Connecticut Department of
Energy & Environmental Protection
Bureau of Energy and Technology Policy

Connecticut Broadband Report

2022

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EXECUTIVE SUMMARY

This report provides insight into Connecticut's progress toward closing the digital divide via interagency efforts to facilitate the expansion of broadband infrastructure and support digital equity efforts across the state.

As the first of such reports, it also serves as a baseline upon which future evaluations may be measured. The report includes any grants awarded pursuant to Conn. Gen. Stat. § 16-330c, the status and progress made toward a state-wide goal of attaining universal access to broadband Internet download speeds of one gigabit per second and broadband internet upload speeds of one hundred megabits per second, and broadband Internet access service adoption rates and the price and nonprice barriers to broadband adoption and digital equity.

INTRODUCTION

Broadband access, synonymous with high-speed Internet, has become an indispensable tool for participation in the economy, education, healthcare, and social relationships. In fact, Congress has found that, “Access to affordable, reliable, high-speed broadband is essential to full participation in modern life in the United States."[1] And "The COVID-19 pandemic crystalized what many have known for a very long time: High-speed internet access is not a luxury, but a necessity, for all Americans, regardless of their age, race, or income, irrespective of where they live, what languages they speak, what resources they have at their disposal, and what specific challenges they may face in their daily lives."[2] There is a growing sense of urgency to remove barriers to universal connectivity as a widening gap, worsened by the digital demands of the pandemic, takes its toll on those most in need – students, elderly, and under-resourced communities.

As a result, Governor Lamont has made expanding access to high-speed Internet one of his administration’s top priorities because until significant progress is made, “we will not have equitable access for all and achieve the economic recovery that we need.”[3] For the last year, the Department of Energy and Environmental Protection (DEEP) has been working cooperatively with the Commission for Educational Technology (the Commission), the Office of Policy and Management (OPM), and the Office of Consumer Counsel (OCC) to identify barriers to universal broadband access and digital equity in Connecticut.

Connecticut’s future depends on a reliable and resilient broadband network that is scalable with the rapidly increasing demand for bandwidth.

Just a few years ago, Internet speeds of 25Mbps/3Mbps were considered sufficient. Today, the number of homes with 1 Gbps service plans is rapidly expanding in anticipation of the projected demands of telework, online learning, and the recreational use of multiple devices in a single household. Upload speeds, which have historically been considered less important and thus offered at speeds that are magnitudes slower than the accompanying download speeds, are increasingly important to support simultaneous video applications and content sharing requirements. As technology advances, so will the demand for high-performing Internet service. The long-term planning process Connecticut has embarked upon is necessary to build a strategy that grows with need.

INTRODUCTION

There are three essential elements of productive Internet use: Access to an affordable and reliable service plan, a device that is appropriate for a user's needs, and the digital skills to utilize the connection in a manner that improves the user's quality of life. In broadband discussions, these components are often categorized as issues of access and adoption. Broadband access typically refers to the availability of a physical connection that offers sufficient speeds, latency, and other performance metrics for reliable service, while broadband adoption involves factors such as affordability, availability of a compatible device, and the digital skills that impact a user's ability to benefit from that access.

Collectively, access and adoption form the foundation of digital equity, the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States.[3] Creating a shared vocabulary around broadband allows policymakers and stakeholders to communicate opportunities and obstacles with greater clarity for more effective policies and programming.

Under the leadership of Governor Ned Lamont, Connecticut is working with its federal, state and local partners to create a forward-looking action plan that addresses both access and adoption. In the last year, the State has begun to collect, validate, and organize data; identify areas of need; and target funding for the greatest impact. This report details the current state of broadband in Connecticut, efforts made by DEEP and its partners to date, and outlines next steps as the State progresses toward its goal of universal broadband.

BROADBAND INFRASTRUCTURE GRANT PROGRAMS

Connecticut's broadband infrastructure grant programs will allow eligible entities to significantly expand access to affordable and reliable Internet service for all, especially low-income and underserved areas of the State. The programs will directly enable residents' ability to participate in modern social and economic life, including telework, remote learning, and online health services, while building future-proof infrastructure to serve their long-term needs.

DEEP Office of Telecommunications and Broadband

Two of Connecticut's broadband infrastructure programs will be administered by DEEP, which is focused on developing equitable policies and programs to bring the economic and social benefits of broadband access to the residents and businesses of Connecticut. Signed in 2021, Public Act 21-159 (Conn. Gen. Stat. § 16-330) fosters equitable access to broadband in the State of Connecticut and contains various provisions related to broadband internet access service and broadband Internet access service providers. Among other things, it requires the DEEP Commissioner to establish and administer a grant program to support the deployment of broadband service, subject to the availability of federal funding. DEEP's Office of Telecommunications and Broadband was established within DEEP's Bureau of Energy and Technology Policy to support the Governor's vision and fulfill these requirements.

At the direction of the Governor, DEEP works to:

- Ensure the universal availability, affordability, and accessibility of high quality, telecommunications services to all residents and businesses in the state
- Promote the development of effective competition as a means of providing customers with a choice of services
- Facilitate the equitable and efficient development and deployment of an advanced telecommunications infrastructure, including open networks with maximum interoperability and interconnectivity
- Encourage shared use of existing facilities and cooperative development of new facilities where legally possible, and technically and economically feasible

Program Implementation

DEEP is in the process of developing Connecticut's programs per the federal requirements established in the American Rescue Plan Act and Infrastructure Investment and Jobs Act and is advancing through the application phases on schedule.

DEEP is contracting with a consultant to assist with program administration and expects to begin accepting applications in 2023.

Program	Total Grant Funds	Status	Estimated RFP Release
CPF-Funded Grants	$40.8 million	Request for Information (RFI) completed. Results informing program definition and guidelines.	Q1 2023
BEAD Program Grants	est. $95 million[5]	Initial state broadband map completed. Assessing FCC DATA map for challenge. Commencing Initial Planning phase.	Q2 2024 (Initial Round)

American Rescue Plan Act

The 2021 American Rescue Plan Act (ARPA) Coronavirus Capital Projects Fund (CPF) allocated $10 billion for states to invest in high-quality, modern infrastructure to support communities' critical needs as they recover from the COVID-19 public health emergency. The CPF allows for investment in the construction and deployment of broadband infrastructure projects that are designed to deliver service that reliably meets or exceeds symmetrical download and upload speeds of 100 Mbps. Recipients have been encouraged to focus on last-mile connections, and service providers for completed projects must participate in the FCC's Affordable Connectivity Program (ACP).

ARPA CPF Benchmark	Date	Description	Status
Funding Request to U.S. Department of Treasury	December 27, 2021	Required to receive CPF grant funds	Complete
Program Plan Approval	August 30, 2022	Schedule of payments for $42.9 million determined	Complete
Special Award Conditions Due	February 22, 2023	Funds received	In Progress
RFP Release	Est. Q1 2023		

The Connecticut General Assembly set aside a funding tranche in House Bill 5506 of the 2022 Session totaling $42.9 million ($40.8 million after administrative costs) for broadband infrastructure development utilizing the CPF. The budget language directs DEEP to utilize this funding for "Low Income/Multi-family Curb-to-home and Business Broadband infrastructure buildout and underserved area broadband infrastructure grants".

On August 30, 2022, the U.S. Department of the Treasury announced the approval of Connecticut's CPF-funded broadband infrastructure program plan which is expected to connect 10,000 locations by the end of 2026. More information on the anticipated Request for Proposals will be released in the first quarter of 2023.

Bipartisan Infrastructure Law

Later in the year, following the passage of the ARPA, the landmark 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 entire country. The largest of the IIJA programs is the Broadband Equity, Access, and Deployment (BEAD) Program, which will provide each state with at least $100 million to support broadband infrastructure deployment and adoption in unserved areas, underserved areas, and community anchor institutions. Also included in IIJA is the Digital Equity Act which provides $2.75 billion nationally and approximately $18M to Connecticut to establish three grant programs that promote digital equity and inclusion. They aim to ensure that all people and communities have the skills, technology, and capacity needed to reap the full benefits of a digital economy.

BEAD Program Benchmark	Date	Description	Status
Letter of Intent Due	July 18, 2022	Declaration of intent	Complete
Release of FCC Broadband DATA Map	November 18, 2022	Pre-production Broadband DATA Maps are made public	Complete
Notice of Available Amounts	June 2023	NTIA will release Connecticut's estimated amount of funding	In Progress
Five-Year Action Plan	August 12, 2023	Establishes the State's broadband goals and priorities and serves as a comprehensive needs assessment	
Initial Proposal	180 days from the Notice of Available Amounts	Among other things, will describe the competitive process the State proposes to use to select subgrantees	
Challenge Process	After submission of the Initial Proposal and before allocating funds	The State will accept challenges as to whether a particular location or community anchor institution is eligible for the grant funds, including whether a particular location is unserved or underserved.	
Initial Funding Availability	Est. mid 2024	At least 20% of estimated $100 million made available	
Final Proposal	est. 2025	Remainder of funds made available	

Bipartisan Infrastructure Law, continued

On November 9, 2022, the National Telecommunications and Information Administration approved Connecticut's Initial Planning Funds Application, 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/or other funding streams in concert to remedy inequities and barriers to inclusion.

Accordingly, the Five-Year Action Plan will set forth a vision for digital equity, include the results of a needs assessment for underrepresented communities and an asset inventory of ongoing digital equity activities, and detail holistic strategies around affordability, devices, digital skills, technical support, and digital navigation.[6] DEEP is working closely with the Commission to align these activities with the State Digital Equity Plan which is also under development but as of this report's publication has not received funding.

ACCESS & ADOPTION

Accessibility and Progress to State Goals

Unserved Locations (<25 Mbps/5 Mbps)	Underserved Locations (100 Mbps/20 Mbps)	Locations with Access to 1 Gbps/100 Mbps	Average Maximum Available Download Speed by Location	Average Maximum Available Upload Speed by Location
7,883 (0.57%)	229 (0.02%)	522,840 (38.26%)	1428.5 Mbps	778.7 Mbps

Pursuant to Conn. Gen. Stat. § 16-330b, the Office of Policy and Management began collecting data from Internet Service Providers (ISPs) in Connecticut in March of 2022. As of November 1, 2022, all wireline ISPs in the state have submitted two filings (data as of December 31, 2021, and data as of June 30, 2021) detailing maximum speeds available at the address-level. Historical broadband availability is not directly comparable with the data collected by OPM as FCC 477 data is collected only at the block level; however, analyses of these data sets still paints a clear picture that Connecticut's broadband infrastructure has seen significant improvements in recent years.

High-speed Internet that meets the FCC's standard of "served" at 100 Mbps download and 20 Mbps upload is widely available and the number of unserved and underserved locations in the state is estimated to be just under 8,000 (0.57% of all locations in Connecticut). Additionally, enterprise service is widely available at speeds of 10 Gbps symmetrical and higher and a high percentage of all community anchor institutions, like libraries, in the state are served by the Connecticut Education Network at speeds over 1 Gbps symmetrical. Additionally, significant progress was made in the past year toward the state goal of universal availability of 1 Gbps download, 100 Mbps upload. However, there are still significant challenges with lagging build-out in rural and low-income areas, remaining "long driveway" locations, and a lack of competition in many areas of the state.

Progress: Download and Upload Speeds

In 2016, the average download and upload speeds available in Connecticut based on a population-weighted average of census blocks were 225 Mbps and 20 Mbps respectively. As of June 30, 2022, the average download and upload speeds available at locations across Connecticut are 1,428.5 Mbps and 778.7 Mbps. This is in-line with increases across much of the United States in areas with access to cable or fiber broadband (FCC 477 2016, FCC 477 2021). As technology has improved and incumbent providers have continued to build out and improve their services, both download and upload speeds have increased significantly across the state. This progress has been especially significant over the past year as fiber-to-the-premise build-out has increased rapidly across Connecticut. As of December 2021, 173,368 locations in the state had access to mass-market fiber Internet that met the state goal of 1 Gbps download and 100 Mbps upload. As of September 30, that number has increased more than 200% to 522,840. This initial build-out has been centered along the I-95, I-91 corridor, but has also started to spread into more sparsely-populated areas.

The build-out of new fiber services in the last year seen in Figure 2, primarily by Frontier and GoNetspeed, has also resulted in increased competition in high-density areas. The number of census blocks with three or four carriers has increased by over 30% since 2016. As of September 2022, as seen in Figures 3 and 4, more than half of all locations in Connecticut had at least two carriers offering speeds above the threshold of 25 Mbps/3 Mbps. However, there are still an estimated 200,000 housing units in the state that are only serviced by one provider offering broadband speeds (over 25 Mbps/3 Mbps).

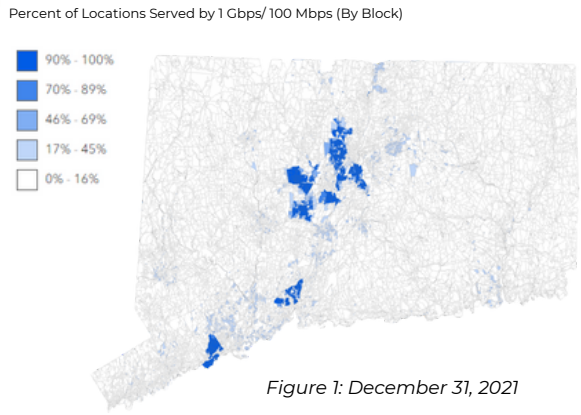


Figure 1: December 31, 2021

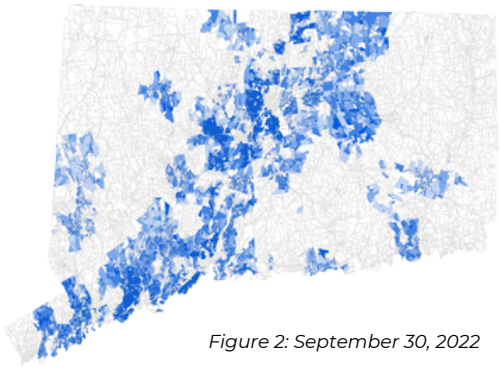


Figure 2: September 30, 2022

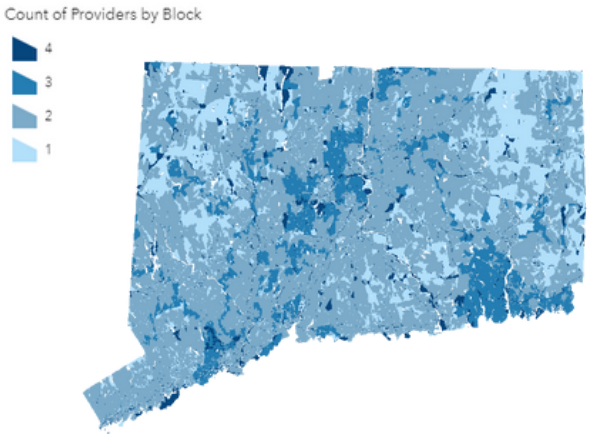


Figure 3: Number of Providers by Block

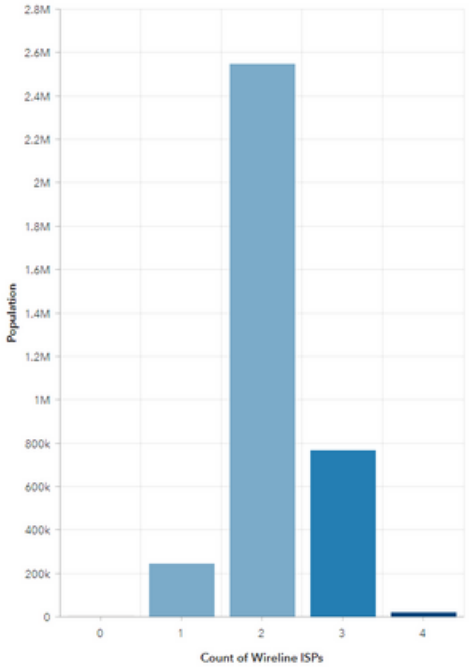


Figure 4: Population served by one or more wireline providers

Remaining Challenges to Access

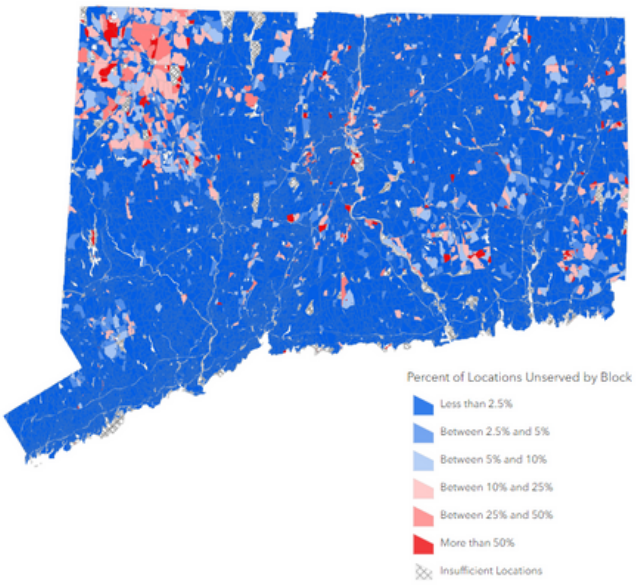


Figure 5: Unserved Locations by Block

Despite this clear progress, there are still significant challenges. Across the state, there is still a need for greater competition and variation of services so that residents and businesses alike can choose the service that is most suited to their needs while pricing becomes more affordable. The northwestern corner, as well as rural areas in the east of the state still have significant concentrations of unserved locations.

The Northwest Corner of the state is home to nine of the ten towns in the state with the highest percentage of unserved locations and there is still work to do collecting data on locations that are at the edge of incumbent providers' service areas or maximum driveway length for a no-cost installation. Finally, there are still questions about the level of access available to residents in older multi-dwelling units and the factors that can reduce access to high speeds in those units.

Broadband Adoption Challenges

Total Subscription Rate	Unserved Subscriptions (<25 Mbps/3 Mbps)	Underserved Subscriptions (≥25 Mbps/3 Mbps but <100 Mbps/20 Mbps)	Served Subscriptions (≤100 Mbps/20 Mbps but <1 Gbps/100 Mbps)	Served Subscriptions (≥1 Gbps/100 Mbps)
86.7%	151,778 (9.2%)	780,163 (47.2%)	458,765 (27.8%)	40,680 (2.5%)

Along with the availability data collected from ISPs in Connecticut, OPM collected subscription data from all wireline Internet service providers.[7] This data was provided primarily as an aggregated number of subscriptions per census tract in line with the FCC 477 data collection. As ISP classifications of business or residential often do not relate directly to the current land use of the address[8][9]. This data is more up-to-date and accurate than American Community Survey (ACS) data from the US Census Bureau and allows for more detailed analysis of subscription speeds, a feature lacking in the ACS entirely. However, it does not include estimates of how subscription rates relate to key demographic indicators such as race/ethnicity, income, education level, and age. Accordingly, the following summary of patterns in broadband adoption attempts to bring OPM-collected data together with ACS data, data from Ookla and Microsoft on actual connection speeds, and a variety of other sources.

Patterns in Broadband Adoption

According to data collected by OPM, 86.7% of all eligible locations[10] in the state have a broadband Internet subscription. This is significantly higher than the most recent ACS data which puts the figure at 75%. This is likely due to some combination of increased subscribership incentivized by the Emergency Broadband Benefit and Affordable Connectivity Programs[11] and a higher rate of subscription among small businesses than average residences as the ACS only samples households and residential subscription rates.[12] Regardless of these differences, both sources show that undersubscription is concentrated in 1) rural areas in the Northwest Corner and east of the state and 2) 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.

Poverty is among the strongest correlations with low levels of Internet subscribership in Connecticut, and around the country. For each percentage increase in the percent of a Connecticut town's population under 150% of the poverty line, there is a corresponding increase of unsubscribed locations of 0.6%. In census tracts with a poverty rate of 5.3% or less (accounting for approximately 1.5 million residents), 7.9% of all locations lack a broadband subscription. However, in census tracts with a poverty rate of 16.4% or higher (one-half standard deviation above the mean for all census tracts), this number increases to 25%. In the highest poverty areas (over 38.3%), over one-third (34.2%) of all locations lack a broadband subscription.

Subscription Levels by Tract

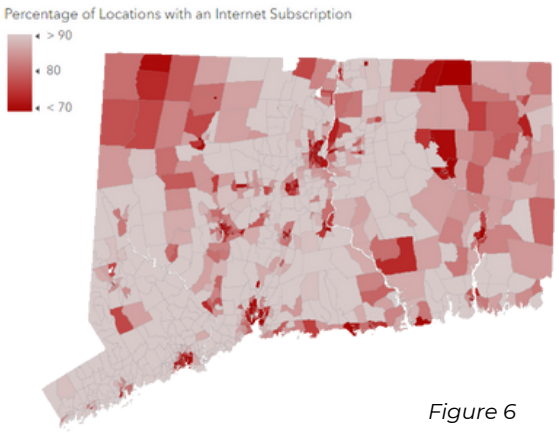
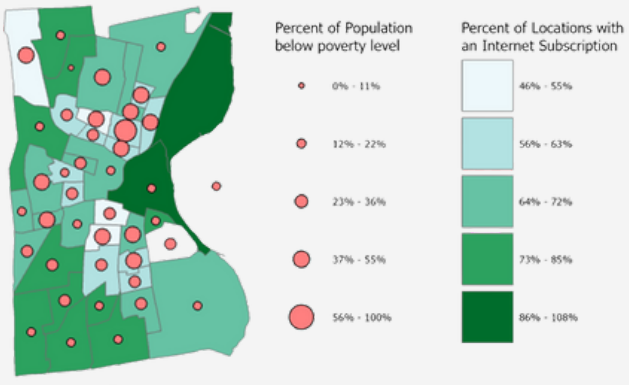


Figure 6

Even outside of high-poverty areas in the state, affordability is still appears to be a dominant factor. According to a state-wide survey completed by the Connecticut Conference of Municipalities and OPM, affordability was the primary concern for more than 60% of respondents (n=2197) including those in low-poverty suburbs.

Case Study: The City of Hartford

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). 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 South West have broadband subscription rates closer in line with the rest of the state.



Affordability

According to a 2022 analysis by the NTIA's Office of Policy Analysis and Development, the mean price that households without a current subscription plan want to pay for a monthly plan is $10. The results further indicated that for those that listed expense as the main reason for their lack of service, the only affordable price is $0.[13] Meanwhile, estimates of the average monthly bill for Internet service range from about $50 to $70.[14] Connecticut will need to integrate affordability measures into its programming and address pricing barriers for both low- and middle-income households.

The Affordable Connectivity Program

Recipients of Connecticut's CPF-funded broadband infrastructure grants will be required to participate in the Affordable Connectivity Program (ACP).[15] The ACP14 is a program run by the Federal Communications Commission (FCC) that is designed to help low-income households pay for Internet service and connected devices like a laptop or tablet. Eligible households can receive up to a $30 per month discount on Internet service (up to $75 per month on qualifying Tribal lands) and a one-time discount of up to $100 for a laptop, tablet, or desktop computer. According to data reported by the Universal Service Administrative Company (USAC) as of October 2022, Connecticut residents received over $1.6 million in device subsidies to purchase 16,481 devices with the highest concentrations in zip codes in:

Zip Code	Number of Devices	Support Amount
06511 (New Haven)	836	$83,579.68
06106 (Hartford)	822	$82,199.33
06704 (Waterbury)	679	$67,859.75
06360 (Norwich)	587	$58,699.82
06610 (Bridgeport)	570	$56,999.87

Digital Skills Building

Digital literacy is defined by Connecticut law as, “the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.”.[16] Of note, the term digital literacy is falling out of favor as it can be perceived as condescending and not reflective of opportunity. For purposes of this report, DEEP will utilize the more inclusive term ‘digital skills building’ which addresses the need for training while recognizing differences in opportunity in historically underserved communities.

Training people on devices and online spaces provides them with the tools to navigate an increasingly digital world for access to job applications, educational opportunities, and other forms of personal, professional, and civic engagement. Moreover, working with community partners to raise awareness also serves to build trust in these online services.

Digital Navigator Programs

Digital navigator programs assist community members in Internet adoption, use of computing devices, and skill development. In 2021, the Connecticut State Library received ARPA funds through the Institute of Museum and Library Services to deploy digital navigators to work one-on-one with residents to assist with connectivity and teach the skills necessary to leverage telehealth, employment assistance, social services, educational resources, and cultural enrichment websites. Specific activities that have taken place through this grant include mapping community needs, providing staff professional development, and deploying navigators to assist traditionally disenfranchised residents. The goal is to help community members reach their connectivity goals, which vary by user from work and academic enterprises to community involvement.

According to a 2022 report by the Boston Consulting Group[17], 66% of individuals that received assistance from a digital navigator successfully overcame adoption barriers and now have an Internet connection, computer, or tablet at home.

Devices

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 is able to 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.[18] Despite these advantages, a 2021 NTIA Internet Use Survey found that only 54% of Americans with disabilities used a PC or tablet compared to 70% of those who did not report a disability. Additionally, 71% of White non-Hispanics used a PC or tablet compared to 57% of African Americans and 54% of Hispanics.[19] Unless and until Connecticut households have an appropriate device and the training needed to connect, broadband access alone will not solve the digital divide.

Everybody Learns Initiative

The Everybody Learns Initiative was a $43.5 million investment by the State in remote learning solutions. The program, funded by the state's portion of the federal CARES Act (Governor's Emergency Education Relief Fund and the Elementary and Secondary School Emergency Relief Fund), resulted in the purchase of 80,000 laptops for students, 24 months of access to at-home Internet for nearly 50,000 students, cellular hotspots for more than 14,000 students, the creation of free public wireless hotspots at nearly 200 community sites across the state, and social and emotional learning content 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.

OUTREACH & ENGAGEMENT

Stakeholder engagement is critical to moving the needle on equity. Connecticut has developed interagency partnerships to ensure the state is engaging in meaningful discussions with the diversity of communities in Connecticut. Critical input is also being sought from local and regional experts who have been engaged in digital equity efforts for years and are intimately aware of the challenges and solutions unique to Connecticut's communities.

The State has taken several important steps toward reaching the traditionally disenfranchised resident groups that the Digital Equity Act specifically addresses: the aging, those incarcerated in State facilities, households at or below 150% of the poverty line, individuals with disabilities, residents with language barriers, members of a racial or ethnic minority group, rural residents, and veterans. In October, 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. The event began the process of identifying barriers to broadband adoption and the possibilities of having a fully connected, skilled, and fully enfranchised citizenry. It's also the first step in what will be direct, grass-roots community engagement as planning for broadband access and adoption moves forward.

Broadband Infrastructure Request for Information

On July 6, 2022, DEEP released an extensive Request for Information (RFI) to inform the structure and implementation of the broadband infrastructure grant programs. The RFI sought input from municipalities, providers, libraries, nonprofits, stakeholder associations, community organizations, and other interested parties on a range of programmatic matters including program alignment, affordability, workforce, and technical specifications. To stimulate interest in the RFI and bring awareness to stakeholders, DEEP held a public input session on July 21 and informational webinar for municipalities on August 9.

Nearly 40 responses were received from a diversity of stakeholders addressing both access and adoption. Respondents provided critical insights that will help frame the State's programs and outreach efforts:

> *"We've learned that disconnected households have low trust in ISPs and tech support providers based on prior negative experiences. As trusted community members, our navigators help families overcome their anxieties by sharing accurate information about benefits programs, Internet privacy, and digital and media literacy skills. We now have a waitlist of clients eager to participate in the program, and our strongest referral source has been word-of-mouth recommendations from current and former clients."*
>
> East Hartford Public Library

> *"GoNetspeed has seen the most success by working directly with the city/town officials to meet these needs by talking about their challenges with residential/commercial broadband, what challenges they have for their city wan [Wide Area Network] /camera/communications needs and how we can utilize private funding and public funding to bridge the gap and maximize the value."*
>
> GoNetspeed

> *Connecticut is a beautiful state, offering a world class quality of life, and broadband is what allows workers to choose to live here. Economic development based on luring talent will increase tax revenues and investment. Meanwhile the lack of affordable broadband service throughout the state perpetuates historic inequities.*
>
> Lower Connecticut River Valley COG

Developing a Comprehensive Stakeholder Engagement Plan

As DEEP and its partners continue to work toward a statewide broadband infrastructure grant program, a thorough and holistic engagement plan will be developed with the appropriate metrics to ensure the state is reaching the breadth and depth of stakeholders needed for these programs to be a success. Engagement efforts will be structured to build and maintain relationships with the diversity of stakeholders throughout the state, especially unserved, underserved, and underrepresented communities.

DEEP is developing an outreach and engagement strategy as part of its Five-Year Action Plan that will:

- Include all urban, suburban, rural, and Tribal areas of the state
- Reach diverse stakeholder groups, labor organizations, and community organizations, including to promote the recruitment of women and other historically marginalized populations for workforce development opportunities
- Utilize multiple awareness and participation mechanisms and different methods to convey information and outreach, including in-person and virtual meetings and listening sessions, web content, and multi-language informational materials distributed from community anchors
- Establish transparency of processes, including the documentation and publication of outreach efforts
- Focus outreach to and direct engagement of unserved and underserved communities, especially historically underrepresented and marginalized groups

Many towns and cities have already undertaken data collection and community outreach efforts to identify the specific and unique needs of their communities. Developing lines of communication with these localities creates opportunities for them to coordinate with each other and benefit from a shared discourse. As an example of these efforts, OPM cooperated with the Connecticut Conference of Municipalities (CCM) in developing a broadband survey over the summer and is planning to continue more targeted data collection efforts with CCM and other local stakeholders in the coming year. These efforts will also help to increase adoption rates of newly deployed service offerings.

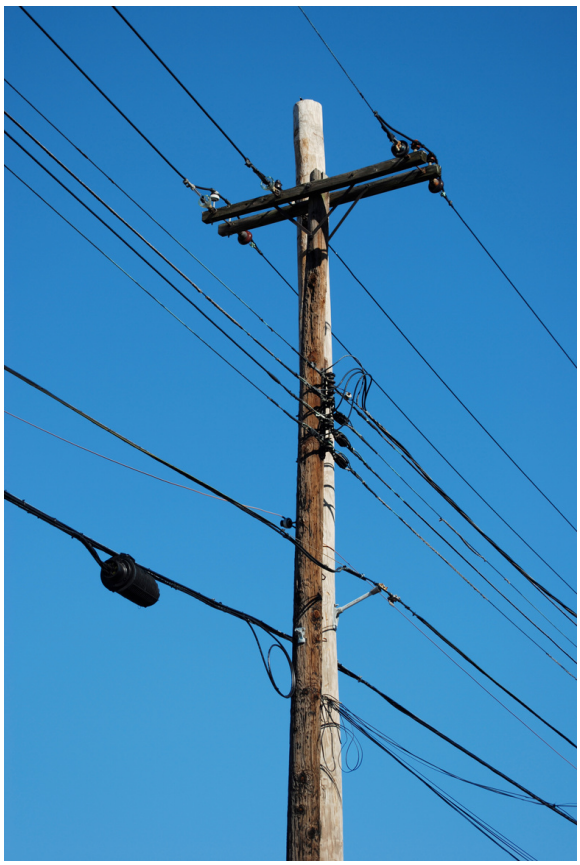
ADVOCACY

DEEP's Office of Telecommunications and Broadband and the OCC's Office of State Broadband (OSB) have been advocating over the past year for the interests of broadband consumers and regulatory parity at both the federal and state levels.

Broadband Advocacy Efforts at the Public Utilities Regulatory Authority (PURA)

In Docket No. 19-01-52RE01, PURA Investigation of Developments in the Third-Party Pole Attachment Process – Make Ready, 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. PURA adopted many of these positions in its final decision.

In Docket No. 21-07-29, Single Visit Transfer Process for Double Poles, PURA is establishing a process so pole attachers may 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. Poles often need replacement when new attachments are made by competitive providers and incumbent providers enhancing their networks. In Docket No. 21-11-05, PURA opened an investigation into complaints about unsafe utility poles. As a result of this proceeding, and with OCC's participation and input, PURA established uniform state-wide processes for the ascertainment of unsafe utility poles and the removal of poles deemed unsafe. Accordingly, OCC and DEEP are serving as agency members of the State-wide Pole Attachment Working Group which is coordinated by the Education, Outreach, and Enforcement Bureau of PURA.



Broadband Advocacy Efforts at the Federal Communications Commission (FCC) and National Telecommunications & Information Administration (NTIA)

In NTIA Docket No. 220105-0002, NTIA's Notice of Request for Comments on Infrastructure Investment and Jobs Act Implementation, DEEP and the OSB 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 in part general in nature and also specific to ensuring that the particular 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 OSB 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, OSB 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. OSB 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, OSB 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, OSB 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. OSB also advocated for sufficient resources to enforce digital discrimination regulations, including permitting local enforcement. In its reply comments OSB 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. OSB also brought to highlight legacy state laws that may contribute to digital discrimination, such as those that eliminated cable franchise requirements.

In FCC Docket No. CG – 22-2, In the Matter of Empowering Broadband Customers Through Transparency, OSB 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 labelling disclosures for households to have when considering Internet Service Providers.

RECOMMENDATIONS & NEXT STEPS

01 **Develop and implement a comprehensive outreach and engagement plan**

02 **Use results of the state broadband mapping initiative to inform State programs**

03 **Incorporate affordability mechanisms into State programs**

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 the matter of months. Although full-time remote learning has ended, the State needs to ensure that all students have the tools, support, and resources to make full use of digital tools and resources for personalized learning. Designing and implementing long-term solutions to digital equity issues in the state will work to close the achievement gap, a strategic investment in Connecticut's future.

Economy

The achievement gap later presents as an opportunity gap, where career options and opportunities for growth are limited due to educational differences in K-12, college, and technical training programs. These inequities are not just detrimental to the individual, they are damaging to 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. Access to affordable broadband and pathways to adoption will lead to a genuine closing of the digital divide by promoting digital equity.[20] By addressing issues of 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' [21] 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. Beyond the immediate benefits, the expansion of access broadband today positions the state of Connecticut to take advantage of the growing catalogue of digital technologies in order to remain competitive well into the future.

Acronyms

ACP	Affordable Connectivity Program
ACS	American Community Survey
ARPA	American Rescue Plan Act
BEAD	Broadband Equity, Access, and Deployment (Program)
CCM	Conference of Connecticut Municipalities
CPF	Capital Projects Fund
DEEP	Department of Energy and Environmental Protection
EBB	Emergency Broadband Benefit
FCC	Federal Communications Commission
Gbps	Gigabits per second
IIJA	Infrastructure Investment and Jobs Act
ISP	Internet Service Provider
Mbps	Megabits per second
NOPR	Noticed of Proposed Rulemaking
NTIA	National Telecommunications and Information Administration
OCC	Office of Consumer Counsel
OPM	Office of Policy and Management
OSB	Office of State Broadband
PC	Personal Computer
PURA	Public Utilities Regulatory Authority
RFI	Request for Information
USAC	Universal Service Administrative Company

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4. "Digital Equity Act of 2021". 47 U.S.C. § 60302.
5. This amount is subject to change per the issuance of the Notice of Available Amounts. See the BEAD Program schedule for more information.
6. *Broadband Equity, Access, and Deployment Program Notice of Funding Opportunity* (2022). https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf
7. This notably excluded fixed wireless and satellite for data collected in 2022 but will include these providers as 2023.
8. Land uses were derived from a variety of state-level datasets: parcel data, state parks, airports, etc.
9. This calculation is based on subscription data collected from ISPs by OPM and OPM's internal estimate of the total number of locations eligible for service by mass-market broadband. The latter was calculated based on town parcel data, analyses of utility address databases, and statewide layers identifying open-spaces, airports, state-owned properties, etc.
10. Eligible locations refers 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, community anchor institutions, parks, and other locations unlikely to purchase mass-market services excluded.
11. The Economic Broadband Benefit was created by the FCC and managed by the Universal Services Administrative Company and was superseded by the Affordable Connectivity Program as of March 1, 2022.
12. 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.
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