives, visioning exercises, surveys, and grant opportunities
- Guide the development of community goals and strategies that respond to existing problems, meet documented needs, and build upon available funding sources

DEEP will seek to include representatives from diverse stakeholders, labor organizations, and community organizations. Members may change over time to align with the evolving needs of the program.

Surveys

- **Community Organization Survey (2023):** This survey is meant to inventory digital equity resources, identify potential recipients of BEAD Program and Digital Equity Act funding, gather data for the State Digital Equity Plan, and collect contact information for future outreach.
- **Resident Survey on Digital Equity (2023):** This survey is intended for Connecticut residents and was developed to identify individual and demographic barriers to broadband connectivity.
- **CCM Broadband Connectivity Survey (2022):** The goals of this survey were to gather clear data that will guide investment of federal infrastructure funds, create a GIS map to support strategic deployment of broadband, inform research and policy recommendations, and support strategic targeting of additional funding streams.

In addition to the above, some municipalities in Connecticut have released broadband surveys that the State will look to centralize on www.broadbandmaps.ct.gov to collate data and leverage results.

Tribal Engagement

The BEAD Program specifically requires formal Tribal Consultation(s) with federally recognized tribes as part of the grant process. In Connecticut, this includes two Tribal Nations: Mohegan Tribe and Mashantucket Pequot Tribal Nation.

Completed Engagement Activities

- **2022 Broadband Infrastructure Programs RFI** – Over the course of two months, DEEP received feedback from more than 40 municipalities, ISPs, community organizations, nonprofits, small businesses, and residents. The purpose of this RFI was to gather public input to inform the preparation of guidelines for and structure of upcoming broadband infrastructure deployment programs to support the statewide goal of attaining universal access to broadband.
- **2022 CCM Broadband Connectivity Survey** - Over the course of four months, CCM received feedback from more than 2,000 Connecticut residents. The data will help to support municipal efforts in securing federal funds for broader, more equitable deployment of broadband across the state and to increase reliability in areas where there is already access.
- **Development of Broadband Working Group** to engage at least five State agency partners including the Commission, which is developing Connecticut’s State Digital Equity Plan.
- **Numerous presentations and meetings with key broadband stakeholder groups**, including service providers, State agencies, municipalities, and community organizations working to increase broadband adoption.
- **Informational presentations to Connecticut’s regional Councils of Governments**, with additional meetings scheduled for the late summer and fall.
- **Promotional materials to raise awareness of DEEP’s broadband efforts**, including social media posts, email marketing newsletters and a broadband program overview one-pager to be printed and shared with stakeholders.
- **Dedicated email and voicemail boxes** created to improve accessibility and reduce response time to questions and concerns from stakeholders including recipients.
- **Media engagements** to spread the word to residents and broadband stakeholders about the efforts being undertaken by the DEEP team.
- **Virtual quarterly roundtables** for telecommunications and broadband service providers, State and local government leaders, and community organization representatives.
- **A stakeholder organization survey** to collect data assets and needs from organizations with digital equity and other broadband-related programs. More than 300 responses were received as of the publication of this action plan.
- **A public survey for residents** developed in partnership with the Digital Equity team and UConn to identify the key barriers to broadband connectivity. More than 6000 responses were received as of July 21, 2023.
- **Dear Tribal Leader Letters** sent to both the Mohegan Tribe and Mashantucket Pequot Tribal Nation.



5.2 Priorities

Table 6: Priorities for Broadband Deployment and Digital Inclusion

In facilitating broadband infrastructure deployment and adoption in unserved areas, underserved areas, and community anchor institutions as required by the BEAD Program, the State will focus on the following priorities to guide implementation and focus initiatives with any remaining funds.

Priority	Description
<p>Address Non-Standard Installations</p>	<p>Many homes in Connecticut, particularly in the rural areas of the state, have long driveways that would constitute a non-standard installation. Without assistance programming, the extra cost to extend the connection from the road to the home is often a burden to the customer. DEEP has designed its ConneCTed Communities Grant Program to incentivize ISPs to perform these types of connections with a grant subsidy. However, this may continue to be a challenge for rural residents and businesses that can be addressed in future programs.</p>
<p>Improve Service in Multi-Dwelling Units (MDUs)</p>	<p>There are MDUs throughout the state where residents have reported inadequate service. In a preliminary investigation, it was discovered that some buildings have exclusive service agreements, so while they may technically be considered “served” in terms of broadband speeds, residents lack provider options leading to potential issues with affordability, customer service, or network performance. Additional concerns have been raised over outdated wiring within the building itself as a potential cause of service issues. The State of Connecticut will continue discussions with ISPs, community members, building owners, and others as needed to identify any infrastructure deficiencies and/or digital equity issues, and determine if and how funding could be applied to remedy the concern(s).</p>
<p>Reduce and Remove Adoption & Affordability Barriers for Low- and Middle-Income Areas</p>	<p>Poverty is among the strongest correlations with low levels of internet subscribership in Connecticut and around the country. Both ACS and OPM collected data sources show that undersubscription is concentrated in rural areas in the northwest corner and east of the state and more primarily in large cities with higher-than-average poverty levels as seen below. These geographic trends point to the relationship between access to high-quality service and adoption and the importance of affordability in increasing broadband adoption. A priority will be defining a low-cost service plan option and middle-class affordability plan.</p>
<p>Support Trusted Community Partners</p>	<p>Trusted community partners like Digital Navigators are essential frontline and community-facing resources who can help residents connect to, and learn how to use, affordable technology and high-quality broadband internet. The trusting relationships built between partners and residents through over time are foundational to increasing digital equity and inclusion across, and within, communities. The Connecticut State Library is utilizing ARPA funds to deploy digital navigation programs and help residents connect, while multiple non-profit organizations across the state provide free digital literacy courses to those who are already connected. Staffing shortages are a known concern across the country due to limited grant funding. A priority will be identifying and supporting current programs while fostering the growth and development of new programs in unsupported areas.</p>

5.3 Planned Activities & Key Strategies

The purpose of this section is to outline the activities and strategies Connecticut will undertake to meet its goals and objectives, and to align and maintain compliance with the statutory requirements of the BEAD Program. The development of these strategies will directly feed into the processes required as part of the BEAD Initial and Final proposals.

Planned Activities

Connecticut plans to increase broadband access and adoption by administering grants funded by the BEAD and Digital Equity Programs. DEEP will establish a competitive grant program, including a process whereby applicants may apply for the funds to deploy broadband service that prioritizes unserved and underserved areas. Program details will be defined in the Initial Proposal which will be made available for public comment prior to submission to the NTIA.

The State is committed to fulfilling the reporting requirements, mandatory transparency, accountability, and oversight measures necessary to ensure the proper use of forthcoming grant funds. The State will minimize the opportunity for waste, fraud, and abuse by conducting audits of grantees and subgrantees as necessary and appropriate; developing monitoring plans which may include site visits or desk reviews, technical assistance, and random sampling of compliance requirements; and imposing specific conditions on grant awards designed to mitigate the risk of nonperformance where appropriate.

Activity Name	Description	Intended Outcome(s)
State Grant Programs		
Broadband Equity, Access, and Deployment (BEAD) Administered by DEEP	This competitive grant program will fund the deployment of broadband service to unserved locations and underserved locations. After unserved and underserved locations have been addressed, remaining funds will be used to support access, adoption, and equity related projects, such as the deployment of gigabit connections to community anchor institutions.	To help ensure that everyone has access to reliable, affordable, high-speed internet service by funding broadband planning, deployment, mapping, equity, and adoption projects and activities.
ConneCTed Communities Grant Program Administered by DEEP	This competitive grant program, funded by the American Rescue Plan Act’s Capital Projects Fund, focuses funding on low-income/multi-family curb-to-home broadband infrastructure buildout and underserved area broadband infrastructure.	To fund broadband infrastructure projects designed to deliver service (at speeds of at least 100 Mbps/100 Mbps) that supports the statewide goal of universal access to affordable, resilient, and reliable internet access.
Digital Equity Act Programs Administered by the Commission for Educational Technology (DAS)	The Digital Equity Act Programs are planning and implementation programs that provide funding to promote digital inclusion and advance equity for all. They aim to ensure that all communities can access and use affordable, reliable high-speed internet to meet their needs and improve their lives. The three programs include two state formula programs and one competitive program that support digital equity projects and the implementation of digital equity plans.	To help ensure that all residents have access to and can utilize technology for learning, career advancement, leveraging State services, health and wellness, and overall participation in society.

Key Strategies

Goal: Enhance Broadband Deployment

Utilize the BEAD Program to achieve universal access to a reliable, high-speed connection.

- Design long-term strategies for deploying broadband that prioritize digital equity considerations in the BEAD Program Initial Proposal.
- Prioritize project types and areas that align with State goals.
- Streamline and update regulatory and permitting processes where possible to increase efficiency.
- Employ a strategy for consistent monitoring and accountability in the progression of broadband infrastructure.
- Develop a sustainable model or a comprehensive strategy for the post-federal funding period.
- Create continuity plans and best practices to prepare for the impact of environmental events on operations.

In collaboration with other State agencies, develop strategies to increase the highly skilled workforce required for broadband deployment.

- Perform additional analysis in concert with relevant State agencies, including the Connecticut Office of Workforce Strategy, to understand Connecticut's shortage of a local broadband highly skilled workforce.
- Leverage existing programs to increase economic growth and job creation.

Goal: Promote Affordability

Foster affordable service options.

- Collect and disseminate data on current service options and rates.
- Define a low-cost service plan option in the context of the BEAD Program and develop a plan for middle-class affordability.
- Increase Affordable Connectivity Program enrollment.

Goal: Facilitate Adoption

Encourage new entrants in areas with low adoption rates due to access or affordability barriers.

- Facilitate provider expansion and investment through funding programs.
- Partner with State agencies and trusted local organizations to provide communities with accurate information on broadband availability and service plan options.

Leverage existing State and federal resources and support the development of new programs

- Identify all community organizations operating the state that facilitate the use of broadband by vulnerable populations.
- Develop a list of community anchor institutions engaged in digital equity efforts that are eligible for BEAD Program funding.

Goal: Identify opportunities to leverage existing assets to increase network resiliency and reliability

Develop a unified strategy for coordinating facility-sharing efforts.

- Create a broadband readiness framework that outlines strategies and best practices to guide public and private entities.
- Continue to improve the data-driven State broadband asset maps.
- Create a collaborative task force comprising representatives from telecommunication companies, regulatory bodies, and relevant stakeholders to facilitate communication.

Reward resilient, reliable, and future-proof project designs.

- Develop a holistic approach informed by current market realities and future projections to assess proposed projects.
- Coordinate within DEEP's Bureau of Energy and Technology Policy to enhance existing and planned initiatives, such as opportunities to include cabling and conduit considerations in affordable housing planning processes, grid resiliency efforts, and building code wiring standards to support high-speed internet.

Goal: Implement the State Digital Equity Plan

Utilize the findings of the comprehensive needs assessment to identify and assist communities with limited access to resources.

- Foster partnerships with local community organizations, educational institutions, as well as municipal, regional, and Tribal governments to finalize a needs assessment for critical populations including low-income households, aging populations, incarcerated individuals, individuals with disabilities, and racial and ethnic minorities.
- Leverage lessons learned and best practices from existing digital navigation and digital literacy programs within the Connecticut State Library system and community non-profit organizations.
- Support the development of a comprehensive digital equity resources map.

5.4 Estimated Timeline for Universal Service

Below is the estimated timeline for achieving universal broadband service. It is important to acknowledge that while these dates are optimistically based on the best information currently available, they are subject to change as the program progresses.

2022 - 2023
(as of July '23)

IDENTIFYING UNSERVED AND UNDERSERVED LOCATIONS

- **Collected data** from ISPs, the FCC, and agency partners to develop comprehensive broadband availability and adoption maps
- **Analyzed and validated data** to create an updated address fabric and database of unserved and underserved locations
- **Challenged FCC broadband maps** as needed to align State and federal data sets

CREATING AN ACTION PLAN

- **Articulated a statewide broadband strategy** and approach to achieving universal access in the form of this Five-Year Action Plan
- **Engaged diverse stakeholder groups** and partners in a variety of initiatives to inform the planning process and program development

2023
(Aug '23 - Dec '23)

DEVELOPING THE BEAD PROGRAM INITIAL PROPOSAL

- **Outline long-term objectives and plans** for deploying broadband, closing the digital divide, addressing access, affordability, equity, and adoption issues, and enhancing economic growth and job creation
- **Continue stakeholder engagement activities** and local coordination efforts
- **Define and identify all eligible Community Anchor Institutions**
- **Develop a challenge process** and **plan to competitively award subgrants**
- **Invite feedback** via a public comment period

LAUNCHING THE CONNECTED COMMUNITIES GRANT PROGRAM

- **Release program guidance** and open application period
- **Identify projects** that support the State goal of universal access



2024-2025

PREPARING THE BEAD PROGRAM FINAL PROPOSAL

- **Receive approval** from the NTIA for the Initial Proposal
- **Continue stakeholder engagement activities** and local coordination efforts
- **Initiate competitive subgrantee selection process** for 20% of funds
- **Develop a timeline for implementation** for each project
- **Finalize processes for oversight and accountability** to ensure the proper use of the grant funds
- **Invite feedback** via a public comment period
- **Continue BEAD Program subgrantee selection** and awards for remaining 80% of funds upon Final Proposal approval

CONTINUING THE CONNECTED COMMUNITIES GRANT PROGRAM

- **Fund projects** that align with the program requirements and priorities
- **Track compliance** through reporting mechanisms and field verification
- **Reassess projected service availability**

PUBLISH 2024 CONNECTICUT BROADBAND REPORT

- **Report to the Governor** concerning (1) any grants awarded, (2) the status and progress made toward a state-wide goal of attaining universal access to (A) broadband Internet download speeds of one gigabit per second; and (B) broadband Internet upload speeds of one hundred megabits per second, and (3) broadband Internet access service adoption rates, the price and nonprice barriers to broadband adoption and digital equity.

2026-2028

ONGOING MONITORING AND PROJECT COMPLETION

- **Track compliance** through reporting mechanisms and field verification
- **Continue stakeholder engagement activities**
- **Review and validate the service obligations** of completed projects for all grant programs:
 - ConnectEd Communities Grant Program (est. completion 2026)
 - BEAD Program (est. completion 2028)
- **Publish 2026 and 2028 Connecticut Broadband Reports** detailing the results of the grant programs and identifying remaining gaps in adoption with proposed mitigation strategies



5.5 Estimated Cost for Universal Service

In order to provide a comprehensive and accurate estimate for the cost of universal broadband service, DEEP is in the process of collaborating with the Office of Policy and Management's GIS Office and a consultant to gather and analyze relevant data. DEEP also plans to utilize forthcoming cost data from the FCC, which will further enhance the precision of our estimate, ensuring a well-informed approach to achieving universal broadband access. The resulting estimate and supporting methodology will be articulated in the BEAD Program's Initial Proposal.

5.6 Alignment

Connecticut's Five-Year Action Plan aligns with key initiatives, plans, and goals set by the COGs as well as other local and State agencies. The Five-Year Action Plan is also aligned with priority focus areas in the State Digital Equity Plan, which is in development and will continue to grow in scope throughout the duration of the BEAD program. Digital equity is an integral, and essential, component to both efforts and across all shared goals, so is therefore discussed within each strategic theme below.

Economic Development

Quality, high-speed broadband offers more than just improvements in online work and productivity, it empowers municipalities to think bigger, modernize, and attract and retain business. In a preemptive effort to align itself with a contemporary economy, Connecticut has taken formative steps at the regional level by allying broadband expansion with economic growth as part of its Comprehensive Economic Development Strategy (CEDS). CEDS is a national program sponsored by the U.S. Economic Development Administration (EDA) designed to create a strategy to support regional economic growth. An approved CEDS is important to becoming an approved Economic Development District. An approved CEDS makes projects identified in a region eligible for EDA funds and supports competitive grant applications.

Connecticut's Councils of Governments have formally identified broadband goals in their CEDs that encompass aspects of economic growth, infrastructure development, and digital inclusion. In the realm of the economy, COGs aim to enhance broadband access and capacity to support businesses and industries, facilitating innovation and competitiveness at a regional level. Relating to infrastructure, the focus is on advancing broadband networks to ensure reliable and efficient connectivity for both urban and rural areas, contributing to the overall development and resilience of the region's networks. Moreover, COGs are dedicated to bridging the digital divide by promoting equitable access to broadband services across all communities to empower individuals with equal opportunities. These broadband goals set by COGs seek to develop and sustain regional prosperity, thus fostering sustainable economic growth, modernizing infrastructure, and reducing disparities in digital access and participation.

Workforce Development

As the implementation phase of the BEAD program approaches, coordination and alignment of workforce development goals across the state will facilitate the availability of a highly skilled workforce for broadband deployment. The Governor's Workforce Council is committed to providing every business in Connecticut access to a skilled workforce. The Council's 2020 Workforce Strategic Plan outlines several strategies to facilitate career building by educating the workforce through education, training, and advising.

The Governor's Workforce Council [Strategic Plan](#) also highlights the need to attract a larger talent pool by expanding training pathways in higher education, providing industry-aligned training, and adding apprenticeship programs in high-demand roles. This Five-Year Action Plan aligns with the Workforce Council Strategic Plan to further develop a skilled and sustainable workforce.



Telehealth

A reliable high-speed internet connection is essential for accessing telehealth services. In 2021, the state of Connecticut enacted the "An Act Concerning Telehealth" (Public Act 21-9) which took effect on May 10, 2021, and expired on June 30, 2023. This legislation sought to expand telehealth services and provide more flexibility in healthcare delivery, especially in the wake of the COVID-19 pandemic. The most recent CEDS analysis of targeted industry clusters points to healthcare as one of three primary industry clusters in the region that are large and historically have played significant roles in the regional economy and will continue to do so. Through its continued effort to improve access and mobility across the region, the plan calls to support the initiatives identified in its Community Health Improvement Plan to increase access to equitable and quality health care for aging and low-income populations.

The [Healthy Connecticut 2025 State Health Improvement Plan](#) contains objectives and strategies directly relevant to BEAD and Digital Equity Plan efforts such as expanding affordable, quality broadband internet and cellphone access and ensuring public access to internet-capable devices and equipment. Technical assistance is also incorporated as a strategy to teaching patients how to use telehealth services. Other related technology adoption strategies include assessing current and emerging technology in its ability to protect patient privacy and empower patient consent.

Education and Technology

Education is fundamental to Connecticut's competitiveness, capacity for innovation, resilience, quality of life, and readiness. Technological advancements such as high-speed internet and connectivity through devices such as smartphones, laptops, and tablets have enabled members of society to participate and compete in the global economy. The Commission works to ensure Connecticut's schools, libraries, colleges, and universities have access to technology-based learning solutions that enable digital equity. The Commission's 2017-2022 [Strategic Plan](#) outlines several digital equity and infrastructure expansion goals to serve their constituents and even support the provision of broadband outside of school and equipping students with affordable, high-quality devices. CEN's 2019-2024 [Strategic Plan](#) outlines five goals with their top goal being to provide value and enhance internet and network capabilities at scale, heighten security, and increase the overall knowledge and understanding of those technologies and services.

As innovation and technology continue to gain importance in the local and global economy, organizations like the [Southeastern CT Enterprise Region](#) (seCTer) has responded by increasing STEM curricula in schools, moving toward more magnet schools, and investing in post-secondary certificate programs that are more closely aligned with current industry needs. SeCTer also seeks to invest in tools needed to transition from an educational system designed for the industrial age to a system designed for future business needs. Investing in education to improve curriculum, and communication, and provide alternative learning platforms can expedite personal resilience. DEEP will continue to work closely with CEN and the Commission while establishing stronger, lasting relationships with Connecticut's COGs that are committed to utilizing broadband as a tool to foster positive educational outcomes.

Environmental Protection

Environmental Assessments

Environmental assessments are critical to the planning process for broadband projects in order to mitigate adverse impacts to the environment and related communities. Any entity receiving State or federal funds will be responsible for obtaining all necessary federal, state, and local governmental permits and approvals, and will need to include sufficient information regarding compliance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act.

Climate Resilience: Severe Weather Events and Sea Level Rise

According to the [Governor's Council on Climate Change](#) (GC3) Infrastructure and Land Use Adaptation Working Group Recommendations Report from November 2020, Connecticut is expected to experience up to 20 inches of sea level rise by 2050, relative to the National Tidal Datum (NAVD88), and continuing to increase thereafter. The anticipated sea level rise is likely to have a significant impact in the near term, leading to a higher frequency of flooding caused by tides and storms along the Connecticut coastline. As the overall water level of Long Island Sound rises, flood levels previously experienced from less frequent, but big impact tropical storms and hurricanes, can occur from nor'easters and more common annual storms.

In light of these challenges, the importance of resilient broadband infrastructure becomes paramount. In areas prone to wind damage, undergrounding telecommunication and broadband infrastructure presents a valuable solution. Despite the higher cost and geologic complexities associated with burying cables and equipment, undergrounding can provide protection against high winds and severe weather, reducing the risk of infrastructure damage and service disruptions. However, in regions that frequently experience flooding, such as coastal areas, aerial infrastructure may be necessary to prevent corrosion caused by prolonged exposure to salt water for non-fiber technologies. Striking a balance between undergrounding and aerial solutions based on local conditions and vulnerabilities can support a resilient broadband network that can withstand both wind and flood-related challenges.

As noted in the GC3 report, storms or climate-driven changes such as increased frequency of extreme heat events may also create conditions under which people with critical needs such as those with disabilities, limited mobility, or special medical needs are unable to access essential services. These challenges highlight the need for resilient and reliable broadband service, as access to technology and the internet becomes increasingly crucial for obtaining essential services during times of crisis. With the rapid digitization of services and information, individuals without reliable internet access or the necessary digital skills will face significant barriers in accessing healthcare, emergency assistance, and vital resources. Bridging the digital divide is not only a matter of convenience but also a matter of equity, ensuring that vulnerable populations have equal opportunities to stay connected, informed, and safe in the face of climate-driven challenges.

Climate Resilience: Greenhouse Gas Reduction

One of the goals outlined in the January 2021 GC3 report, 'Taking Action on Climate Change and Building a More Resilient Connecticut for All,' is to advance initiatives that eliminate vehicle miles traveled (VMT) growth by 2030. To achieve this, the report emphasizes the importance of supporting easy and affordable access to broadband infrastructure. By ensuring efficient and effective telecommuting through widespread broadband availability, individuals can reduce their reliance on commuting by car, thereby curbing VMT growth and decreasing greenhouse gas emissions.



Another significant goal highlighted in the report is to increase the adoption of smart-management technologies that optimize the flexibility of distributed energy resources and help to modernize the grid. To do so effectively, a reliable and high-speed internet connection is essential. Broadband connectivity enables real-time data exchange, monitoring, and control of energy systems, allowing for efficient energy management and coordination. It facilitates the seamless integration of distributed energy resources into the grid, enabling better demand response, grid balancing, and energy efficiency measures. Therefore, investing in improved broadband infrastructure is crucial to support the implementation of smart-management technologies, enhance grid modernization efforts, and achieve a more resilient and sustainable energy system in Connecticut.

5.7 Technical Assistance

As DEEP works to comply with all statutory requirements and goals of the BEAD program, the following technical assistance from the NTIA would help the State in the development and implementation of the Initial and Final Proposals. DEEP seeks guidance and/or assistance with:

- Developing a high-cost threshold and project cost estimates
- Finalizing data analysis and evaluation plans
- Managing the procurement process with subgrantees
- Environmental and historic preservation compliance requirements
- Resources including templates, tutorials, and training for new staff
- Buy American regulations

6. Conclusion

This five-year action plan for broadband access and adoption has set forth a comprehensive roadmap for achieving universal connectivity in Connecticut. The efforts of DEEP and its partners have laid a solid foundation for success, combining expertise, resources, and a shared commitment to narrowing the digital divide. As the State moves forward, it will be crucial to maintain this plan as a living document, adapting strategies as needed to address unforeseen challenges and seize new opportunities. Continuous monitoring and evaluation will enable the plan to adapt and evolve over time, ensuring that it remains responsive to emerging needs and technological advancements.

The ongoing stakeholder outreach and engagement initiatives have been instrumental in gathering valuable insights and perspectives from communities, businesses, and organizations across the state. This direct engagement has allowed the plan to be informed by the specific needs, challenges, and aspirations of different populations, ensuring that program guidelines are tailored to address the unique circumstances of each region. Furthermore, the feedback and input received through stakeholder outreach will serve as a vital source of information to evaluate the effectiveness of the implemented strategies.

This action plan seeks to demonstrate a commitment to inclusivity, transparency, and accountability, and ensure that the broadband initiatives not only meet the immediate connectivity needs of Connecticut residents, but also have a lasting impact on the state's infrastructure and economic growth. Through this collaborative approach, the plan is well-positioned to deliver meaningful results and drive the successful implementation of universal broadband access throughout the state. Together, we can foster a vibrant, inclusive, and digitally empowered Connecticut.



Appendices

- A. Acronyms
- B. Notes
- C. References
- D. Engagement Tracker
- E. Crosswalk

Acronyms

ACS	American Community Survey
ADS	Department of Aging and Disability Services
ARPA	American Rescue Plan Act
BEAD	Broadband Equity, Access, and Deployment Program
BLS	Bureau of Labor Statistics
BSL	Broadband Serviceable Location
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CBYD	Call Before You Dig
CCM	Connecticut Conference of Municipalities
CEDS	Comprehensive Economic Development Strategy
CEEJAC	Connecticut Equity and Environmental Justice Advisory Council
CEN	Connecticut Education Network
CEN NGI	Connecticut Education Network's Next Generation Infrastructure
CMC	Connecting Minority Communities
COG	Council of Government
CPF	Capital Projects Fund
CSDE	Connecticut State Department of Education
CT BILT	Connecticut Bipartisan Infrastructure Law Team
CTDOT	Connecticut Department of Transportation
CTLPDE	Connecticut Libraries & Partners for Digital Equity
DAPA	Data and Policy Analytics Unit
DAS	Department of Administrative Services
DEEP	Department of Energy and Environmental Protection
DOL	Department of Labor
EBB	Emergency Broadband Benefit



Acronyms

ECF	Emergency Connectivity Fund
FTTH	Fiber-to-the-Home
FTTL-IC	Fiber to the Library Internal Connections
GEER	Governor’s Emergency Education Relief
HBCUs	Historically Black Colleges and Universities
IOU	Investor-Owned Utilities
IRU	Indefeasible Right of Use
ISP	Internet Service Provider
LFICP	Library Fiber Internet Connectivity Program
MDU	Multi-Dwelling Unit
NECTA	The New England Connectivity and Telecommunications Association
NOPR	Notice of Proposed Rulemaking
NRZ	Neighborhood Revitalization Zone
NTIA	National Telecommunications & Information Administration
OCC	Office of Consumer Counsel
OPM	Office of Policy and Management
PSDN	Public Safety Data Network
PURA	Public Utilities Regulatory Authority
RDOF	Rural Digital Opportunity Fund
ROW	Right-of-Way
SLFRF	The Coronavirus State and Local Fiscal Recovery Funds
TBCP	Tribal Broadband Connectivity Program
TCUs	Tribal Colleges and Universities
UConn	University of Connecticut
USAC	Universal Service Administrative Company

Notes

- I. Foundational to the development of this Five-Year Action Plan, the 2022 Connecticut Broadband Report details the state of broadband in Connecticut, efforts made by DEEP and its partners to that date and outlines next steps as the State progresses toward its goal of universal broadband. The 2022 Connecticut Broadband Report is referenced throughout the Connecticut Five-Year Action Plan due to its recency and is included in this report as a supplemental attachment.
- II. This body reviews human subject research to ensure that the studies it approves have appropriate safeguards for the ethical, compliant, and safe conduct of research, as well as the protection of the rights and welfare of the human subjects who will volunteer for participation.
- III. In *Connecticut Conference of Municipalities v. Public Utilities Regulatory Authority*, 2019 WL 6607100, the Superior Court of Connecticut held that a municipality's ability to use the gain under this statute included use of the gain for broadband services.
- IV. Eligible locations refer to individual units that would purchase mass-market broadband subscriptions. These were estimated by OPM based on the total number of commercial and residential units in the state, with large businesses, CAIs, parks, and other locations unlikely to purchase mass-market services excluded. This rate of eligibility is significantly higher than the 75% figure reported by the most recent American Community Survey (ACS) data. The increase is likely due to the Emergency Broadband Benefit (EBB) and ACP, which have incentivized more subscribership, especially among small businesses. The ACS only samples residential subscription rates, and due to the use of "residential subscriptions" by non-residential entities, the number of residential subscriptions outnumbers the number of households per census tract in many areas in Connecticut. Accordingly, adoption calculations are based on all eligible locations and all mass-market subscriptions. Therefore, ACS data may not reflect the higher rate of subscription among small businesses. However, both sources indicate that undersubscription is concentrated in rural areas in the northwest corner and east of the state and in large cities with higher-than-average poverty levels. These geographic trends highlight the importance of affordability in promoting broadband adoption and the relationship between access to high-quality service and adoption.
- V. According to the BEAD Program, 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.
- VI. The Initiative used state-level CARES Act funds and portions of the Governor's Emergency Education Relief (GEER) Fund to fill device and connectivity needs in high-need school districts. Leadership of the Initiative included Advance Connecticut, Internet 2, the Commission, CEN, and multiple state agencies: the State Broadband Office, Department of Education, Department of Administrative Services, and Department of Economic and Community Development.
- VII. ACP eligibility statistics were derived from American Community Survey data on poverty. For each county and zip code, eligibility was determined by taking the total population that falls at or under 200% of the federal poverty level and dividing that number by the total population for the same geography. It is important to note there are many other qualifiers for the ACP program that may ultimately increase the total number of eligible households/individuals. Other programs that also qualify an individual/household for ACP include but are not limited to WIC (Women, Infant and Children Supplemental Nutrition Program), Lifeline, Tribal Head Start, Free and Reduced-Price School Lunch Program, SNAP, Medicaid, and various Federal housing assistance programs. <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/>

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