CONNECTICUT'S

BROADBAND EQUITY ACCESS & DEPLOYMENT (BEAD) PROGRAM

INITIAL PROPOSAL: VOLUME 2

2024

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1. Introduction

The Connecticut Department of Energy & Environmental Protection (DEEP) has finalized the Initial Proposal, as required under the Broadband Equity, Access, and Deployment Program (BEAD). DEEP wants to thank stakeholders for their active engagement through initial BEAD planning, including the public comment process. DEEP looks forward to ongoing public engagement as the state works to ensure all Connecticut households have access to broadband connectivity. DEEP has incorporated feedback from public comment into this Volume II of the Initial Proposal, which has been submitted to the National Telecommunications and Information Administration (NTIA), the administrators of BEAD.

For more information about the Initial Proposal, as well as other documents under the BEAD program, please visit https://portal.ct.gov/deep/energy/broadband-deployment/bead-program.

2. Objectives (Requirement 1)

This section outlines the state's primary objectives for broadband deployment, which are aligned with the principal focus of the BEAD Program:

1. Serving 100 percent of unserved locations (i.e., below 25 Mbps/3 Mbps) within five years
2. Serving 100 percent of underserved locations (i.e., between 25 Mbps/3 Mbps and 100 Mbps/20 Mbps) within five years
3. Delivering gigabit connections to certain Community Anchor Institutions that do not have that level of service within five years
4. If remaining funds allow, other digital equity initiatives, developed through ongoing community engagement and development of the Digital Equity Act Plan

The following goals and objectives 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.

Goal 1: Enhance Broadband Deployment

Fund broadband infrastructure 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.

Objective: 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.
- 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.

Objective: 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, highly skilled

broadband workforce.

- Enhance economic growth and job creation by promoting sector-based partnerships among employers and education providers.
- Leverage existing programs to increase economic growth and job creation.

Goal 2: Promote Affordability

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

Objective: 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 (ACP) enrollment.

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.

Objective: 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.

Objective: Leverage Existing State and Federal Resources and Support the Development of New Programs.

- Identify all community organizations operating in 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 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.

Objective: 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. Consider the creation of a collaborative task force comprising representatives from telecommunication companies, regulatory bodies, and relevant stakeholders to facilitate communication.

Objective: 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 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.

Objective: 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.

3. Local, Tribal, and Regional Broadband Planning Processes (Requirement 2)

This section identifies and outlines steps to support local, Tribal, and regional broadband planning processes or ongoing efforts to deploy broadband or close the digital divide across Connecticut and describes coordination with local and Tribal Governments, along with local, Tribal, and regional broadband planning processes.

Section 8-23 of the Connecticut General Statutes (CGS) requires each municipality to prepare or amend and adopt a Plan of Conservation and Development (POCD) at least once every ten years. The plan serves as a statement of policies, goals, and standards for the physical and economic development of the municipality and is designed to promote the coordinated development of the municipality and the general welfare and prosperity of its people. More than half of the current POCDs in Connecticut have included the expansion and enhancement of telecommunications infrastructure in their goals and strategies to better serve their residents, current and future.

Similarly, Connecticut's Councils of Government (COGs) are tasked with developing Comprehensive Economic Development Strategy documents. To varying degrees, these strategy documents address the state of telecommunications infrastructure in the region and detail plans and priorities for the next five years. DEEP presented details of the BEAD Program to the majority of COGs in the state and consulted these plans in the course of the development of the Initial Proposal.

DEEP organized Tribal consultations with each federally recognized Tribe from September to December 2023. At these consultations, DEEP staff delivered a presentation on the BEAD Program and its role in the deployment of broadband infrastructure across the State of Connecticut, including information on the Digital Equity Act and the Commission for Educational Technology's role in developing and implementing the State Digital Equity Plan. Following this presentation, Tribal Leaders were consulted on the needs and opportunities in their communities as they relate to both deployment and non-deployment activities. The discussions then centered on the gaps in service availability, community anchor organizations, and how BEAD funds could be utilized to further planned initiatives.

Lastly, through outreach efforts and ongoing communications with stakeholders, DEEP identified a number of recent or active broadband surveys, feasibility studies, and related plans undertaken by communities that have been consulted during the development of this proposal.

Assessing existing efforts was the first step to understanding broadband readiness throughout the State of Connecticut. This level of initial coordination and engagement was vital to DEEP's strategy for ensuring that broadband funds are appropriately spent. Ongoing coordination with regional and local planning initiatives will continue to be a priority moving forward in the implementation of the BEAD Program.

4. Local Coordination (Requirement 4)

This section describes DEEP's outreach and engagement process for the BEAD Program, which 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 for Educational Technology within the Department of Administrative Services (DAS),[1] which is leading the development of the state's Digital Equity Plan. The Local Coordination Tracker is attached below as Appendix A: Local Coordination Tracker.

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.

4.1 Engagement Goals and 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., a feedback mechanism).
- Update and adapt the stakeholder engagement process throughout the life of the BEAD

[1] Connecticut Commission for Educational Technology, https://portal.ct.gov/DAS/CTEdTech/Commission-for-Educational-Technology.

Program.

- Solicit a wide range of input on, and identify and reconcile issues raised with, the major milestone documents for the BEAD Program, including the 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.

4.2 Stakeholders

DEEP's outreach and engagement process 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.

Table 1: Stakeholders and Stakeholder Groups Targeted for Engagement

Public Service	Private Sector	Community-Serving
Federal Government	Broadband Service Providers	Nonprofit Organizations
State Agencies	Economic Development Organizations	Community-based Organizations
Elected Officials		Community Anchor Institutions
Localities	Chambers of Commerce	Coalitions or Associations
Tribal Government	Local Business	Faith-based Organizations
Public Utilities or Regulatory Authority	Labor Unions	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, Community Anchor Institutions (i.e., schools, libraries, and 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 cybersecurity 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.

4.3 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 these populations in consideration of the historical inequities they experience 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 with limited literacy
- Persons who live in rural areas
- Persons otherwise adversely affected by persistent poverty or inequality

Covered Populations

- 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

4.4 Engagement Tactics

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. Local coordination efforts are discussed in greater detail in Section 4. DEEP's comprehensive engagement process is comprised of Regional Community Forums in each of the nine Council of Government (COG) regions of the state; meetings with each regional COG; quarterly virtual stakeholder roundtable discussions; the convening of a Broadband Working Group; a Community Organization Survey; two resident surveys; individual stakeholder information meetings; a formal Tribal consultation process (described in Section 4.6); and outreach through online updates, traditional media, and telephone.

Informing and 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 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 keeps 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.

4.5 Full Geographic Coverage

Over the course of the development of this Initial Proposal, DEEP engaged diverse stakeholder groups across the entire state of Connecticut, recognizing that different geographic regions and political jurisdictions have distinct requirements and priorities. DEEP sought to ensure that every political subdivision and federally recognized Tribe had the opportunity to contribute by submitting their own plans, which were taken into consideration in the development of DEEP's Proposals. To foster a

collaborative and community-driven approach to broadband development, DEEP engaged in the following activities.

Regional Councils of Governments (COG) Meetings

DEEP presented updates on broadband programs and addressed questions to the nine Regional Councils of Governments (COG) in Connecticut both in person and virtually.

Table 2: Dates of Regional Councils of Governments Meetings

COG	Date
Lower River Valley	June 28, 2023
Northwest Hills	September 14, 2023
Naugatuck Valley	December 15, 2023
South Central Region	Date TBD; pending response
Capitol Region	September 19, 2023
Western Connecticut	June 15, 2023
Metropolitan	September 28, 2023
Northeastern Connecticut	Planned: January 26, 2024
Southeastern	Date TBD; pending response

Regional Community Forums

Throughout the Fall of 2023, DEEP hosted community forums in each of the nine COG regions of the state and is focusing on the lived experiences of community members. DEEP shared information on state programming, helped residents identify potential connectivity issues within their home as well as how to take a speed test, and gathered feedback on issues with access, performance, affordability, and digital skills. Sessions addressed local challenges and opportunities.

Table 3: Dates of Regional Community Forums Meetings

Region	Municipality	Venue	Date
Northwest Hills	Litchfield	NHCOG Office	Thursday, October 26, 2023
Naugatuck Valley	Wolcott	Wolcott Public Library	Thursday, November 2, 2023
South Central	New Haven	United Way of New Haven	Monday, November 6, 2023
Capitol Region	Hartford	The Lyceum	Thursday, November 9, 2023

Region	Municipality	Venue	Date
Western	Danbury	Danbury Library	Monday, November 13, 2023
Metropolitan	Bridgeport	Beardsley Library	Tuesday, November 14, 2023
Northeastern	Putnam	Putnam Town Hall	Tuesday, November 14, 2023
Southeastern	New London	Public Library of New London	Thursday, November 16, 2023
Lower River Valley	Middletown	deKoven House	Thursday, December 7, 2023

Data Collection Surveys

In addition to the meetings described above, DEEP administered several surveys to residents to gather crucial information:

- Community Organization Survey (2023): This survey served multiple purposes, including cataloging digital equity resources across the state, identifying potential recipients of BEAD Program and Digital Equity Act funding, collecting data for the State Digital Equity Plan, and gathering contact information for future outreach. The Community Organization Survey received more than 370 responses.
- Resident Survey on Digital Equity (2023): This survey was designed for Connecticut residents and focused on identifying individual and demographic barriers to broadband connectivity. The data collected helped DEEP gain insight into the specific challenges faced by residents in different areas, contributing to targeted solutions. The survey was available in both digital and print formats in English and Spanish. The survey received more than 6,000 responses.
- CCM Broadband Connectivity Survey (2022): This survey was conducted to guide the allocation of federal infrastructure funds, create a GIS map for strategic broadband deployment, inform research and policy recommendations, and target additional funding streams effectively. It assisted DEEP in making data-driven decisions regarding broadband infrastructure development. Over the course of four months, CCM received feedback from more than 2,000 Connecticut residents.

In crafting this Initial Proposal, DEEP has remained steadfast in its commitment to engaging and empowering the diverse communities across Connecticut. Through data-driven decision-making and grassroots involvement, DEEP has laid the foundation for more equitable and responsive broadband infrastructure in the state.

4.6 Meaningful Engagement and Outreach to Diverse Stakeholder Groups

DEEP implemented several strategies to ensure that stakeholders had a comprehensive understanding of Connecticut's broadband objectives and the opportunity to provide feedback on this Initial Proposal. DEEP leveraged its pre-existing relationships and actively expanded its stakeholder list to include various

entities representing a wide spectrum of interests, including Community Anchor Institutions, community organizations, municipalities, state agencies, Tribal nations, workforce development organizations, unions, healthcare facilities, aging populations, veterans, community centers, internet service providers (ISP), and others.

DEEP has been hosting stakeholder-specific programming through quarterly virtual roundtable discussions. Each quarter, the state holds three meetings, tailored to ISPs, state and local government leaders, and community organizations. These discussions facilitate a dialogue between the state and attendees, allowing DEEP to provide updates on its programs while giving stakeholders an opportunity to share their feedback and insights on the opportunities and challenges related to universal service.

Table 4: Sample Topics and Questions for Stakeholder Groups

Stakeholder Group	Example Topics of Focus/Discussion Questions
Telecommunications and Broadband Service Provider Roundtables	• 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?
State & Local Government Roundtables	• 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?

Stakeholder Group	Example Topics of Focus/Discussion Questions
Community-Based Organization Roundtables	• 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?

Table 5: Dates of Roundtables

Roundtable	Target Audience	Date
Q2 2023	Telecommunications and Broadband Service providers	April 4
	State and Local Government	April 11
	Community Organizations	April 25
Q3 2023	Telecommunications and Broadband Service providers	August 8
	State and Local Government	August 9
	Community Organizations	August 10
Q4 2023	Telecommunications and Broadband Service providers	November 1
	State and Local Government	November 8
	Community Organizations	November 15

DEEP also continues to hold individual information meetings as necessary to ensure interested parties receive a comprehensive overview of the state's broadband initiatives. This comprehensive and inclusive approach has contributed to a robust and diverse engagement process.

4.7 Multiple Awareness and Participation Mechanisms

DEEP implemented a diverse array of awareness and participation mechanisms, employing different methods to effectively convey information and outreach to a wide audience.

E-mail Marketing Campaigns: DEEP used e-mail newsletters to proactively notify stakeholders about forthcoming engagement opportunities, ensuring that those on their stakeholder list were well-informed in advance.

Social Media: DEEP maintained a robust social media presence across platforms such as Facebook, Twitter, Instagram, and LinkedIn, allowing the state to reach and engage with a broader online audience.

Phone Line: To further expand accessibility, DEEP established a dedicated broadband phone line, ensuring that community members without internet access could still participate in the initiative.

Traditional Media: DEEP announces major program milestones and opportunities for public engagement through press events and written releases to help reach local audiences and demographics with fewer digital skills.

Hybrid Virtual/In-Person Events: DEEP is committed to inclusivity and recognized the diverse needs of residents, preparing hybrid options for most events to ensure that DEEP's outreach efforts were inclusive and adaptable.

Communications and Promotional Materials: To help raise awareness and increase engagement, the state developed a one-page flyer that provides an overview of state initiatives and a toolkit to assist community champions at key program milestones.

4.8 Clear Procedures to Ensure Transparency

DEEP maintains a website to share information, documents, guidelines, and updates related to the broadband initiatives. Meeting recordings and other relevant materials are published on the website to ensure that the public has access to information and can stay informed about the progress and developments in Connecticut's broadband programs. These mechanisms collectively underscore DEEP's commitment to openness, inclusivity, and transparency in the state's broadband initiatives.

DEEP also conducted a 2022 Broadband Infrastructure Programs Request for Information (RFI), a two-month initiative that garnered feedback from a diverse array of stakeholders, including municipalities, ISPs, community organizations, nonprofits, small businesses, and residents. The primary objective of this RFI was to engage the public and collect their input, which would then be used to shape the guidelines and structure of forthcoming broadband infrastructure deployment programs. By actively seeking and incorporating public input, DEEP demonstrated transparency and a commitment to involving various stakeholders in decision-making.

In 2023, DEEP established a Broadband Working Group, which builds upon an existing monthly broadband meeting of interagency representatives. This working group convenes at least five state agency partners, including the Commission for Educational Technology which has been tasked with developing Connecticut's State Digital Equity Plan. The group meets monthly, providing a platform for

continuous and collaborative discussions about the development and implementation of broadband-related programs. By bringing together various state agencies and stakeholders in a structured, ongoing manner, DEEP fosters transparency, promotes interagency cooperation, and ensures that decisions and strategies are developed through a consultative process. While the scope of each meeting is different, the overall focus of the working group is to:

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

4.9 Outreach and Engagement of Unserved and Underserved Communities

DEEP has been actively engaged in outreach to unserved and underserved communities, including historically underrepresented and marginalized groups, in several ways:

Comprehensive Stakeholder List: DEEP maintains a comprehensive and inclusive stakeholder list, ensuring that it represents the covered populations and underrepresented communities specified in the BEAD and DE NOFOs. The compilation of this stakeholder list involved actively engaging with state and local leaders, unions, local organizations (especially in unserved and underserved communities), broadband service providers, and DEEP's existing environmental justice contacts to ensure representation and inclusion of unserved, underserved, and vulnerable communities. The list is continually updated as new stakeholders and trusted community partners are identified. This list serves as a foundation for outreach and engagement efforts, reflecting Connecticut's diverse population and the need to address disparities in broadband access. DEEP's proactive approach aims to ensure that these underrepresented communities are well-represented and engaged.

Engagement with Community Organizations and Local Advocates: DEEP actively reached out to community organizations and local advocates for all events. This approach enabled the state to tap into local knowledge and resources and engage directly with groups that work closely with underserved communities. Engagements with organizations like the American Association of Retired Persons (AARP) further served to address the needs of specific demographics.

In-Person Regional Community Forums: DEEP hosted nine in-person Regional Community Forums across the state, with a preference for holding them at libraries. Libraries serve as essential resource hubs for underrepresented and underserved communities, offering accessible reading materials and resources, job and career assistance, and more. This choice of venue was intentional and tailored to the needs of these communities, ensuring that forums were conducted in familiar and welcoming environments.

Accessibility and Inclusivity: DEEP made a concerted effort to ensure that materials, documents, meetings, and information were accessible to all. When libraries were not available to host events, other

accessible locations such as local government offices and community centers were used. The selection of these locations took into account ADA accessibility, proximity to public transportation, and parking availability. Additionally, DEEP accommodated community members who preferred or needed a virtual option, providing Zoom links and other options as needed. The Resident Survey on Digital Equity and an informational one-pager on DEEP's ConneCTed Communities Grant Program were also distributed in Spanish and English to help make them accessible to a broader range of community members. This approach aimed to make participation as accessible and inclusive as possible.

Attending Statewide Events: DEEP extended its outreach by attending events across the state, such as informational programming on the ACP in the City of New Haven. This further allowed the state to engage with communities directly, staying informed about their needs and actively participating in events that are relevant to broadband access and equity.

DEEP's multi-faceted approach to outreach and engagement underscores the state's dedication to addressing the digital divide and ensuring that unserved and underserved communities, particularly historically underrepresented and marginalized groups, are active participants in Connecticut's broadband initiatives.

4.10 Tribal Consultation Process

DEEP followed agency protocol and NTIA best practices identified in the state Broadband Office Tribal Engagement guide in organizing its formal consultations with Tribal Governments. DEEP invited both federally recognized tribes within the state via Dear Tribal Leader letters signed by the Chief of Staff to Governor Ned Lamont on May 24, 2023, and engaged in additional communications as needed to set up the consultations with the goal of gathering data on broadband availability, tribal priorities and plans, existing broadband development, partnerships, and interest in grant funding and other resources.

During the consultations, representatives from DEEP, DAS, OPM, and the Tribal Nation discussed existing infrastructure and infrastructure needs both for residential buildings and for Tribal Community Anchor Institutions. A sample and copies of such Dear Tribal Leader Letters are attached in Appendix B.

5. Deployment Subgrantee Selection (Requirement 8)

This section of Volume II describes in detail how DEEP proposes to structure, design, and implement its grant program to award BEAD funds to subgrantees to deploy broadband infrastructure in Connecticut.

This section includes extensive discussion of the structure of the program, the timeline, the scoring, and steps DEEP will take to try to maximize the reach and impact of the BEAD funds throughout Connecticut. See Appendix C: Summary of the Subgrantee Selection Process for a chart summarizing the subgrantee selection process described in this section, including the documentation, milestones, and phases required in the process.

DEEP developed this subgrantee selection process to meet both NTIA's requirements and the state's goals. While every effort has been made to propose scoring criteria and requirements that will enable DEEP to make awards to subgrantees for projects that will maximize the impact of the BEAD funding and other resources the state may commit to the BEAD program, DEEP also recognizes that this grant program, like any such program, will not have guaranteed outcomes. For example, some areas may not attract any applicants, or may attract only one applicant. Further, the BEAD program breaks new ground and is experimental in that no entity, state or federal, has ever been required to design a program that would address the needs of 100 percent of eligible locations. DEEP therefore anticipates that it may not receive applications that address that goal within the finite BEAD budget and DEEP may need to use negotiations, consistent with NTIA's BEAD rules, to ensure a solution for all eligible locations.

The following selection process is designed to be fair and avoid arbitrary decisions by outlining selection rules and procedures, applying fair and consistent rules to all applicants, and, to the extent possible, defining quantitative scoring methods that minimize subjective judgement. Selection officers will be required to certify that they do not have conflicts of interest and will apply grant rules fairly and without bias.

5.1 Deployment Subgrantee Selection Process

5.1.1 Principles

The State of Connecticut has prioritized for its BEAD grant program the development of a process that is fair, open, and competitive.[2] All elements of the BEAD program have been designed with these goals at the forefront, as well as DEEP's related BEAD design principles:

- Impact
    - All public spending should facilitate and enable broadband affordability, equity, and opportunity
    - Grant strategy should seek to make limited funds reach as far as possible
    - Fiber-to-the-premises should be prioritized and funded to every reasonably feasible

[2] See CT Gen Stat § 16-247a (2019)

location except where the Extremely High Cost Per Location Threshold is exceeded and alternative technologies should be used

- Process and requirements should make prudent use of public funds through rigorous review and qualification of bids

- Simplicity and widespread participation
  - The process should be designed to encourage maximum participation by eligible applicants and opportunity for smaller and non-traditional applicants
  - The program, from design to final execution of grant agreements, should limit burdens on applicants and enable efficient applicant participation
  - The program design should also enable efficient grant program administration while accounting for BEAD's complexity
- Openness, fairness, and competition
  - The process should reflect the key goals of enabling participation through openness, sharing of information, fairness, and commitment to competition
  - Grant strategy should be designed to increase the potential for competition among applicants statewide and in specific areas

Openness represents a core value and guiding principle for DEEP as it undertakes both the BEAD program and other broadband and digital equity initiatives. Openness is crucial to ensure the best outcomes for unserved and underserved communities and will involve a range of strategies:

1. Open and inclusive eligibility for grant awards, welcoming applications from both public and private entities, as well as collaborations and public-private partnerships
2. Community input at all stages of the BEAD process, including through engagement and feedback to the planning process and the plans themselves (e.g., a dedicated public comment period, during which stakeholders, including community members and interested parties, will have the opportunity to review and offer input on project proposals) to ensure that the decision-making process remains accessible and open to public scrutiny
3. Openness and transparency in the evaluation process, with feedback to unsuccessful applicants to build trust and encourage participation

Fairness for ISP applicants in a competitive grant program for building broadband infrastructure is essential to encourage competition, innovation, and the efficient use of resources while ensuring that underserved areas receive the connectivity they need. To ensure fairness in its BEAD grant process, DEEP anticipates the following:

1. Open and transparent process, with all grant materials and guidance available to all potential applicants on the same timeline, including publication of the scoring rubric

2. Ongoing and frequent communications and technical assistance through public means such as grant workshops and frequently updated FAQs, and other guidance, resources, and support to enable maximum information sharing with potential applicants and to help applicants prepare competitive proposals and meet the required standards. By offering technical support, DEEP aims to level the playing field and ensure that all eligible entities have an equitable chance to participate in and benefit from the grant program
3. Eligibility criteria that are clear, inclusive, and not overly restrictive, within the parameters of the BEAD program, to ensure that entities of all sizes, both public and private, can participate
4. Transparent and clearly defined scoring criteria designed to assess project proposals objectively
5. A competitive process that encourages applicants to submit innovative proposals and cost-effective solutions
6. A fair review process that is impartial and free from conflicts of interest, with a range of expert evaluators engaged to assess proposals. In Connecticut, public officials may not take official action on a matter in which they have any interest that substantially conflicts with the proper discharge of their duties. Conn. Gen. Stat. § 1-85. Specifically, to ensure against risks of bias, collusion, conflict of interest, and self-dealing, DEEP will require reviewers to sign an ethics and confidentiality agreement that certifies, among other things, they will not participate in the review of any application that would cause a reasonable person to question their impartiality
7. Comprehensive input and expertise in subgrantee selection through DEEP's partnerships with the DEEP Office of Innovative Partnerships and Programs' Client Concierge Team, DAS's Commission for Education Technology, and Connecticut's Broadband Working Group

Affordability and equity are at the heart of DEEP's goals, methodology, and commitments. To reach these broadband goals, the BEAD NOFO recognizes that "[c]ompetition among broadband providers has the potential to offer consumers more affordable, high-quality options for broadband service."[3] Creating a competitive environment for the BEAD grant program will further these goals, and will be ensured through multiple means:

1. Broad eligibility and participation, including of a full range of non-profit and for-profit private entities, and traditional and non-traditional service providers
2. A low-burden grant program that is designed to make it feasible for all sizes of entities to compete without facing unreasonable costs or level of effort

DEEP's approach aligns with federal and state requirements, including the BEAD NOFO and PA 21-159. By adhering to these regulations and conducting a thorough, competitive, and transparent selection process, DEEP aims to efficiently distribute subgrants for last-mile broadband deployment projects while upholding fairness and open access to broadband services for all Connecticut residents.

[3] See BEAD NOFO, IV.C.1.a

5.1.2 Technical Assistance and Administrative Support

To support openness, fairness, and competition in its BEAD grant efforts, DEEP plans communications, technical assistance, and administrative support for applicants throughout the process. DEEP will leverage its considerable grant funding experience and existing program framework to provide technical assistance resources and administrative support during the subgrantee selection process for its BEAD grant funding program. DEEP will use its existing communications channels to provide all partners in the state with the most accurate and up to date information regarding key deadlines and milestones for its BEAD program. DEEP's outreach processes and technical assistance materials will provide guidance, templates, and information about each of the subgrantee selection process elements discussed below.

DEEP has an extensive email list of stakeholders, including service providers, local governments, Community Anchor Institutions, state agencies, and community support organizations. DEEP also has a robust web and social media presence. DEEP will use these tools to alert potential applicants of each milestone during the process outlined below as well as providing information on technical assistance opportunities or updated information about program requirements. DEEP's stakeholders will also be encouraged to further distribute information about the BEAD program through their own email lists and website postings. DEEP will also use its website as a repository for potential applicants to access detailed application materials and technical assistance resources.

5.1.3 Overview of Planned Subgrantee Selection Process

The following is DEEP's planned Subgrantee Selection Process, which is part of DEEP's larger plan for ensuring broadband for locations that are currently unserved and underserved.

DEEP anticipates a multi-step process for selecting subgrantees for its BEAD funds that will (1) begin with prequalification of applicants (hereinafter referred to as the Prequalification Phase), (2) then proceed to receipt and scoring of grant applications for fiber-to-the-premises (hereinafter referred to as the Scoring Phase), and (3) then proceed to negotiations with applicants (hereinafter referred to as the Negotiation Phase).

DEEP anticipates offering applicants the opportunity to propose projects based on the boundaries of Connecticut's 169 towns, such that all applications will be required to propose to build to unserved and underserved addresses townwide. (Each town and its eligible locations will hereinafter be referred to as Town Grant Area.) Applicants will be required to submit a separate application for each Town Grant Area during the Scoring Phase so as to allow for like-to-like comparison of applications for each Town Grant Area. For purposes of the Prequalification Phase, each applicant will be required to submit a single Prequalification application rather than a separate prequalification application for each project, as a single prequalification application will be sufficient to determine whether an applicant is prequalified.

This approach is designed to enable efficient application review with no geographic overlap or need for deconfliction. In addition, the approach is designed to enable participation by applicants of all sizes and a robust competitive environment, given that Connecticut's many towns are small relative to most states and their size should not pose a barrier to participation by smaller entities.

Consistent with the BEAD program's requirement to prioritize end-to-end fiber-to-the-premises projects, the identification of fiber as the best future-proof technology (e.g., supporting scalability, supporting 5G network deployments), and the state's statutory goals of universal access to 1 Gbps download speeds and the deployment of advanced telecommunications infrastructure, DEEP anticipates placing the focus and prioritization of its grant program on fiber where feasible, with funding for alternative technologies where fiber deployment exceeds the Extremely High Cost Per Location Threshold.[4]

DEEP anticipates allowing applicants that propose to build fiber to multi-dwelling-unit (MDU) buildings to propose non-fiber extensions within the building if (1) the applicant adequately demonstrates the impracticability of deploying fiber within the MDU, and (2) the applicant proposes in-building wiring or wireless technology that will meet minimum technical standards and will deliver reliable and robust service to residents.

Following review of the applications, DEEP may at that point choose, at its discretion, to run a subsequent grant round that may allow for applications for alternative approaches, including the potential for smaller grant areas than towns (such as, for example, census blocks or census block groups). However, in the event that DEEP is satisfied with the outcome of the first-round applications, it may elect not to proceed to a second round of applications.

DEEP's analysis is that, so long as an adequate competitive dynamic is created for the bidding process, the BEAD funds may be sufficient to fund fiber-to-the-premises to the vast majority of unserved and underserved locations in Connecticut based on the economics of fiber deployment and operations and the financial contributions that applicants are projected to commit, through match and other funds.

Stated otherwise, DEEP's data suggest there might exist a business case, with respect to most unserved and underserved locations in Connecticut, for applicants to request funding for fiber at a level that, when totaled, will be equal to the BEAD funds available, with locations outside the Extremely High Cost Per Location Threshold funded for alternative broadband technologies. This analysis reflects DEEP's calculation of how much applicants will commit, given likely financial returns, for each unserved location. DEEP further believes that increasing the competitive nature of the process may serve to elicit applications from potential subgrantees for the vast majority of unserved and underserved locations within the BEAD budget.

At the same time, DEEP recognizes that the BEAD funds allocated by NTIA to Connecticut may be insufficient to fund fiber to every single unserved and underserved location in Connecticut, particularly considering the unpredictability of fiber construction costs during the BEAD timeline and considering the challenges reaching more remote locations in some parts of Connecticut. It is also possible that some Town Grant Areas will not receive applications. As a result, DEEP reserves the opportunity to undertake a second-round grant process. DEEP may also use the Extremely High Cost Per Location Threshold as a tool to determine whether to fund some locations with technologies other than fiber.

[4] See BEAD NOFO, IV.B.5.b.8; See also, "Why Fiber is the Key to Getting Faster 5G Everywhere," CNET, July 22, 2022, https://www.cnet.com/tech/mobile/why-fiber-is-the-key-to-getting-faster-5g-everywhere/.

5.1.4 Phases

The grant program will be comprised of the following three key phases:

1. **Prequalification Phase**, to establish the qualifications of prospective applicants
2. **Scoring Phase**, to weight the strength of applications received
3. **Negotiation Phase**, to engage with applicants to reach final project boundaries and costs

This first-round effort will be followed by a subsequent second round of applications, scoring, and negotiations, if DEEP determines that a second round is necessary.

The following is detail on the three key phases DEEP anticipates for the first round. Further, additional detail is also provided in the sections below, per NTIA's template for the Initial Proposal, Volume II.

5.1.4.1 Prequalification Phase

During the Prequalification Phase, DEEP will accept prequalification materials from all prospective applicants, enabling applicants to establish their qualifications and DEEP to prequalify them in advance of the Scoring Phase.

The Prequalification Phase is designed to serve several crucial purposes. First, it helps mitigate the challenges of the compressed timeline for BEAD. It will enable DEEP to maximize the limited time available for the Scoring Phase, extending the available time to this earlier phase so as to allow both prospective applicants and DEEP's reviewers sufficient time to address qualifications. Given the rigorous and robust documentary requirements for BEAD, a prequalification process will enable applicants to spread their grant application efforts across a lengthier timeline.

Second, the process will help to manage DEEP's own resources efficiently. By filtering out applicants who do not meet the minimum criteria, a prequalification process can ensure that reviewers can focus their time and attention on evaluating proposals from organizations that meet NTIA's and the State of Connecticut's requirements and are most likely to achieve the objectives of the BEAD program.

Third, a prequalification process will enable adequate curing opportunity by providing additional time for follow-up data requests by DEEP, as necessary, and provision of additional information by applicants. With an earlier process for qualification, this curing need not take place at the same time as curing of proposed project applications themselves, which will be an enormous undertaking in and of itself.

Connecticut's BEAD application materials will specify the materials and certifications that are required for prequalification, together with the format and date for submission. The materials and certifications will be focused on materials that address financial, managerial, and technical qualifications as well as experience and capacity.

All entities whose prequalification materials are determined to be sufficient will be qualified by DEEP to proceed to the Scoring Phase of the program and submit proposals.

The Prequalification Phase may launch in early 2024, during the time that NTIA is reviewing the Initial Proposal, thus enabling DEEP and prospective applicants to benefit from the additional time before NTIA formally approves the Initial Proposal and enables the grant process to begin. The Prequalification Phase will begin early and will afford potential applicants considerable time to prepare and submit their prequalification materials.

DEEP expects to implement the following communications process for the Prequalification Phase:

- DEEP will announce the dates of its Prequalification Phase by public notice on DEEP's website, a general email to all stakeholders, a targeted email campaign to potential applicants including broadband service providers and municipalities, social media announcement, and other related events and/or releases at least five days prior to the opening of the window or acceptance of Prequalification Phase applications. Potential subgrantees must participate in the Prequalification Phase to submit a project-specific funding proposal during the Scoring Phase.
- At approximately the same time as this announcement of the application dates, DEEP will make prequalification materials available on its Office of Telecommunications and Broadband Deployment website.
- DEEP will conduct an online application workshop. This workshop will provide general instructions, discuss the program's goals and objectives, map out major program milestones, answer questions, and provide other technical assistance. This workshop will be recorded and available on the DEEP website and the FAQ document will be updated to reflect questions and answers from the workshop.
- During the Prequalification Phase window, DEEP will have a dedicated email address available for participants to use to ask questions and request technical assistance. To provide transparency, fairness, and additional technical assistance, DEEP will update its FAQ document on a regular basis with the questions and answers generated by the email inquiries and in-person meetings.
- DEEP will notify Prequalification Phase participants if they are prequalified and eligible to submit a Scoring Phase Application within 65 days of the close of the Prequalification window.
- DEEP will allow for reasonable curing to seek to ensure an optimal participation level of qualified ISPs.

The following is a tentative schedule for the Prequalification Phase and is subject to change:

Table 6: Tentative Schedule for Prequalification Phase

Process element	Dates
Prequalification materials released	Day 1
Prequalification workshop/webinar	Day 5

Process element	Dates
Prequalification responses accepted by DEEP	Day 5 – 35
Review of prequalification materials, including curing as necessary	Day 35 – 95
Announcement of prequalification determinations	Day 100

5.1.4.2 Scoring Phase

Following completion of the Challenge Process, approval by NTIA of Volume II of the Initial Proposal, and completion of the Prequalification Process, DEEP will accept, review, and score grant applications for specific projects—and will conduct a series of related necessary activities, prior to and following acceptance of the grant applications. To prepare for the Scoring Phase, DEEP will undertake the following tasks:

- Alternative Percentage process
- Application

5.1.4.2.1 Alternative Percentage process

This part of the BEAD grant process is designed to specify the parameters for applications for Town Grant Areas. The Alternative Percentage process will involve development of the percentage of unserved and underserved locations within a Town Grant Area to which applicants must commit to deploy fiber. In some Town Grant Areas, there may be individual locations that DEEP's engineering and economic modeling suggests will be so costly to build with fiber infrastructure that including those locations as required deployment targets may serve to make those areas non-viable for bids at a reasonable cost or may serve to reduce or eliminate the chance of any fiber bids being received for that Town Grant Area.

Given these challenges, DEEP is undertaking a modeling process to understand technical, financial, and economic parameters of building fiber to all unserved and underserved locations in Connecticut. The projections from that process will be utilized to identify locations that may create the risks described above. For each Town Grant Area, DEEP will assess the relative percentage of locations that fit into this category and may allow for alternative bids based on alternative parameters:

- First, for each Town Grant Area, applicants will be required to bid to serve 100 percent of locations and to propose an associated cost.
- Second, for some grant areas, DEEP may afford applicants the option of providing proposed pricing for the percentage of locations calculated through the modeling process that represents some amount less than 100 percent of unserved and underserved locations, removing that percentage of unserved and underserved locations that the modeling suggests would create risk either of excessive cost or of reducing the chances of receiving any bids at all for that Town Grant Area.

- Third, in some cases, DEEP may include an additional option with another, lower percentage of unserved and underserved locations for which a bid can be submitted, if DEEP concludes that including the third category would increase the likelihood of receipt of attractive and/or competitive bids.

These proposal alternatives will be referred to as Alternative Percentage options.

While the exact percentages specified will vary based on Town Grant Area and DEEP's data analysis, in no case will any Alternative Percentage option for submission for any given Town Grant Area be lower than 95 percent of eligible locations.

Based on the Alternative Percentage process, the following is the format in which DEEP will provide opportunity in the grant application for applicants to submit alternative applications for a single Town Grant Area:

Table 7: Sample Format for Alternative Percentage Proposals

Town Grant Area [name]	Percentage of Unserved and Underserved Locations	Average Cost per Unserved and Underserved Location	Total Requested Grant Funds for Town Grant Area
	100 percent	$_____	$_____
	[number]%	$_____	$_____
	[number]%	$_____	$_____

Given this approach, DEEP understands that proposed costs will vary based on percentages. Indeed, that varied pricing is part of DEEP's goal for this strategy as it will allow for the option of funding proposals to serve almost all unserved and underserved locations in a Town Grant Area in the event that no cost-effective application is received for 100 percent of unserved and underserved locations. As a result, the Alternative Percentage strategy will provide a range of options for DEEP to use finite BEAD funds to reach unserved and underserved Connecticut locations while prioritizing the use of fiber.

DEEP has designed this strategy with the additional goal of creating as robust a competitive environment as possible so that applicants will provide the most competitive and well-priced bids.

DEEP anticipates undertaking the Alternative Percentage process once it understands the final contours of the grantmaking map that results from the Challenge Process that will be run in early 2024, following NTIA's approval of Connecticut's proposed Challenge Process as well as the forthcoming commitment of funds to underserved areas via Connecticut's ConneCTed Communities Grant Program.[5] The Alternative

[5] "ConneCTed Communities Grant Program," DEEP, https://portal.ct.gov/DEEP/Business-and-Financial-Assistance/Grants-Financial-Assistance/ConneCTed-Communities-Grant-Program.

Percentage process will be conducted by DEEP during the time period that NTIA is doing its Challenge Process Validation and immediately in advance of release of the BEAD grant materials.

5.1.4.2.2 Application Process

Once the Alternative Percentage process analysis is complete and DEEP has received full authorization from NTIA based on approval of the Initial Proposal Volume II, DEEP will open the grant window, distribute grant materials, and accept applications for proposed projects.

At that time, DEEP will undertake the following:

- DEEP will make BEAD application materials available on its website using a dedicated webpage. These materials will consist of an Application and Guide, Program Guide, and Frequently Asked Questions (FAQ) documents. DEEP will provide an additional resources page on its website to direct potential applicants to third-party resources that may be of use, including those provided by NTIA, NIST, FCC, and others. DEEP will also publish a list of Town Grant Areas and eligible locations for applicants to choose when applying for BEAD funding. An eligible location is defined as an unserved or underserved location in Connecticut.
- DEEP will conduct an online application workshop on or around the date of release of the BEAD grant materials to explain the program requirements and guide potential applicants. This workshop will provide general instructions, discuss the program's goals and objectives, map out major program milestones, answer questions, and provide other technical assistance. This workshop will be recorded and available on the DEEP website and the FAQ document will be updated frequently to reflect questions and answers from the workshop and questions received by email.
- Throughout the application period, DEEP will provide guidance to applicants to clarify requirements. During the time the grant application window is open, DEEP will have a dedicated email address available for participants to use to ask questions and request technical assistance and reasonable curing. To provide transparency, fairness, and additional technical assistance, DEEP will update its FAQ document on a regular basis with the questions and answers generated by the email inquiries and in-person meetings.

5.1.4.3 Negotiation Phase

Following receipt and review of the applications, DEEP will engage with applicants in negotiations designed to reach final agreement on two topics: project area boundaries and costs.

Once the applications are received, DEEP will evaluate the full range of applications that are received and will consider how to follow up in a process that is designed to enable DEEP to reach the best possible comprehensive and statewide outcome as a result of the grant process. NTIA's rules for the program explicitly allow for negotiation for a range of purposes, including to reduce or change pricing and to expand or reduce the boundaries of the areas proposed for funding. DEEP intends to use the negotiation phase of the program for both purposes.

First, DEEP may negotiate proposal area boundaries. In the event that there exist defined Town Grant Areas that do not receive any application at all, DEEP will post these on its website for transparency purposes for all providers and to gauge additional interest in such project areas. DEEP will negotiate with one or more applicants to determine whether and under what circumstances they would be willing to serve those Town Grant Areas. DEEP may negotiate with one or more entities at a time in order to maximize the compressed timeline and secure the best possible deal for taxpayer funds, enabling the BEAD funds to serve as many unserved locations as possible. Generally, DEEP will negotiate first with the higher-scoring applicants for adjacent or nearby Town Grant Areas.

Second, and likely concurrently, DEEP may negotiate pricing, both with respect to Town Grant Areas that received no bids and to which DEEP would like to attract other applicants and with respect to Town Grant Areas that received bids for locations that are impracticable to reach with fiber and/or exceed the Extremely High Cost Per Location Threshold. DEEP reserves flexibility to negotiate with one or more entities regarding potential pricing, seeking to maximize the reach and value of the BEAD funds to bring fiber to unserved and underserved locations throughout Connecticut. Among the range of circumstances in which DEEP may wish to negotiate pricing are the following:

- A Town Grant Area does not receive any applications and DEEP negotiates for pricing to serve it
- More than one applicant provides a proposal for a given Town Grant Area and DEEP negotiates with all to secure best and final offers that deliver the best pricing prior to establishing final scoring
- A grant applicant proposes to serve a number of different Town Grant Areas and DEEP negotiates lower pricing with the applicant based on the potential award of multiple Town Grant Areas
- Locations in a grant area are demonstrated to be impracticable to reach with fiber and an alternative technology is negotiated

In sum, DEEP believes that flexibility to take the necessary steps during the negotiation phase is an essential element of securing the best, fairest, most competitive outcome for the BEAD process.

More detail about DEEP's proposed approach to negotiations is below in the discussion of the Extremely High Cost Per Location Threshold.

5.1.4.3.1 Potential Second-Round Bidding

Following review of the applications, DEEP may choose, at its discretion, to run a subsequent grant round if DEEP believes, based on the applications received in the first round, that varying some or all elements of the grant process would result in better outcomes. For example, DEEP may choose that, for Town Grant Areas for which it does not receive financially reasonable bids (based on its price analysis) in the first round, it may put those Town Grant Areas back out to bid based on alternative strategies that may include:

- Applications for unserved locations only

- Applications that utilize grant area boundaries other than town boundaries
- Applications to serve alternative percentages of eligible locations within a Town Grant Area or to serve specific locations with alternatives to fiber

The second round of applications may be conducted during the negotiation process or after it is concluded, depending on DEEP's assessment of the timeline and the means by which to secure the best results. As with the first round, DEEP may choose to undertake negotiations with applicants following the receipt and review of applications.

In the event that DEEP is satisfied with the outcome of the first-round applications, it may elect not to proceed to a second-round process.

5.1.4.3.2 Provisional Award

Once DEEP and the applicants have concluded successful negotiations, DEEP will announce provisional awards under the agreed upon terms. These pending awards will be included in DEEP's Final Proposal that will be submitted to NTIA following a 30-day public comment period, as required by federal rules.

Upon NTIA approval of the Final Proposal, DEEP will finalize the provisional awards through contract negotiation and execution with the applicants. Included in its formal contract with subgrantees, DEEP will implement NTIA's recommended Sub-granting Accountability Procedures, which will include: 1) disbursement of funding on a reimbursable basis, to ensure completion of subsidized activities; 2) claw-back provisions to allow for the recoupment of funds in the case of broken commitments; and 3) timely subgrantee reporting mandates and robust monitoring procedures aligned with DEEP reporting schedule to NTIA.

If an applicant is provisionally awarded one or more projects and the awarded party fails to execute on all commitments—such as when the party is not willing to accept full responsibility of the entire award—DEEP reserves the right to declare the award in default and solicit alternate proposals from incumbents or proposers of nearby project areas.

5.2 BEAD Grant Process Overall Timeline

The following is a tentative, initial overall timeline for the BEAD grant process and is subject to change, particularly given that neither the Challenge Process nor the grant process can begin without NTIA's approval, respectively, of the Initial Proposal Volume I and Initial Proposal Volume II.

Table 8: Tentative Overall Timeline for Grant Process

Process element	Dates
Prequalification materials released	Day 1
Prequalification workshop/webinar	Day 5
Prequalification responses accepted by DEEP	Day 5 – 35

Process element	Dates
Review of prequalification materials, including curing as necessary	Day 35 – 95
Announcement of prequalification determinations	Day 100
BEAD grant application materials, including Town Grant Areas, released	Day 105
BEAD grant application workshop/webinar	Day 110
BEAD grant applications accepted by DEEP	Day 110 – 140
Review of BEAD grant application materials, including curing as necessary	Day 140 – 200
Negotiation process and/or second phase grant window	Day 200 – 260
Review of BEAD grant application materials, including curing as necessary	Day 260 – 310
Public comment period and announcement of provisional BEAD determinations, subject to NTIA approval of the Final Proposal	Day 315-345
Submission to NTIA of the Final Proposal	Within 365 days of approval by NTIA of Connecticut's Initial Proposal Volume II

5.3 Scoring Methodology

5.3.1 Prequalification Phase

The BEAD application materials will specify the materials and certifications that are required for prequalification, together with the format and date for submission. The materials and certifications will be focused on materials that address financial, managerial, and technical qualifications as well as experience and capacity.

Other than materials regarding Fair Labor Standards, the materials submitted during the Prequalification Phase will not be scored but will rather be evaluated to determine whether or not the submitting entity is qualified to participate in the process. Materials regarding Fair Labor Standards will be evaluated for prequalification purposes and will be included in scoring consideration, per the scoring rubric described below.

In the event reviewers find the data submitted to be insufficient or unclear, DEEP may choose to cure submissions by providing applicants with opportunity to clarify or submit additional materials. All requests for clarification or additional submissions will be made in writing and all responses will be required to be in writing, with full documentation.

All entities whose prequalification materials are determined to be sufficient will be qualified by DEEP to proceed to the Scoring Phase of the program and submit proposals.

In the Prequalification Phase, DEEP will require the following materials for purposes of determining whether prospective subgrantees are qualified to receive awards in the event their applications score accordingly:

Financial Capability

- Unqualified audited financial statements from the prior fiscal year
- Statement signed by an executive with the authority to bind the company that certifies the financial qualifications

Managerial Capability

- Resumes of relevant management staff that cumulatively demonstrate a minimum of five years of experience with broadband network design, construction, maintenance, and operations
- Organizational chart and a narrative detailing the applicant's processes and structure to manage large projects

Technical Capability

- If not submitted as part of the managerial capability requirements, applicants must provide the resumes of an employed CTO and contractor oversight team with the relevant certifications (both management and non-management) for deployment projects as mandated by state and federal law
- Applicants must ensure the technical capabilities of its project workforce. If the applicant chooses to contract resources, applicants must provide certification that all contracted resources will have the relevant and necessary skills to perform the project work.

Operational Capability

- Certification that applicants have provided a voice, broadband, and/or electric transmission or distribution service for at least two consecutive years or that they are a wholly owned subsidiary of such an entity and attest to and specify the number of years the applicant or its parent company has been operating
- If the applicant has provided a voice and/or broadband service, certification that the applicant has filed FCC Form 477s and Broadband DATA Act submissions, if applicable, as required during this time period, and otherwise has complied with FCC requirements
- If the applicant has not provided broadband service and has operated only an electric transmission or distribution service, the applicant will be asked to submit qualified operating or financial report that it has filed with the relevant financial institution for the relevant time period along with a certification that the submission is a true and accurate copy of the reports that were provided to the relevant financial institution. If the applicant is a new entrant to the broadband market, it will be asked to demonstrate in detail that it has acquired the operational capability to design, build, operate, and maintain a network of the type and scale it proposes in

its application.

Legal Compliance

- Ownership information consistent with the requirements set forth in 47 C.F.R. § 1.2112(a)(1)-(7)

Cybersecurity Compliance

- Certification that the applicant has a cybersecurity risk management plan in place that is either: (a) operational, if the applicant is providing service prior to the award of the grant; or (b) ready to be operationalized upon providing service, if the applicant is not yet providing service prior to the grant award
- Certification that the applicant's cybersecurity plan reflects the latest version of the National Institute of Standards and Technology (NIST) Framework for Improving Critical Infrastructure Cybersecurity (currently Version 1.1) and the standards and controls set forth in Executive Order 14028 and specifies the security and privacy controls being implemented
- Certification that the applicant's cybersecurity plan will be reevaluated and updated on a periodic basis and as events warrant and a timeline for how frequently the plan is reevaluated and updated
- Certification that the applicant's cybersecurity plan will be submitted to DEEP following execution of grant agreements, and if the applicant makes any substantive changes to the plan, a new version will be submitted to DEEP within 30 days

Supply Chain Compliance

- Certification that the applicant has a supply chain risk management plan in place that is either: (a) operational, if the applicant is already providing service at the time of the grant; or (b) ready to be operationalized, if the applicant is not yet providing service at the time of grant award
- Certification that the applicant's supply chain risk management plan is based upon the key practices discussed in the NIST publication NISTIR 8276, Key Practices in Cyber Supply Chain Risk Management: Observations from Industry and related SCRM guidance from NIST, including NIST 800-161, Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations and specifies the supply chain risk management controls being implemented
- Certification that the applicant's supply chain risk management plan will be reevaluated and updated on a periodic basis and as events warrant and a timeline for how frequently the plan is reevaluated and updated
- Certification that the applicant's supply chain risk management plan will be submitted to DEEP prior to the allocation of funds, and if the applicant makes any substantive changes to the plan, a new version will be submitted within 30 days

Other Public Funding

- A list of applications the applicant submitted or plans to submit related to federal or state broadband funding, and every broadband deployment project that the applicant or its affiliates are undertaking or have committed to undertake at the time of the application using public funds
- For each broadband deployment project, the applicant shall provide the following: 1) speed and latency of service; 2) geographic area of service; 3) list of unserved and underserved locations committed to serve; 4) amount of public funding; 5) cost to the consumer; and 6) matching commitment, if any.

For all materials and information provided, DEEP will assess the applicant based on the following criteria:

1. Completeness: The provided material must be thorough and directly aligned with the request.
2. Sufficiency: The materials must indicate compliance and adherence to the required standards and statutes.
3. Concerns: DEEP will consider whether there are any omissions or indications that might give rise to concerns about the history of potential subgrantees, their contractors, and subcontractors in meeting the specified standards and statutes.

Based on DEEP's evaluation of these considerations, the applications will be placed into two categories:

1. For those categories that are deemed complete and sufficient and do not raise any concerns, the project will be eligible for further review;
2. For those applications that raise concerns based on omissions or other indications, DEEP will provide clarifying questions to the applicant in writing while affording seven calendar days for the applicant to respond and, upon receipt of satisfactory responses, the project will be eligible for further review.

5.3.2 Scoring Phase

The proposed subgrantee selection process is consistent with the primary and secondary criteria for selection among priority broadband projects and among other last-mile broadband deployment projects. Each primary criterion aligns with the BEAD Program requirements and each secondary criterion aligns with the BEAD NOFO principles.

DEEP's scoring rubric is consistent with NTIA's rules, which specify three primary criteria that together must account for 75 percent of scoring, as well as secondary criteria that are based on Connecticut's own public policy priorities.

DEEP will begin its evaluation of proposals by ensuring that the applicant has provided all required materials. Incomplete proposals will not be considered.

Following a determination of completeness, DEEP will review and evaluate the proposals based on the following criteria, which can add up to a total score of 100.

Consistent with NTIA requirements, some scoring criteria are different for "Priority Broadband Projects" (fiber-to-the-premises) and "Other Last-Mile Broadband Deployment Projects" (other technologies).[6] The discussion below notes the differing criteria or factors where relevant; where clear differentiation is not discussed, that scoring criterion will be identical for both Priority Broadband Projects and Other Last-Mile Broadband Deployment Projects.

DEEP does not plan to consider inducements such as the use of state/territory funding toward the match requirement or other benefits during the grant selection process. The focus remains on equitable distribution and effective utilization of resources to address the needs of unserved and underserved locations without introducing external factors that may influence the selection process. DEEP's priority is to ensure fair and unbiased evaluation of grant applications based on their merits and alignment with the objectives for expanding access to essential services.

5.3.2.1 Primary Criteria

Minimal BEAD Program Outlay: up to 40 points

For BEAD Program Outlay, DEEP will score applications based on two components:

1. The grant amount requested relative to DEEP's benchmark pricing analysis for the Town Grant Area and
2. The amount of matching funding committed by the applicant relative to the grant amount requested.

Benchmark score (up to 30 points): The benchmark pricing analysis is based on DEEP's own cost model. Points will be awarded based on the following formula:

Proposals that are equal to the benchmark will receive 15 out of a possible 30 points based on the comparison to the benchmark.

Proposals that are less than or equal to 20 percent of the benchmark (80 percent or more below the benchmark) will receive the full 30 points.

Proposals that are less than 100 percent, but more than 20 percent of the benchmark will receive 15 points plus the total of 15 multiplied by the fraction of the benchmark proposed for grant funding. For example:

- Example: proposals for 50 percent below the benchmark will receive 22.5 points: 15 plus 7.5 (50 percent of 15)
- Example: proposals for 10 percent below the benchmark will receive 16.5 points: 15 plus 1.5 (10 percent of 15)

Proposals that are more than the benchmark will receive 15 points minus the total of 15 times the fraction of the benchmark proposed for grant funding. For example:

[6] NTIA's guidance documents provide detail regarding NTIA's scoring requirements for these two types of projects. See "Initial Proposal Guidance," NTIA, October 2023, https://broadbandusa.ntia.gov/sites/default/files/2023-10/BEAD_Initial_Proposal_Guidance_Volumes_I_II_10-2023.pdf.

- Example: proposals for 50 percent more than the benchmark will receive 7.5 points: 15 minus 7.5 (50 percent of 15)
- Example: proposals for 10 percent more than the benchmark will receive 13.5 points: 15 minus 1.5 (10 percent of 15)

Proposals that exceed the benchmark by 100 percent or more will receive zero points.

The following is a simplified equation to calculate the points awarded (if the percentage of the benchmark is between 20 and 200 percent):

30 – ([Proportion of benchmark] x 15) = Points awarded

For example, 30 – (.5 x 15) = 30 – 7.5 = 22.5

While the calculation of points for this subcriterion is a sliding scale, calculated by the above procedure, the following table illustrates example percentages and the points awarded. Values in between the percentages provided would fall in between the neighboring point values, being calculated using the methodology above.

Percentage of benchmark	Points awarded
20% or less	**30 (maximum)**
25%	26.25
50%	22.5
75%	18.75
80%	18
90%	16.5
100% (at benchmark)	**15**
110%	13.5
120%	12
125%	11.25
150%	7.5
175%	3.75
200% or more	**0 (minimum)**

Match offer (up to 10 points): Applicants will receive up to 10 points for offering matching funds that exceed NTIA's requirements. DEEP will award 10 points to any entity that proposes to fund 25 percentage points or more above the NTIA match minimum for the area (usually 25 percent, so a 25 percent match above that would mean that the project is proposing 50 percent match). For every increment of 5 percent below that amount of project funds that the applicant commits to fund, the points awarded will be reduced by 2, per the following:

Percentage of Project Cost Proposed as Match, Number of Points Awarded

- A proposed match percentage of 50 would give 10 points
- A proposed match percentage of 45 would give 8 points

- A proposed match percentage of 25 would give 0 points

Affordability: up to 15 points

For Priority Broadband Projects: Subgrantee applicants who commit to offering 1/1 Gbps service to the customers in BEAD project areas at the same rates they offer in their existing markets within the State of Connecticut, as applicable, will earn 15 points.

If applicants do not currently offer 1/1 Gbps (100/20 Mbps) service in their existing markets, they may make forward-looking commitments to offer the same rates for 1/1 Gbps plans across all locations to earn 10 points.

Subgrantee applicants who do not make one of these commitments will earn 0 points.

Specifically, subgrantees must agree that the commitment:

- Is for the entire lifetime of the asset (or at least 10 years)
- Is inclusive of all fees
- Excludes all rate increases greater than CPI
- Will be available with no restrictions

For Other Last-Mile Broadband Deployment Projects: Applications will be scored based on applicants' commitments to offer 100/20 Mbps to BEAD-funded locations that will not exceed the cost of the same service in any other location in Connecticut or surrounding states in which the applicant offers service. Full points will be awarded to applications that make this commitment in clear and unambiguous terms, without caveats that compromise the commitment. Applications that do not make a clear commitment will receive zero points.

Fair Labor Practices: up to 20 points

Up to 10 points will be awarded based on (1) a demonstrated history of compliance with federal labor laws, and up to 10 points will be awarded based on (2) demonstrated commitments and the plan for future compliance with federal labor laws.

New entrants without a lengthy record of labor and employment law compliance will receive points in this category based on specific, concrete commitments to strong labor and employment standards and protections going forward.

Up to 5 points will be deducted for official labor relations complaints or violations in the five years preceding the date of application.

5.3.2.2 Secondary Criteria

Speed to Deployment: up to 1 point

Based on the BEAD rules, all funded projects must be complete within four years following execution of grant awards. Applicants will be awarded an extra point if they can demonstrate that they will deploy the network in three years or less, a condition that will be considered as a term of the contract.

Speed of Network and Other Technical Capabilities: up to 14 points (*for Other Last-Mile Broadband Deployment Projects only*)

Pursuant to NTIA rules, applications will be scored based on applicants' demonstration of the speeds, latency, and other technical capabilities of the technologies proposed for projects that are not Priority Broadband Projects (i.e., that use technologies other than fiber-to-the-premises).

NTIA requires assigning greater weight to those applications that propose to use technologies that exhibit greater ease of scalability with lower future investment and whose capital assets have longer useable lives over those proposing technologies with higher costs to upgrade and shorter capital asset cycles.

Accordingly, DEEP will award up to 14 points to Other Last-Mile Broadband Deployment Projects that can demonstrate the following:

- **Speed of Network and Sufficient Capacity**: Up to 6 points will be awarded to applications that demonstrate that the proposed project can reliably deliver speeds over 100/20 Mbps to all unserved and underserved locations in the proposed service area according to the scoring table below. Applications must detail the selection of technology and particular hardware configurations in both backbone and last-mile segments, including any assumptions and/or calculations around capacity oversubscription, limitations imposed by terrain, and geographic constraints, to definitively demonstrate the connection speed and network capacity commitments can be met.

Download speeds		Upload speeds	
Speed in Mbps	Points	Speed in Mbps	Points
100	0	20	0
200	1	100	1
300	2	200	2
400+	3	300+	3

- **Scalability**: 5 points will be awarded to applications that demonstrate that the proposed infrastructure will be capable of delivering higher speeds in the future, including that the infrastructure will be scalable with respect to capacity to support higher speeds to 80 percent of currently unserved locations in the proposed service area. Applications must detail the specific approach to scalability both in backbone and last-mile segments of the network, such as increased wireless base station sectorization, hardware upgrades, addition of towers, etc., to include projected capital costs per location associated with upgrades necessary to deliver increased service level thresholds of the applicant's choosing (i.e., 100/100 Mbps, 500/100 Mbps, 1000/1000 Mbps). Applications that do not make this demonstration will be awarded

zero points for Scalability.

- **Cost-Effective Future Upgrade and Capital Investment Path**: Up to 3 points will be awarded to applications that demonstrate a cost-effective projected technical upgrade path, including a capital investment timeline and costs for equipment refresh and replacement cycles.

Area of High Poverty: up to 10 points (*for Priority Broadband Projects only*)

The State of Connecticut seeks to ensure digital equity and opportunity for all Connecticut households, regardless of household income and seeks to incentivize deployment of the preferred infrastructure, fiber-to-the-premises, in areas where lower-income households are located. The goal is to incentivize deployment of Priority Broadband Projects, as defined by the federal government and preferred in both federal and Connecticut policy, in lower-income areas so as to increase parity, fairness, and equity.

Given these goals, DEEP will award up to 10 points for inclusion in the proposed service area of unserved locations found in areas of high poverty.

Economic Development Impact: up to 14 points (*for Priority Broadband Projects only*); up to 10 points (*for Other Last-Mile Broadband Deployment Projects only)*

The State of Connecticut believes that its economy and communities are best served through robust broadband infrastructure and competition.[7] Broadband investment as a means of economic development represents one of the policy priorities of Connecticut. DEEP thus seeks to ensure that affordable, future-proof, robust broadband is available to all Connecticut residents, that all benefit from broadband, and that a robust competitive market is able to grow throughout Connecticut.

For these reasons, DEEP proposes to award up to 14 points to Priority Broadband applications and up to 10 points to Other Last-Mile Broadband Deployment Projects that demonstrate that the proposed project will, at no extra cost to the State of Connecticut, provide broadband service to additional locations that are not eligible locations for purposes of the BEAD program (hereinafter referred to as "Economic Development Location"). DEEP will make the number of such locations available to applicants in each Grant Area when it releases the Grant Area maps and BEAD-eligible locations.

To this end, DEEP will award points in this category based on the following formula: The percentage of available points that is equal to the ratio of the number of Economic Development Locations to which the applicant commits to build at no additional cost to the state relative to the total number of unserved and underserved locations in the Town Grant Area.

Proposals made by applicants in this regard will be included in grant agreements and will be considered binding obligations of the awardee. DEEP will monitor and verify compliance with this obligation through fieldwork and requirements of documentation such as as-built maps and test data.

[7] See the "Connecticut Broadband Report 2022" p. 5 noting that "[a]t the direction of the Governor, DEEP works to: ….[p]romote the development of effective competition as a means of providing customers with a choice of services," available at https://portal.ct.gov/-/media/DEEP/energy/Broadband/DEEP_CT-Broadband-Report_FINAL.pdf.

5.3.3 Scoring Rubric

DEEP's full scoring rubric is attached in Appendix D: Proposed Scoring Rubric for Subgrantee Selection Process. An outline of DEEP's proposed scoring rubric is provided below, first for Priority Broadband Projects and then for Other Last-Mile Broadband Deployment Projects:

Table 9: Scoring Criteria for Priority Broadband Projects (end-to-end fiber)

Primary Scoring Criterion (all are mandatory under NTIA rules)	**Points available**
Total outlay of funds	40
Lowest price gigabit service commitment	15
Compliance with federal fair labor laws and labor commitments plan	20
Primary Criteria subtotal	75
Secondary Criteria	
Speed to deployment (mandatory under NTIA rules)	1
Economic development impact	14
Area of high poverty	10
Secondary Criteria subtotal	25
Total	100

Table 10: Scoring Criteria for Other Last-Mile Broadband Deployment Projects (non-end-to-end fiber)

Primary Scoring Criterion (all are mandatory under NTIA rules)	**Points available**
Total outlay of funds	40
Lowest price 100/20 Mbps service commitment	15
Compliance with federal fair labor laws	20
Primary Criteria subtotal	75
Secondary Criteria	
Speed to deployment (mandatory under NTIA rules)	1
Speed of network and other technical capabilities (mandatory under NTIA rules)	14
Economic development impact	10

Secondary Criteria subtotal	25
Total	100

5.4 Prioritization of Unserved BSLs, Underserved BSLs, and Eligible Community Anchor Institutions

DEEP recognizes that the Bipartisan Infrastructure Law makes service to unserved locations the first priority, underserved locations the second priority, Community Anchor Institutions the third priority, and non-deployment activities supporting digital equity, inclusion and adoption following the first three. This prioritization is mandated by the statute and aligns with the State of Connecticut's plans for how to utilize the BEAD funds.

Connecticut's internal modeling suggests that the funds available may provide for fiber-to-the-premises to the majority of unserved and underserved locations in Connecticut. However, DEEP believes it is possible that Connecticut may not have sufficient BEAD funds for Community Anchor Institutions, or the other items established by the statute as lower priority than getting broadband infrastructure to unserved and underserved locations.

Given this analysis and the data that has been analyzed by DEEP, DEEP proposes to focus the BEAD funding on unserved and underserved locations.

DEEP recognizes that, given current inflationary pressures and projected demand for broadband construction labor and materials during the BEAD deployment process, the first round of applications may result in total costs for all unserved and underserved locations that exceed the available BEAD funds for Priority Broadband Projects. In that case, DEEP reserves the opportunity to limit second-round applications to unserved locations only as a means of ensuring that as many unserved locations as reasonably possible receive end-to-end fiber service through BEAD. DEEP will use the EHCPLT to maximize fiber deployments and ensure remaining underserved (and unserved, if any) locations can be covered with alternative, less costly, technologies.

Furthermore, DEEP plans that, if the funds are insufficient to deliver service to all unserved and underserved locations, applications to serve high-poverty and persistent poverty areas will be prioritized.

In the event that all unserved and underserved locations can be served with broadband based on the results of the BEAD application process described above, DEEP may then undertake an additional application round with remaining BEAD funds for service to Community Anchor Institutions.

In the event that Connecticut has funds remaining after ensuring that it meets the BEAD NOFO's broadband deployment priorities (i.e., to reach all unserved, underserved, and eligible Community Anchor Institutions locations), DEEP may undertake an additional application round to fund broadband workforce priorities and/or digital equity and adoption initiatives outlined in the state's forthcoming Digital Equity Plan. Connecticut will issue any workforce funding consistently with NTIA's guidance "Use of Funds for Workforce Development."

5.5 Prioritization of Non-deployment Projects

Not applicable.

5.6 Environmental and Historic Preservation and Build America, Buy America Act Compliance

DEEP recognizes the public policy purposes of environmental and historic preservation as well as BABA. DEEP plans to highlight the criticality of these requirements for potential applicants during the application workshops and in the various application materials—and will require that all applicants certify their intention to comply with all related requirements in the prequalification phase of the BEAD grant program. DEEP will undertake a comprehensive evaluation of prospective subgrantees, including ensuring that prospective subgrantees meet the minimum qualifications for Environmental and Historic Preservation (EHP) and Build America, Buy America Act (BABA) compliance as outlined in the BEAD NOFO. Their responses to these requirements will be evaluated by qualified evaluators.

DEEP will also require applicants to certify that they have no history of failure to comply with environmental and historic preservation requirements or BABA, to the extent applicable.

Any applicant that cannot certify a track record of full compliance will be required to provide detailed narrative and documentation regarding its histories of challenges or noncompliance. In addition, DEEP intends that it will actively use its subgrantee monitoring program post-award to verify that applicants are indeed compliant with these requirements. Applicants that do not meet the minimum requirements outlined in the application for this section will not be considered to receive BEAD funding.

5.7 Project Area Definition

As is described above, DEEP plans to define project areas based on town boundaries and to award funds through a process of requiring applications for all or almost all unserved and underserved locations within town boundaries.

DEEP will offer applicants opportunity to propose projects based on the boundaries of Connecticut's towns, such that all applications will be required to propose to build to unserved and underserved addresses townwide. (The towns and their eligible locations are referred to as Town Grant Areas.)

This approach is designed to enable efficient application review with no application overlap or need for deconfliction. In addition, the approach is designed to enable participation by applicants of all sizes and a robust competitive environment, given that Connecticut's 169 towns are small relative to most states and their size should not pose a barrier to participation by smaller entities.

As part of definition of project areas, DEEP will also undertake a process to establish Alternative Percentage options. For each Town Grant Area, DEEP will assess the relative percentage of locations that fit into this category and allow for alternative bids based on alternative parameters:

- First, for each Town Grant Area, applicants will be required to bid to serve 100 percent of locations and to propose an associated cost.

- Second, depending on DEEP's analysis of the Town Grant Area, applicants may have the option of providing proposed pricing for the percentage of locations calculated through the modeling process that represents some amount less than 100 percent of unserved locations, removing that percentage of unserved and underserved locations that the modeling suggests would create risk either of excessive cost or of reducing the chances of receiving any bids at all for that Town Grant Area.
- Third, in some cases, DEEP may include an additional option with another, lower percentage of unserved and underserved locations for which a bid can be submitted, if DEEP concludes that including the third category would increase the likelihood of receipt of attractive and/or competitive bids.

While the exact percentages specified will vary based on Town Grant Area and DEEP's data analysis, in no case will any Alternative Percentage option for submission for any given Town Grant Area be lower than 95 percent of eligible locations and, in all cases, 100 percent of locations will be a mandatory part of all applications.

5.8 Approach to Subsequent Funding Rounds if No Proposals Are Received

DEEP's grant process is designed to incentivize providers to submit applications for all areas lacking adequate service. However, as is described above, in the event no proposal (or no viable proposal) is received for any given Town Grant Area, DEEP plans to undertake one or both of the following processes, depending on the circumstances.

1. First, DEEP anticipates undertaking negotiations with one or more applicants that have bid for adjacent areas to determine whether other applicants would be willing to take on commitments to fund those locations, based on costs that will be negotiated between the applicant and DEEP. DEEP may choose to negotiate with one or more applicants to maximize the chances of determining a solution for those locations.
2. Second, DEEP anticipates that, depending on circumstances, it may choose to undertake a second (and possibly third) competitive process to formally attract bids for those locations.

DEEP reserves for itself the flexibility to undertake one or both of these processes following receipt of the applications. DEEP believes that the flexibility to undertake these processes based on circumstances will increase the competitive pressure on applicants and for that reason declines to limit its options in this regard.

Further detail about DEEP's approach to negotiations is included in the discussion below of the Extremely High Cost Per Location Threshold.

5.9 Projects on Tribal Lands

Pursuant to NTIA requirements, DEEP does not intend to award any funds for deployment on Tribal Lands without written approval from the Tribal authorities who hold sovereignty over those lands.

DEEP will encourage applicants who seek to build on Tribal lands to provide evidence of support from Tribal authorities, such as a formal demonstration of consent from each Tribal Government's Tribal Council or other governing body, upon whose Tribal Lands the infrastructure will be deployed, during the Prequalification Phase. While lack of pre-application Tribal consent will not be a disqualifying factor, DEEP anticipates that, during the Negotiation Phase of the grant program, it will request that applicants provide written support from Tribal authorities if such documents have not already been provided.

In the event that a presumptive awardee cannot provide documentation of support and approval from Tribal authorities, DEEP will use the Negotiation Process to engage with other applicants and/or to meet with Tribal authorities to understand their preferences and ensure Tribal consent is achieved prior to deployment.

5.10 Identifying the Extremely High Cost Per Location Threshold (EHCPLT)

In the event that there are locations for which fiber deployment is not reasonably feasible or is excessively costly due to topography or other factors, it will be necessary to identify the Extremely High Cost Per Location Threshold (EHCPLT) so as to determine where it is reasonable, under NTIA's rules, to fund technologies other than fiber.

DEEP anticipates that, once it has received all grant applications, it will use the EHCPLT to efficiently allocate its BEAD funding. Based on both state and federal goals (and the federal requirement) to prioritize fiber-to-the-premises, DEEP will set an EHCPLT as high as possible to ensure greater fiber coverage. In addition to the data provided by applicants, DEEP may also consult other data. DEEP will determine the EHCPLT through a process that may involve analysis of the following:

- The Eligible Entity Planning Tool provided by NTIA
- Data developed by DEEP in the course of previous broadband grant programs
- DEEP's own cost model data, developed in 2023 by DEEP's contract engineers and analysts based on customized Connecticut cost considerations and a full business case analysis that considers capital costs, operating costs, and revenues over the appropriate time frame

Most significantly, DEEP will develop the EHCPLT using the pricing and associated data provided by applicants through the application process.

5.11 Utilizing the EHCPLT

Given DEEP's goals of achieving 100 percent broadband statewide while maximizing fiber-to-the-premises, DEEP proposes the following approach:

1. DEEP will review applications to determine if there are locations for which a highly disproportionate amount of funding would be necessary to deploy fiber to the premises.
2. If an EHCPLT is determined to be necessary, DEEP will establish the EHCPLT through analysis of the pricing data submitted statewide and other data sources as necessary.

3. For each Town Grant Area that received one or more applications for Priority (fiber) and for which the highest-scoring application for 100 percent fiber coverage have costs, on average or for a given location, which exceed the EHCPLT, DEEP will give the applicants opportunity to reduce their proposed cost to serve 100 percent of eligible locations with fiber. DEEP will undertake this effort in order of highest-scoring applications for each Town Grant Area.
4. If none of the Priority applications are reduced to bring all locations or the average of all locations below the EHCPLT, DEEP will determine if the alternative percentage proposal from the highest scoring applicant is below the EHCPLT. If the applicant did not provide an alternative percentage proposal, DEEP will request one that is below the EHCPLT. If the applicant provided an alternative percentage proposal that is above the EHCPLT, DEEP will request one for which all locations or the average of all locations is below the EHCPLT, at DEEP's discretion.
5. If the applicant cannot provide such a proposal, then DEEP will repeat the process with the next highest scoring applicant.
6. DEEP will repeat the above steps for each Town Grant Area in which the highest scoring 100 percent fiber coverage application is above the EHCPLT. This succession of steps will be repeated until all Town Grant Areas have a fiber award where reasonably feasible, either at 100 percent coverage or at a lower alternative percentage, within the funding available.
7. If it is not possible to secure through the process above awards for fiber for all Town Grant Areas because there exist Town Grant Areas for which no applicant will agree to deploy fiber below the EHCPLT, DEEP will then undertake the same process for applications that propose an alternative, non-fiber technology that meets the BEAD program's requirements for Reliable Broadband Service.
8. If it is not possible to secure through the process above awards for alternative, non-fiber technology that meets the BEAD program's requirements for Reliable Broadband Service, DEEP may then consider applications for non-fiber technologies that do not meet the BEAD program's requirements for Reliable Broadband Service (while otherwise satisfying the Program's technical requirements) because no technology meeting the Reliable Broadband Service requirements can be deployed for less than the EHCPLT in those Town Grant Areas.
9. For all Town Grant Areas for which no satisfactory application can be funded, as well as for locations that are excluded from funding under the alternative percentage process, DEEP may undertake an additional grant round and seek alternative proposals or may otherwise seek alternative solutions for securing broadband to those areas and locations.

5.12 Requiring Prospective Subgrantees to Certify Their Qualifications

DEEP is committed to comprehensive vetting of applicants throughout the selection process to ensure that the applicants seeking to deploy network facilities meet the qualifications for financial capability as defined in the BEAD NOFO. DEEP will require potential subgrantees to demonstrate financial capability through a series of application questions and document requests. Applicant responses and

documentation will be collected through an online portal and analyzed to support an informed assessment of the potential subgrantee's financial capability to meet the obligations of the project, maintain available funds to support the project, and demonstrate financial viability of the project.

DEEP's Prequalification Phase and its Scoring Phase application will require potential subgrantees to provide narrative responses, certifications, and documentation to demonstrate financial expertise and available resources to meet program requirements and successfully complete a funded project.

5.12.1 Officer Certifications

As part of the Prequalification Phase, DEEP will require a certification from an officer or director of a prospective subgrantee that the organization has the necessary financial qualifications, capabilities, and resources to comply with all program requirements and successfully participate in the program.

Only prequalified applicants will be allowed to submit applications for project funding during the Scoring Phase. During the Scoring Phase, applicants will be required to submit project-specific certifications by an officer or director of the company. The organization will certify that it will have sufficient financial resources to successfully complete its proposed project and will further certify that it understands the program will use a reimbursement model, requiring subgrantees to commit resources to construct the network and begin service prior to receiving grant award funding as reimbursement for eligible expenses.

Additionally, during the Scoring Phase, DEEP will require certifications from the applicant that it will have sufficient financial resources to provide the pledged matching funding as required by the program rules. Applicants will also be required to certify that they will have the financial resources to support all project costs necessary to complete the project, even if those costs exceed the amount of grant award and pledged matching funds.

These certifications, along with the financial documentation discussed below, will provide DEEP with necessary assurances of the applicant's financial qualifications and capabilities.

5.12.2 Letter of Credit and Performance Bond

BEAD Program rules require subgrantees to obtain an irrevocable standby letter of credit from a qualified financial institution or a performance bond executed by a surety company listed on the Department of Treasury's list of approved surety companies as part of its demonstration of financial capability to participate in the program and successfully complete a project. Pursuant to BEAD Program rules and the BEAD NOFO (Section (IV.D.2.a.ii), DEEP will implement a letter of credit process using the framework adopted by the FCC for its Rural Digital Opportunity Fund (RDOF) Program (47 C.F.R. §54.804(c))[8] and will follow guidelines issued by NTIA in its BEAD Letter of Credit Waiver.[9]

[8] "47 C.F.R. §54.804," National Archives, https://www.ecfr.gov/current/title-47/chapter-I/subchapter-B/part-54#54.804

[9] "BEAD Letter of Credit Waiver, Notice of Programmatic Waiver," NTIA, November 1, 2023, https://broadbandusa.ntia.gov/funding-programs/policies-waivers/BEAD-Letter-of-Credit-Waiver; for further

NTIA's waiver expands the scope of approved financial institutions to allow subgrantees to meet the letter of credit requirement using "any United States credit union that:

1. Is insured by the National Credit Union Administration; and
2. Has a credit union safety rating issued by Weiss of B− or better."[10]

In addition, the waiver expanded options for demonstrating financial capability, such that the following options are available to applicants:

1. Applicants may choose to provide performance bonds equal to 100 percent of the BEAD subaward amount in lieu of a letter of credit.
2. Applicants may choose to have their letter of credit or performance bond obligation progressively reduced with completion of deployment milestones based on a percent buildout completion schedule supplied by DEEP. The allowable reissue of letters of credit or performance bonds will be as follows:
    a. Upon demonstrating to the satisfaction of DEEP that it has completed the buildout of 40% of locations to be served by the project:
        i. For letters of credit, a subgrantee may obtain a new letter of credit or renew its existing letter of credit so that it is valued at no less than 20 percent of the award amount.
        ii. For performance bonds, a subgrantee may obtain a new performance bond or renew its existing performance bond so that it is valued at no less than 75 percent of the award amount.
    b. Upon demonstrating to the satisfaction of DEEP that it has completed the buildout of 60 percent of locations to be served by the project:
        i. For letters of credit, a subgrantee may obtain a new letter of credit or renew its existing letter of credit so that it is valued at no less than 15 percent of the award amount.
        ii. For performance bonds, a subgrantee may obtain a new performance bond or renew its existing performance bond so that it is valued at no less than 50 percent of the award amount.
    c. Upon demonstrating to the satisfaction of DEEP that it has completed the buildout

details, see, "Notice of Programmatic Waiver," NTIA, https://broadbandusa.ntia.gov/sites/default/files/2023-10/BEAD_LOC_Waiver_Notice_10.23.23.pdf.

[10] "BEAD Letter of Credit Waiver, Notice of Programmatic Waiver," NTIA, November 1, 2023, https://broadbandusa.ntia.gov/funding-programs/policies-waivers/BEAD-Letter-of-Credit-Waiver; for further details, see, "Notice of Programmatic Waiver," NTIA, https://broadbandusa.ntia.gov/sites/default/files/2023-10/BEAD_LOC_Waiver_Notice_10.23.23.pdf.

of 80% of locations to be served by the project:

i. For letters of credit, a subgrantee may obtain a new letter of credit or renew its existing letter of credit so that it is valued at no less than 10 percent of the award amount.

ii. For performance bonds, a subgrantee may obtain a new performance bond or renew its existing performance bond so that it is valued at no less than 25 percent of the award amount.

d. Upon demonstrating to the satisfaction of DEEP that it has completed the buildout of 100 percent of locations to be served by the project, a subgrantee may terminate its letter of credit or performance bond under the terms set forth therein.

3. Applicants may also apply in the Prequalification Phase for a reduction of the letter of credit value to 10 percent rather than the default option of 25 percent for the buildout period, or a performance bond in the value of 10 percent rather than the default option of 100 percent. If awarded, the subgrantee will be able to receive funding on a reimbursable basis twice per year.

If applicants do not choose an alternative, they will be subject to the letter of credit requirement at no less than 25 percent as outlined in the initial NTIA guidance.

DEEP will post a model letter of credit on its website as part of the BEAD application materials and will discuss the requirements for a letter of credit or performance bond during its Prequalification and Scoring Phase application workshops and additional technical assistance outreach.

As part of the Prequalification Phase, DEEP will require participants to certify that they are aware of and understand the letter of credit or performance bond obligations and processes for the BEAD Program and to indicate whether they plan to make use of any of the alternative options available under NTIA's waiver. Participants in the Prequalification Phase must further certify that they have the qualifications and resources to obtain the required letter of commitment and letter of credit from an eligible financial institution in an amount of no less than 25 percent of the subaward amount, per NTIA's requirements.

During the Scoring Phase, applicants that elect to provide letters of credit will be required to present a letter of commitment from a qualified financial institution. DEEP will define a "qualified financial institution" as one that meets the program rules for the FCC's RDOF Program (47 C.F.R. §54.804(c)(2)) or a credit union that is (a) is insured by the National Credit Union Administration; (b) has a credit union safety rating issued by Weiss of B− or better. This definition presents the applicants with a choice of different types of financial institutions to request a letter of commitment and ultimately fund the required letter of credit.

This letter of commitment must describe the type of financial institution that is making the commitment (i.e., using the categories in 47 C.F.R. §54.804(c)(2) or a qualifying credit union). The letter of commitment must also state that the financial institution stands ready to issue an irrevocable standby letter of credit for the proposed project in the required amount and must specify the expected amount.

The financial institution must also state that it has reviewed the model letter of credit and is prepared to comply with all terms and conditions for the letter of credit under this program.

Applicants electing to provide performance bonds must "submit a letter from a company holding a certificate of authority as an acceptable surety on federal bonds as identified in the Department of Treasury Circular 570 committing to issue a performance bond to the prospective subgrantee. The letter shall at a minimum provide the dollar amount of the performance bond."[11]

Upon completion of the Scoring Phase, successful subgrantees with awarded projects will be required to obtain their irrevocable standby letters of credit from the previously committed financial institutions or the performance bond from the previously committed companies providing sureties.

Submission of this letter of credit or performance bond will be a condition of a final award. A copy of the letter of credit or performance bond for each funded project must be submitted directly from the issuing institution within 30 days of the notification of the award and prior to the finalization of the final grant agreement. DEEP will ensure that BEAD funding will only be committed or distributed upon submission of a proper letter of credit or performance bond.

As an additional condition of the final grant award, subgrantees that elect to provide a letter of credit will be required to submit a bankruptcy opinion letter from legal counsel that states the letter of credit is drafted in such a way that under a Title 11 bankruptcy proceeding the bankruptcy court will not treat the letter of credit or proceeds from the letter of credit as "property" of the subgrantee's bankruptcy estate under Section 541 of the United States Bankruptcy Code.

5.12.3 Financial Statements

In addition to the certifications discussed above, DEEP will require potential subgrantees to submit documentation of their financial capabilities. During the Prequalification Phase, participants will be required to submit one year of audited financial statements from the prior fiscal year. These financials must be audited by an independent certified public accountant and conform to industry standards.

These financial statements should be "unqualified" and the subject of a clean financial audit. If the submitted statements contain "qualifications" by the auditor, the potential applicant must describe and explain the qualification, the reason for the qualification, and measures taken by the company to address the qualification if applicable.

If a Prequalification Phase participant does not prepare audited financial statements in the ordinary course of business, it must describe the circumstances and reasons for the lack of audited financials and provide one year of financial statements that contain substantially the same level of detail and information. A Prequalification Phase participant without audited financial statements must also commit

[11] "BEAD Letter of Credit Waiver, Notice of Programmatic Waiver," NTIA, November 1, 2023, https://broadbandusa.ntia.gov/funding-programs/policies-waivers/BEAD-Letter-of-Credit-Waiver; for further details, see, "Notice of Programmatic Waiver," NTIA, https://broadbandusa.ntia.gov/sites/default/files/2023-10/BEAD_LOC_Waiver_Notice_10.23.23.pdf.

to providing a year of audited financials within eight months of submitting the Prequalification Phase application.

Other entities that may have alternative financial reporting requirements, such as public entities, will be allowed to submit relevant and applicable financial documentation that provide substantially similar information and that will allow DEEP to substantiate the public entity's financial qualifications and capabilities to participate in the program. A certification by an officer of the entity and a narrative explanation by the public entity must accompany the submitted financial documentation.

During the Scoring Phase, DEEP will review these financial statements together with the applicant's submission of project-specific financial documentation discussed below, such as budgets, capital expenditures, and pro forma business case analyses as part of the applicant's overall showing of financial qualifications and capability.

5.12.4 Financial Sustainability

During the Scoring Phase, DEEP will request specific and detailed documentation and narrative descriptions of the applicant's business plans, budgets, and timelines for the proposed project.

To assess the financial sustainability of a proposed project, DEEP will require applicants to complete and submit a budget narrative, proposed budget, and pro forma business case analysis. Applicants will be required to use provided templates for these submissions.

Applicants will be allowed to upload additional documentation that they believe will complement the template information and will present a fuller picture of the applicant's financial capabilities and the proposed project's financial sustainability.

The budget narrative template requires applicants to provide a detailed breakdown of the expected budget for 11 standardized categories. Additionally, the narrative will require a description of each charge, the entity or team responsible for that budget expense (if applicable and if known), and how each category expenditure relates to the project objectives. If the applicant will be providing a cash or in-kind match in this cost category, this must be noted and explained in the justification to include a break-down of the grant and match share of each proposed cost.

DEEP will require applicants to demonstrate that costs proposed for this grant program will be reasonable, allowable, allocable, and necessary to the supported activity. The Scoring Phase Application and Guide, as well as the Program Guide, will reference 2 CFR Part 200 for applicable administrative requirements and cost principles. These program materials will also discuss program objectives and describe the specific allowable and unallowable costs and activities. DEEP will provide additional technical assistance and Frequently Asked Questions materials to support this element of an applicant's showing.

Applicants will also submit templates to present a pro forma business case analysis to present their financial projections to demonstrate sustainability. These templates ask for assumptions regarding take rates, churn, revenue-per-user, operating expenses, cash flow, and capital expenditures over the course of the construction and start-up operations for a 10-year period. The template also requests a proposed

project budget with standard categories that correspond with the cost categories in the template budget narrative.

By standardizing this application requirement through the use of templates, DEEP can review the financial sustainability of each project in a more consistent, fair, and transparent manner.

DEEP will further review these materials, in combination with the audited financial statements submitted during the applicant's Prequalification Phase, to validate the showing of financial sustainability. DEEP will additionally consider the expected growth of the project and ongoing benefits to the community beyond completion of the build and disbursement of grant funding.

However, recognizing that applicants may have different internal record keeping and business planning processes, in addition to the required template information, DEEP will also accept additional documentation that gives applicants additional opportunity to present supplementary demonstration of financial sustainability tailored to the proposed project.

DEEP will ensure that requests for the pro forma and business plan information in this section of the Scoring Phase application will be complementary to, not duplicative of, documentation provided by the applicant in response to other sections of the application or the applicant's Prequalification Phase submissions. To avoid inefficient and duplicative submissions, applicants will be allowed to reference submissions from other parts of its application to satisfy these requirements.

5.12.5 Managerial Capability

DEEP will require potential subgrantees to demonstrate managerial capability to successfully complete and support a BEAD funded broadband network. DEEP will request documentation during both the Prequalification Phase and the Scoring Phase application. The potential subgrantee's showing of its managerial capability is expected to be comprehensive and robust and demonstrate a commitment to long-term success of the project well beyond the period of construction. DEEP expects to put a detailed reporting framework in place that will require successful subgrantees to demonstrate ongoing commitment of resources, stable leadership, and continued improvement of processes and services to the funded area.

DEEP will ensure applicants are aware of these requirements prior to and throughout the selection process by conducting informational webinars, posting a list of requirements on DEEP's website, and including the requirements in grant applications/instructions, grant agreement terms/conditions and subrecipient grant monitoring program requirements.

5.12.5.1 Key Management Personnel Resumes

During the Prequalification Phase, participants will be required to provide current resumes of all key management personnel, as well as a narrative discussion of each individual's expected role in a BEAD-funded project. Each of the identified individuals shall be an employee of the organization, have at least five years of experience in the same or similar role within the communications industry, and have the demonstrated experience, skills, and authority to successfully fulfill the obligations of the role.

DEEP will expect participants to identify personnel in current roles such as officers and directors of the organization, executive level management, financial planning and strategy, technical design, risk management, human resources, equipment procurement, operations, and planning.

5.12.5.2 Organizational Charts

In addition to resumes for key individuals within the organization, applicants will be required to submit detailed organizational charts of the organization's structure, key management personnel, and relevant operational teams. These charts will also provide information regarding the organization's parent company and affiliates, if any. The organizational chart is expected to correspond to the other elements of the entity's showing of managerial capability, including mapping back to each identified key management personnel and functional teams. The Prequalification Phase participant should describe any recent or expected changes to the organization's structure, processes, and planning that may impact its BEAD project efforts.

5.12.5.3 Organizational Experience and Qualifications

As an additional part of the Prequalification Phase, applicants will be required to provide a narrative description of the organization's background and experience managing broadband infrastructure projects of similar size and scope and under similar circumstances, such as the timeframes, reimbursement models, and geographic characteristics.

The applicant's narrative will also be required to describe the organization's experience, resources, and readiness to provide the required service offerings, level of service, and maintenance over the completed network. The organization will be required to describe plans to maintain a sufficient level of management resources through training, retention, and recruitment activities to support its service delivery efforts throughout the federal interest period.

The entity will be expected to also describe and provide documentation regarding any independent contractors, consultants, and subcontractors that it plans to retain to supplement its managerial capabilities. This description should include the scope of the third-party contractor's role and the expected term of the engagement.

An applicant to the Prequalification Phase that is a new entrant will be required to demonstrate how it will develop its organization's managerial expertise and resources through the recruitment of directly employed key management personnel with the requisite leadership experience of at least five years in prior roles and positions in the communication industry.

All applicants and partnerships must certify that there is no collusion, bias or conflict of interest or provide ownership and partnership disclosures as outlined in 47 CFR 1.2105(a). All applicants and partnerships must likewise disclose foreign interest if pertinent.

All applicants must certify that they will not engage in prohibited communications as defined in 47 CFR 1.2105(a) starting from the date of submission of preregistration application until final award.

5.12.5.4 Project-Specific Managerial Requirements

While potential subgrantees will be expected to make their managerial capability showing during the Prequalification Phase, applicants will also be required to provide additional data and descriptions of its management capabilities to specifically address any unique needs of the proposed project that is the subject of the Scoring Phase application. This project-specific management showing should reflect and correspond to other elements of the Scoring Phase application including financial capability, network design, budgeting, and planning.

For example, if a proposed project will primarily serve a rural area, applicants should include specific references to key management personnel, organizational teams, and the entity's general experience with projects in similarly rural areas. Similarly, if an applicant proposes a project that will serve significant numbers of multi-unit buildings or utilize a unique construction technique, applicants should highlight the experience of the entity or its management personnel in those areas. DEEP will require information that demonstrates that the applicant has sufficient managerial capabilities to support a successful BEAD funded project, with specific reference to the uniqueness of the project.

5.12.6 Technical Capabilities

During the Prequalification Phase, participants will be expected to demonstrate their technical capability to participate in the program and successfully complete a funded project. This showing will complement the applicant's management capabilities and will provide DEEP additional detail to substantiate overall technical expertise, knowledge, and capabilities as well as information about the applicant's federal and state technical certifications, licenses, and standards.

5.12.6.1 Officer and Director Certifications

Prequalification Phase participants will be required to provide certifications from an officer or director of the company that they are fully and properly licensed in Connecticut to conduct funded activities and comply with all post award obligations.

Participants will further certify that they have the processes and resources in place to employ an appropriately skilled and credentialed workforce and that key technical personnel and technical team members are current on all required training, licensing, and license renewals.

DEEP will provide a list of required licenses and certifications as part of its Application Guide and Program Guide posted on its website and discussed during the Prequalification Phase workshop.

5.12.6.2 Certifications and Licenses

In addition to the certifications from an officer or director, Prequalification Phase participants will be required to provide a list of the business and technical certifications and licenses that will be relevant to their participation in the BEAD program that it holds nationally and in Connecticut. This list will include certifications and licenses held by key technical personnel as well as those held by the organization. The list will be required to include unique identifiers and license numbers to allow DEEP to validate the reported data.

Prequalification Phase participants will also submit descriptions of workforce training and certification programs that they rely on, or expect to rely on, to support a continued commitment to a highly skilled and trained workforce. These programs should include certified apprenticeship programs, community college curricula, and for-profit certification programs, programs offered by trade and labor unions, as well as industry sponsored programs. Connecticut provided a list of these programs available to workers in the state as part of its Five-Year Action Plan and further discusses these programs herein.

Information regarding certifications, training, and licensing of key technical personnel submitted as part of this element of the Prequalification Phase will be considered complementary to and not duplicative of the information and data submitted in other elements of the application. Applicants will be encouraged to cross-reference materials to avoid duplicative submissions.

5.12.6.3 Narrative Description

Prequalification Phase participants will also be expected to provide a narrative description of the entity's experience designing and constructing broadband infrastructure projects of similar size and scope and experience operating the network to offer last mile services. This description should reference the key management personnel referenced in the prior application section as well as the experience and expertise of the technical teams the organizations will use to design, construct, and operate the proposed project.

5.12.6.4 Scoring Phase – Project-Specific Certifications

As part of the Scoring Phase application process, DEEP will require applicants to list the employment categories, job titles, and job descriptions that will be necessary to successfully complete the proposed project. Applicants will also be required to provide any additional certifications, licenses, or other qualifications that are unique and specific to the proposed project and are supplemental to the information provided as part of the Prequalification Phase.

Applicants must provide supporting documentation to demonstrate that they have completed, or are in the process of completing, these additional requirements to become fully and properly qualified to successfully complete the proposed project. Each applicant will also be required to describe the processes it will have in place to track and maintain required certifications, licenses, and training programs for construction and post-construction activities to ensure that the organization will maintain a highly skilled workforce throughout the federal interest period of the project.

5.12.6.5 Scoring Phase – Description of the Proposed Project

As part of the Scoring Phase process, applicants will be required to provide a detailed description of the proposed project. Applicants will be encouraged to review the Prioritization and Scoring Phase section of the application (discussed in Section 5.3 of this Initial Proposal Volume II) to ensure that the project description submitted in this section of the application will satisfy program requirements and related scoring rubric elements.

This submission will consist of the following required elements:

- Network design and diagrams using shapefiles that display fiber routes, interconnect points, and required right-of-way usage.
- Narrative descriptions of the geographic location, characteristics of the local community, anticipated labor requirements, and other related information that will provide DEEP with a complete picture of the community to be served.
- Descriptions of the proposed project's technical specifications and design, including project elements such as the proposed miles of fiber, number of interconnection points, technology types to be deployed, number of passings, and anticipated speeds and latency of the services to be offered over the completed network. A template for this requirement, hereinafter referred to as the Technical Specifications Template, will be provided by DEEP.
- Deployment timelines and milestones that reflect a construction and installation process of no longer than four years, including planning, design, procurement, construction, installation, network turn-up and testing, and service initiation. A template for this requirement, hereinafter referred to as the Project Timeline Template, will be provided by DEEP.
- In addition to the budget narrative and pro forma analysis provided as part of the showing of financial sustainability (including anticipated take rates over time, average revenue per user, churn, and other related elements), this section of the application will require applicants to provide documentation of project costs, operational costs, and budgets and to connect these showings to other sections of the application to create a comprehensive description of the proposed project and showing of technical and financial feasibility.

DEEP will review the timelines and milestones for the proposed project to ensure that they correspond and map directly with the capital expenditures and schedules provided as part of the applicant's showing of financial sustainability for the project.

DEEP will also preview the description of the proposed project's technical specifications, network design, and diagrams to ensure that the related project budgets, financial analysis, and business case pro forma analysis support the applicants' project-specific financial sustainability showing.

As each of these application elements must correspond and connect with each other to present a comprehensive picture of the proposal project, DEEP intends these showings to be complementary and not duplicative. Applicants can reference attachments and information provided in other parts of the application.

5.12.6.6 Certification of a Professional Engineer

To support DEEP's own analysis of an applicant's technical capabilities, as well as the reasonableness and benefits of the proposed project, the applicant will be required to produce a certification by an independent professional engineer during the Scoring Phase. DEEP will require that the certifying engineer holds all required professional licenses from the State of Connecticut.

DEEP will provide a sample certification as part of the application materials. This certification must state that the engineer has reviewed all necessary elements of the proposed project, including descriptions and documentation of the network design, build-out timelines, business case, and budgets. The engineer must certify that the proposed project meets all applicable program requirements and is designed to be successfully completed and capable of meeting all performance commitments and requirements within the program timelines.

The applicant will be required to upload documentation of the professional engineer's licenses as well as any written reports, letters, or analysis provided by the engineer regarding the proposed project.

5.12.7 Compliance With Applicable Laws

DEEP is committed to ensuring that applicants seeking to deploy network facilities are thoroughly vetted and meet the minimum qualifications regarding compliance with applicable laws as outlined in the BEAD NOFO. DEEP's Prequalification Phase will require participants to provide a legal opinion by an attorney licensed in Connecticut that the organization is aware of the federal and state laws applicable to BEAD funded broadband deployment projects and that the organization possesses the qualifications and resources to perform BEAD-related commitments in compliance with all applicable federal and state laws.

The legal opinion will be required to further attest to the organization's current compliance with all relevant federal and state laws and describe any violations of applicable laws and regulations, current or pending investigations, and current or pending legal actions.

The legal opinion must be accompanied by a description of the expertise and qualifications of the attorney and demonstration of the attorney's familiarity with relevant areas of the law including preemption and issues of jurisdiction. The attorney must also describe their familiarity with the operations of the organization and the documents, policies, and procedures that they reviewed to render the opinion.

In the BEAD application materials, DEEP will reference the types of laws that Prequalification participants must consider, including federal procurement laws such as applicable Buy American requirements, state-specific procurement regulations, federal Uniform Guidance regulations, Department of Commerce Standard Terms and Conditions for grant funding, federal and state environmental and historic preservation regulations, and any specific award conditions that DEEP or NTIA may develop. In the event of a conflict between federal, state, or local regulations, DEEP will require compliance with the most stringent obligations and requirements to the extent those obligations are not preempted by applicable federal law.

DEEP will also require Prequalification Phase participants to provide a narrative description of the processes they have in place to conduct funding activities in compliance with federal and state laws, including descriptions and documentation of procurement practices. Additionally, participants shall be required to provide an explanation of any special circumstances or considerations that may prevent compliance with specific applicable laws. The narrative must address specific requirements and discuss the participant's plans to mitigate the impact of any noncompliance on its participation in the program.

DEEP will further require participants in the Prequalification Phase to certify that it has, or will have, processes in place to monitor and support compliance with specific state and federal safety regulations applicable to work on BEAD program projects, including federal Occupational Safety and Health Act and related state and federal regulations.

As part of this showing, DEEP will require participants to provide documentation of the organization's policies and practices regarding compliance with health and safety laws and regulations. Participants will also be required to provide documentation of communications with workers and worker representative organizations regarding the applicable labor laws and fair labor standards, as well as the formation of worker-led health and safety committees that management will meet with upon reasonable request. Documentation of a participant's outreach to workers on these topics may include sample emails, copies of posters, worker surveys, worker meetings, phone call and social media scripts, as well as organizing activities by worker-led organizations.

5.12.8 Organizational Capability

5.12.8.1 Experience Offering Voice and Broadband Services

During the Prequalification Phase, DEEP will require participants to provide a certification by an officer or director of the organization that it possesses the operational expertise, capabilities, and resources to successfully complete and operate a BEAD funded project. The certification must specify that the organization has at least two years of experience providing voice, broadband, or electric transmission or distribution services to end users or is a wholly owned subsidiary of a parent entity that has two years of operational experience in the communications industry.

If Prequalification Phase participants referenced operations in other states as part of its demonstration of managerial, technical, or operational capabilities, the organization will be required to provide a list or chart describing operations providing voice and broadband services in other states. The list must include licensing and certification identifiers, years of operating experience, and descriptions of the services provided in each state either by the organization directly or by its affiliates and parent organization.

5.12.8.2 Compliance With FCC Regulations

Prequalification participants will also be required to provide a separate certification that they are in compliance with any applicable federal laws and regulations implemented by the Federal Communications Commission (FCC), including submission of required reporting under the FCC's Form 477 regulations for reporting deployment and subscription data. This certification should also include compliance with the Broadband DATA Act (Pub. L. No 116-130 (2020)) and implementing regulations including the FCC's Broadband Data Collection process.

If the participant cannot provide the required certification regarding these FCC regulations, it will be required to provide a narrative explanation of any pending or completed enforcement action, litigation, or other action regarding violations or non-compliance with applicable FCC regulations, and a description of any efforts by the organization to cure the noncompliance or violations of the applicable regulations.

5.12.8.3 Electric Service Providers and New Entrants

If the Prequalification Phase participant is a provider of electricity transmission or distribution services without two years of experience offering communications services or is a new entrant to the communications market, the participant will be required to provide additional documentation of its operational capabilities to successfully complete and operate a BEAD funded project.

Such documentation may be considered if it can substantiate the expertise and resources of the organization to deploy and operate a broadband network in compliance with BEAD program requirements. Such documentation could, or for electric service providers must, include additional operational or financial reports that the electric service provider or new entrant may have originally submitted to a financial institution or applicable regulatory agency. These additional reports must be accompanied by a certification from an officer or director of the organization that they are true and correct copies of the reports originally provided to the financial institution or regulatory agency.

Electric services providers and new entrants will also be required to provide documentation of plans to acquire additional resources to increase the organizations' organizational capabilities, including third party contractors and partners with relevant operational expertise, to the extent that they cannot demonstrate that they have already acquired those capabilities.

5.12.9 Ownership Information

During the Prequalification Phase, DEEP will require participants to document their ownership structure and shareholder interests pursuant to federal regulations developed for specific funding and auction programs implemented by the Federal Communications Commission that can be found at 47 C.F.R.

§1.2112(a)(1)-(7). DEEP will specifically request applicants to provide a narrative description of their ownership structure and corporate entity type (e.g., publicly held corporation, limited partnership, limited liability company, general partnership, cooperative). The showing should reference and correspond to the organizational charts, identification of executive leadership, and financial statements provided in other elements of the Prequalification Phase.

Participants will be required to submit a list of the required ownership information specific to the type of corporate entity, including the name, address, and citizenship and proportion of ownership interest of those owning and controlling the organization, including partners and shareholders with more than a 10 percent ownership interest, whether voting or nonvoting, common or preferred, including the specific amount of the interest or percentage held.

For participants that report to the FCC, DEEP will review the submitted information to determine that it matches the information submitted by organizations to the FCC in compliance with 47 C.F.R. §1.2112 and other FCC reporting requirements including reporting for Eligible Telecommunications Carrier requirements, licensure, and other purposes. Applicants will be expected to identify and explain any discrepancies or inconsistencies in the reported ownership and corporate structure information between the information reported to the FCC and the information submitted as part of the Prequalification Phase.

DEEP will also check the submitted information against relevant business licensing requirements for the State of Connecticut and will require applicants to explain any discrepancies or inconsistencies between the two sets of reported data.

This requirement is critical for DEEP, and NTIA, to uphold their commitments to fairness and transparency under the BEAD program. Ownership information for each prospective subgrantee will allow DEEP to have a full and complete picture of the participants in the program and who is being entrusted with BEAD funding to ensure an efficient and effective use of funds that benefits the largest number of end users.

5.12.10 Information on Other Public Funding

As part of DEEP's efforts to substantiate an applicant's overall expertise and competence to successfully complete a BEAD funded project, during the Prequalification Phase DEEP will require participants to submit information about their participation in other state or federal publicly funded grant programs.

DEEP will assess this information to better understand the participant's experience and knowledge regarding publicly grant funded programs, the technical capabilities demonstrated by the sophistication of each project, and the resources that the participant has committed over the term of these projects.

Participants will be required to submit information about their participation and commitments for publicly funded programs including but not limited to the Families First Coronavirus Response Act (Public Law 116-127; 134 Stat. 178), the CARES Act (Public Law 116-136; 134 Stat. 281), the Consolidated Appropriations Act, 2021 (Public Law 116-260; 134 Stat. 1182), the American Rescue Plan of 2021 (Public Law 117-2; 135 Stat. 4), any federal Universal Service Fund high-cost program (e.g., RDOF, CAF), and DEEP's own broadband grant programs, as well as any state or local universal service or broadband deployment funding program.

As part of the Prequalification Phase, DEEP will provide a template for this requirement, hereinafter referred to as the Other Public Funding Template, that participants must complete. Participants will be required to use the Other Public Funding Template to provide the requested information for each publicly funded broadband deployment project where the participant is planning to submit an application for funding, has an application pending, has been awarded public funding, or has committed to completing a project. Participants will also be required to include information about any publicly funded broadband projects for their affiliates and parent company.

As the Other Public Funding Template demonstrates, for each current publicly funded broadband project, DEEP will require Prequalification Phase participants to provide:

- Speed and latency of the service to be provided as measured and reported under the applicable rules of the program
- Geographic area covered
- Number of unserved and underserved locations committed to serve or a percentage of the number of locations in the area as measured and reported under the applicable rules of the

program

- Amount of public funding to be used
- Cost of service to the consumer
- Matching commitment, if any, provided by the participant or its affiliates

6. Non-Deployment Subgrantee Selection (Requirement 9)

This section outlines non-deployment eligible activities DEEP may support using BEAD Program funds. At the time of submission of Volume 2 to the NTIA, DEEP has not determined whether funds will remain for non-deployment purposes. Therefore, additional details pertaining to the use of funds and the subgrantee selection process will be included in the Final Proposal, if applicable, per the NTIA's guidance. As a result, the following section is preliminary in nature; the Final Proposal will contain more specific information and details if funds remain for non-deployment subgrantee selection. Per the federal BEAD Program requirements, non-deployment activities will only be eligible for consideration if funds remain after deploying service to all unserved locations, underserved locations, and Community Anchor Institutions.

As noted in Connecticut's BEAD Five-Year Action Plan, DEEP plans to provide its cost estimate for universal service as part of its Initial Proposal to NTIA. The state is in the process of obtaining and evaluating cost estimates from various sources and will perform further modeling and analysis during the public comment period. Upon initial review, DEEP finds that its cost estimates may exceed Connecticut's BEAD allocation. Given the priorities for deployment, it could be unlikely that DEEP would have funds beyond statutory deployment priorities for other state broadband objectives.

If, however, the state has additional funds after provisionally issuing the broadband deployment grants for unserved locations, underserved locations, and Community Anchor Institutions, it plans to support other initiatives, plans or programs supporting digital equity, inclusion and adoption. Consistent with the state's BEAD Five-Year Action Plan, Digital Equity and the BEAD NOFO, DEEP may also consider supporting additional non-deployment activities outlined in those documents, including but not limited to the following:[12]

1. Facilitate workforce development training programs outlined in the Governor's Workforce Council Strategic Plan, by supporting industry-aligned training and adding apprenticeship programs for broadband related workforce.
2. Support digital literacy and upskilling through trusted community partners like Digital Navigators, who can help residents connect to, and learn how to use, affordable technology and high-quality broadband internet.
3. Enhance educational opportunities by increasing STEM curricula (e.g., computer science, coding, and cybersecurity education programs) in schools, as well as supporting broadband outside of school and equipping students with affordable, high-quality devices.
4. Fund remote learning or telehealth services/facilities.
5. Support user training with respect to cybersecurity, privacy, and other digital safety matters.
6. Implementation of Connecticut digital equity plans (to supplement, but not to duplicate or

[12] See also BEAD NOFO, NTIA, https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf, Section 7(a)(iii) at p. 39.

supplant, planning grant funds received by the Eligible Entity in connection with the Digital Equity Act of 2021).

7. Broadband sign-up assistance and programs that provide technology support.
8. Multi-lingual outreach to support adoption and digital literacy.
9. Prisoner education to promote pre-release digital literacy, job skills, online job acquisition skills, etc.
10. Direct subsidies for use toward broadband subscription, where the state can show the subsidies will improve affordability for the end user population (and to supplement, but not to duplicate or supplant, the subsidies provided by the Affordable Connectivity Program).
11. Costs associated with stakeholder engagement, including travel, capacity-building, or contract support.
12. Other allowable costs necessary to carrying out programmatic activities of an award, not to include ineligible costs described in Section V.H.2 of the NOFO.

Because of the BEAD Program's deadlines, DEEP has a limited window to run the state Challenge Process, implement its grant program (i.e., identify subgrantees), and prepare its Final Proposal for public comment and submittal to NTIA. Given these time constraints, the state anticipates it may need to accelerate efforts to support the workforce or digital equity-related non-deployment activities with any remaining funds through state contracts or memoranda of understanding with other state agencies.

As DEEP runs its deployment subgrant selection process, it will monitor the remaining funds closely. If DEEP determines that it may have funds remaining, it will begin planning and preparing a non- deployment activity plan to submit as part of its Final Proposal.

7. DEEP's Implementation Activities (Requirement 10)

This section describes initiatives DEEP, as the Eligible Entity, proposes to implement as the recipient without making a subgrant.

DEEP does not plan to implement any broadband deployment initiatives as the recipient without making a subgrant. However, as noted above in Section 6, Non-Deployment Subgrantee Selection (Requirement 9), DEEP may have additional funds after provisionally issuing the broadband deployment grants. If DEEP has funds remaining after funding broadband infrastructure to serve all unserved, underserved, and identified and eligible community anchor institution locations, per the BEAD NOFO and statutory requirements, the state may consider implementing non-deployment priorities itself through existing state programs.

Working through existing state programs will facilitate the efficient and timely use of funds, especially since the challenge and subgrantee processes will take significant time and DEEP will likely only know if there are remaining funds late in the Final Proposal process.

DEEP may work with other agencies to support programs that include workforce development related to the deployment of broadband, digital equity, or broadband adoption activities, and mapping or data collection.

Additionally, the state plans to implement key grant activities without issuing a subgrant. These activities include those directly related to the BEAD program:

- General administration of the BEAD award
- Oversight of BEAD subgrant applications and issuance
- Other BEAD management processes:
    - Implementing the BEAD challenge process
    - Managing the process for subgrantee applications and issuance
    - Obtaining software to manage both processes
    - Overseeing subgrantee compliance

Although not directly related to the BEAD program, Connecticut's broadband and digital equity plans are informed by its mapping and data collection, and DEEP may use funds to continue its mapping and data collection efforts. DEEP may also use BEAD funds to produce data analyses that are relevant to the BEAD program.

8. Labor Standards and Protection (Requirement 11)

This section explains how DEEP will account for and oversee subgrantee adherence to federal labor and employment laws that mandate minimum safety, wage, anti-discrimination, and other workplace standards for all businesses in the United States.

8.1 Specific Information That Prospective Subgrantees Will Be Required to Provide in Their Applications and How the Eligible Entity Will Weigh That Information in Its Competitive Subgrantee Selection Processes.

DEEP will require applicants to submit the following information during the application period of the subgrantee selection process. These components will be weighted in the Fair Labor Practices segment of primary scoring criteria, with equal points (10 points each) given to evidence of past compliance and commitments to and plans for future compliance. In the application, DEEP will require the following from all applicants:

1. Certification from an Officer employee, or an equivalent, of consistent past compliance with federal labor and employment laws on broadband deployment projects in the last five years, including:
    - Whether they have a history of violations of federal and state labor and employment and unfair trade practices laws including but not limited to the Occupational Safety and Health Act and the Fair Labor Standards Act; injunctions, fines, or debarment from other state or federal grant programs; any defaults, penalties, or similar in other state or federal programs (even short of debarment); any regulatory enforcement actions, legal or administrative proceedings that concluded adversely against the applicant, penalties, notices of violation, or other disciplinary action taken by a state or federal agency for any conduct of an applicant or contractors or subcontractors working on their behalf; and/or findings of negligence, denial of civil rights, and/or breach of contract to provide services, within the last five (5) year by the applicant, its partner(s), and any subcontractors.
2. Certification that the prospective subgrantee, as well as its contractors and subcontractors, have not been found to have violated such for the preceding three years, or disclosure of any findings of such violations. Certification that the potential subgrantee, and its proposed contractors and subcontractors, have existing labor and employment practices in place including, but not limited to, measures to ensure compliance with the binding legal commitments in section 9.2, and that the subgrantee will recertify this annually for the duration of the BEAD implementation period.
3. Certification of compliance with relevant workplace protections including the Occupational Safety and Health Act, the Fair Labor Standards Act, and Connecticut labor and employment laws.
4. The applicant's plan for compliance with State labor and employment laws, and the applicant's

commitment to strong labor standards and protections for the project workforce. Such plan can include a discussion of whether the construction workforce will be directly employed or subcontracted, the use of an appropriately skilled workforce, the anticipated size of the workforce required to carry out the proposed work, a description of plans to maximize use of local or regional workforce, and a description of the expected workplace safety standards and training to ensure the project is completed at a high standard. For further details about the components of the plan, see Section 10.5. A certification by an applicant that it will perform the project work pursuant to a project labor agreement shall be sufficient to satisfy a determination that the applicant will be using an appropriately skilled workforce.

8.2 Binding Legal Commitments in Subgrants Related to Labor Standards and Protection

Projects must comply with all applicable federal labor laws and regulations, and with all requirements in state and local laws and ordinances to the extent that such requirements do not conflict with federal laws. Among other requirements, 2 C.F.R. Part 200 requires that all contracts made by an Awardee in excess of one hundred thousand dollars ($100,000) that involve employment of mechanics or laborers must include a provision for compliance with certain provisions of the Contract Work Hours and Safety Standards Act, 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

To assist with ensuring a binding commitment to strong labor standards and protections for the project workforce, each contract for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of broadband infrastructure, and each subcontract thereunder, shall contain the following provision: “The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of Conn. Gen. Stat. § 31-53, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.”

Applicants that need assistance with determining the appropriate classification of labor or the appropriate prevailing rate of wages for the project should contact the Wage and Workplace Standards Division at the Connecticut Department of Labor. After a project commences, Awardees must submit Certified Payrolls with a statement of compliance monthly to DEEP. Certified Payroll will be submitted using form WWS-CPI located on the Connecticut Department of Labor Website: Certified Payroll Form WWS – CPI.[13]

[13] “What are Certified Payroll Form WWS - CPI?” Connecticut Department of Labor, August 21, 2023, https://portal.ct.gov/dol/knowledge-base/articles/wage-and-workplace-standards/certified-payroll-form-wws-cpi.

Additionally, successful applicants will be contractually obligated to require and any its contractors or subcontractors on BEAD deployment projects to allow for the creation of worker-led health and safety committees that management will meet with upon reasonable request.

Following an award, successful applicants will be required to submit ongoing workforce reports which shall be incorporated as material conditions of their subgrant from DEEP. The applicants' representations in the Workforce Plan section of their application will become binding commitments upon award of a subgrant, and the subgrantees will be subject to regular reviews to ensure compliance. Subgrantees shall be required to provide regular reports with the information below. This information may be anonymized and aggregated to protect individual privacy:

- Whether the workforce will be directly employed by the grantee/ISP or whether work will be performed by a subcontracted workforce;
- The entities that the contractor plans to subcontract with in carrying out the proposed work, if any;
- The job titles and size of the workforce (FTE positions) required to carry out the proposed work over the course of the project;
- For each job title required to carry out the proposed work, a description of wages, benefits, applicable wage scales including overtime rates and a description of how wages are calculated, including any wage determinations from CT Department of Labor (DOL), as applicable;
- Any in-house training program, including whether the training program is tied to titles, uniform wage scales, and skill codes recognized in the industry;
- The number of workers onsite who were sourced through a workforce development program, such as a vocational school or registered apprenticeship program, by type of program;
- Safety training, certification, and/or licensure requirements, including whether employees are required to have completed OSHA safety training or any training required by law;
- How the awardee is ensuring that minority businesses, women-owned business enterprises, and labor surplus area firms are recruited, used, and retained when possible;
- How the awardee is recruiting and hiring a local and Connecticut-based workforce whenever possible.

9. Workforce Readiness (Requirement 12)

This section explains how DEEP will ensure an available, diverse, and highly skilled workforce.

9.1 Supporting the Development of an Available, Diverse, and Highly Skilled Workforce

Connecticut's success in executing broadband deployments under the Broadband Equity, Access, and Deployment (BEAD) Program will require unprecedented collaboration across the public, private, and nonprofit sectors, especially when it comes to fostering a well-trained and diverse Connecticut workforce.

This section details the workforce needs that will be created by the anticipated spending on broadband construction under the BEAD Program and simultaneous last-mile broadband construction enabled by Capital Projects Fund (CPF) resources; outlines the state's approach to helping develop a robust, diverse workforce; documents how DEEP intends to meet the labor and workforce requirements in the BEAD notice of funding opportunity (NOFO); and describes how BEAD deployments will benefit and work in concert with the state's long-term economic development goals.

9.1.1 Establishing a Baseline for the Broadband Construction Sector in Connecticut

According to a 2021 Brookings report, "How federal infrastructure investment can put America to work," the workforce clusters involved in broadband deployment are represented by the following North American Industry Classification System (NAICS) categories:

- Power and Communication Line and Related Structures Construction
- Fiber Optic Cable Manufacturing
- All Other Electrical Equipment and Component Manufacturing
- Cable and Other Subscription Programming
- Wired Telecommunications Carriers
- Wireless Telecommunications Carriers[14]

The following table, generated using data from the economic and labor market modeling tool Lightcast,[15] outlines the performance of these subsectors that are directly employed in telecommunications in Connecticut from 2018 to 2022. (Note: The data nomenclature used by the NAICS changed between the publication of the 2021 Brookings report and now; the category formerly called Cable and Other

[14] The Broadband Deployment Sector is defined by the March 2021 Brookings Report, "How Federal Infrastructure Investment Can Put America to Work" (https://www.brookings.edu/research/how-federal-infrastructure-investment-can-put-america-to-work/). These industries were originally identified by Pollin, et. al. in the October 2020 report, "Impacts of the Reimagine Appalachia & Clean Energy Transition Programs for Ohio" from the Political Economy Research Institute at the University of Massachusetts, Amherst (https://reimagineappalachia.org/wp-content/uploads/2020/10/Pollin-et-al-OHIO-Reimagine-Appalachia-and- Clean-Energy-Programs-10-19-20.pdf).
[15] Lightcast, https://www.economicmodeling.com/.

Subscription Programming is now called Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers.)

Table 11: Performance of Connecticut's broadband deployment sector (2018-2022)

NAICS	Industry	2018 Jobs	2022 Jobs	2018 - 2022 Change	2018 - 2022 % Change	Avg Earnings per Job - Connecticut	Avg Earnings per Job - National
237130	Power and Communication Line and Related Structures Construction	1,719	1,836	117	7%	$132,414	$108,440
335921	Fiber Optic Cable Manufacturing	732	661	-71	-10%	$104,423	$109,335
335999	All Other Electrical Equipment and Component Manufacturing	1,112	1,034	-78	-7%	$143,178	$122,081
516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	5,263	5,242	-21	0%	$191,792	$239,987
517111	Wired Telecommunications Carriers	6,667	5,435	-1,232	-18%	$197,356	$126,979
517112	Wireless Telecommunications Carriers (except Satellite)	409	385	-24	-6%	$181,856	$126,584
	Total	**15,902**	**14,593**	**-1,309**	**-8%**	**$178,730**	**$147,794**

Source: Lightcast Datarun 2023.4

There has been significant dynamism within Connecticut's broadband deployment sector over the past five years, and the data suggest a few notable trends:

- The growth in *Power and Communication Line and Related Structures Construction* roles suggests ongoing active construction or utility repair in the state, and functioning mechanisms for training and hiring new workers.
- The decline in *Fiber Optic Cable Manufacturing* suggests that manufacturing facilities that

existed in 2018 may have contracted, or more likely moved out of state or invested in automation that reduced the need for workforce.

- The decrease in *Electric Equipment and Component Manufacturing* represents a contraction of that sector in the state; however, manufactured goods will be bought from out of state regardless, and while contractions in this workforce do signify job declines, it is not necessarily as much of a barrier to future construction deployment as a lack of construction laborers, for example.
- The decline in both *Wired and Wireless Telecommunications Carriers* is likely the result of several factors, which may include an increased use of technology in ISP operations resulting in less reliance on people, or simply an increase in retirements in the industry, among other factors.

Overall, the state saw a reduction of over 1,300 jobs in industries related to broadband deployment during this timeframe, which was greater than national trends. Specifically, Connecticut saw an 8 percent reduction in the broadband deployment workforce, while the same sector shrank by 4 percent nationally over the same timeframe. However, if workers can be enticed back into the sector into their previous occupations, or even into adjacent, in-demand roles—e.g., if workers who left occupations as *Wired Telecommunications Carriers* could be welcomed back into occupations related to *Power and Communications Line and Related Structures Construction*—the challenge of a recently contracting workforce can also be seen as an opportunity.

Wages for Connecticut workers in most broadband construction roles are higher than national averages in the same roles, suggesting a competitive compensation environment, which makes it more likely that trained lineworkers will stay in Connecticut rather than pursue higher wages elsewhere.[16]

9.1.2 Estimating the Impact of BEAD Funding on Broadband Construction Jobs

This analysis estimates that the construction spending due to the BEAD Program will be approximately $173 million, reflective of the entire BEAD allocation for Connecticut ($144,180,792.71) plus 20 percent. The ultimate amount spent on BEAD construction may be higher or lower depending on how much match can be catalyzed for each deployment, with some projects leveraging 25 percent match or more, but some high-cost areas potentially necessitating much lower match. Because the match will likely average less than 25 percent, and the state's BEAD allocation included planning funds that will not be put toward deployment, 20 percent is a proportionally accurate estimate for total construction match at this time.

Because the construction is happening with significant overlap, this analysis also adds in anticipated spending in the state from Capital Projects Fund dollars directed to last-mile broadband deployment—projected to be about $40.8 million, again including a 20 percent match. Taken together, the BEAD and CPF investment plus match is estimated to be $222 million for the sake of this analysis.

[16] Lightcast Datarun 2023.4.

Based on the Brookings research cited above, broadband construction activities are expected to be allocated in the following proportions across the following relevant industry sectors.[17,18]

Table 12: Anticipated Distribution of Broadband Investment Across Sectors

NAICS	Industry	Weight
237130	Power and Communication Line and Related Structures Construction	25%
335921	Fiber Optic Cable Manufacturing	10%
335999	All Other Electrical Equipment and Component Manufacturing	15%
516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	10%
517111	Wired Telecommunications Carriers	20%
517112	Wireless Telecommunications Carriers (Except Satellite)	20%

Using the anticipated impact across sectors, an input-output methodology with the modeling tool Lightcast was used to understand and analyze the workforce needs based on anticipated broadband spending.

9.1.2.1 Broadband Construction Spending will Require Connecticut to Grow their Broadband Construction Workforce by Over 150 Jobs

Though many occupation categories may be involved in broadband deployment in some form or another, this analysis focuses on 12 occupational categories required to deploy broadband, identified by the Brookings article cited above. The following table estimates the numbers of workers needed in those categories to execute on a $173 million BEAD investment and a $222 million total investment in broadband construction, and the proportional increase in workforce needed for each occupation.

[17] The distribution of how this investment across broadband industries was based on the work of the Brookings Report "How Federal Infrastructure Investment Can Put America to Work," by Escobari, Gandhi, and Strauss, June 2021, https://www.brookings.edu/wp-content/uploads/2021/03/Federal-infrastructure-investment.pdf, which is based on the work of Pollin et al. (2020).

[18] Robert Pollin, Jeannette Wicks-Lim, Shouvik Chakraborty, and Gregor Semieniuk. "Impacts of the Reimagine Appalachia & Clean Energy Transition Programs for Ohio: Job Creation, Economic Recovery, and Long-Term Sustainability," PERI at University of Massachusetts Amherst, October 2020, p. 107.

Table 13: Estimated Workforce Requirements for Broadband Deployment Occupations

Occupation	Currently Employed in Connecticut	$173 Million BEAD Investment		$222 Million BEAD + CPF Investment	
		New Workers Needed	% Increase	New Workers Needed	% Increase
Project Management Specialists	7,425	5	0.07%	6	0.08%
Business Operations Specialists, All Other	5,914	3	0.05%	4	0.07%
Software Developers	16,711	7	0.04%	8	0.05%
Software Quality Assurance Analysts and Testers	1,251	0	0.00%	0	0.00%
Electronics Engineers, Except Computer	1,723	2	0.12%	3	0.17%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	9,217	10	0.11%	13	0.14%
Customer Service Representatives	30,155	14	0.05%	18	0.06%
Construction Laborers	13,138	30	0.23%	39	0.30%
First-Line Supervisors of Mechanics, Installers, and Repairers	6,089	11	0.18%	14	0.23%
Telecommunications Equipment Installers and Repairers, Except Line Installers	2,131	10	0.47%	13	0.61%
Electrical Power-Line Installers and Repairers	1,187	19	1.60%	24	2.02%
Telecommunications Line Installers and Repairers	894	10	1.12%	13	1.45%

Source: Lightcast Datarun 2023.4

Because this chart is based on job classifications regardless of industry (as in, inclusive of more industries than just those in the broadband deployment sector), there are more employees noted for each job category than in the prior chart describing the performance of Connecticut's broadband deployment sector, which only included workers employed at broadband deployment-related businesses. In other words, a significant number of lineworkers in the chart above may be working for electric utilities rather

than telecommunications companies, either in the electrical space (electrical lineworkers are essential to broadband deployment during make-ready work, pole replacements, and other processes) or, in some instances, to deploy and maintain internal telecommunications equipment (such as advanced metering systems and networks to manage them) used by electric utilities. However, this chart gives perspective as to the pool of people who could be drawn upon to work—and which categories may be hardest to supply as a percentage of the existing workforce. For example, though Telecommunications Equipment Installers and Repairers and Telecommunications Line Installers and Repairers will need the same amount of new people (13), as a percentage, Telecommunications Line Installers and Repairers will need to grow by much more, suggesting that it may be significantly harder to fill those roles.

This analysis indicates that the most attention should be put to the categories that need to grow the most in total workers, like Construction Laborers, but also the categories that need to grow the most proportionally, including line installers and repairers with both electrical and telecommunications specialties.

Another factor that impacts how difficult it will be to grow the net workforce in a particular category is how concentrated that workforce is relative to the national baseline in a specific area. When there are existing higher-density clusters, not only is filling roles easier with the existing workforce, but there is more possibility for specialization, mentorship, and even recruitment due to an increased visibility in the community.

To demonstrate this, a Location Quotient (LQ) analysis is used to show the relative concentration of an occupation compared to national averages, and as such, which roles may be especially hard to fill. An LQ of 1.00 means an occupation is exactly as concentrated in a region as it is in the whole country. An LQ higher than 1.00 means there is a higher concentration of that occupation in the region (and thus more opportunity for specialization, more resilience when an influx of these occupations is needed, and more of an existing network in the community), while an LQ less than 1.00 represents a lower concentration (and therefore could be considered a greater scarcity issue in times of occupational need).

Table 14: Occupations Needed for Broadband Deployment (by Percentage Increase Required)

Occupation	% Occupational Increase Required	Location Quotient
Electrical Power-Line Installers and Repairers	2.02%	0.88
Telecommunications Line Installers and Repairers	1.45%	0.72
Telecommunications Equipment Installers and Repairers, Except Line Installers	0.61%	1.11
Construction Laborers	0.30%	0.85
First-Line Supervisors of Mechanics, Installers, and Repairers	0.23%	0.98

Occupation	% Occupational Increase Required	Location Quotient
Electronics Engineers, Except Computer	0.17%	1.40
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	0.14%	0.75
Project Management Specialists	0.08%	0.78
Business Operations Specialists, All Other	0.07%	0.47
Customer Service Representatives	0.06%	0.94
Software Developers	0.05%	0.95
Software Quality Assurance Analysts and Testers	0.00%	0.57

Source: Lightcast Datarun 2023.4

While some of these impacted occupations are near or above national levels of concentration, there are several that are below, indicating that those roles may also be especially hard to fill as more broadband deployment demand is generated across the country. Of particular concern, again, are the categories that need significant numbers of people and also have a lower concentration in the state, such as Telecommunications Line Installers and Repairers (LQ of 0.72) and Construction Laborers (LQ of 0.85). This reinforces the need for increased workforce development for those areas.

9.1.2.2 Characteristics of Key Workforce Categories

Understanding how to create a robust workforce across key categories requires understanding important characteristics of those job categories such as the average earnings, change in number of employees over the past few years, and importantly, the turnover rate. High turnover rates, which could be represented by people switching jobs or retiring—both of which are trends in parts of the broadband deployment sector—impact the efficiency of organizations by requiring more frequent hiring and training and losing employees with context and experience. The chart below outlines important characteristics of the occupations identified as in need of critical workforce attention.

Table 15: Characteristics of Key Occupations Impacted by Broadband Investment

Occupation	Currently Employed in Connecticut	2018 - 2022 % Change	Median Annual Earnings	Annual Turnover Rate
Project Management Specialists	7,425	82%	$99,939	40%
Business Operations Specialists, All Other	5,914	35%	$82,242	43%

Occupation	Currently Employed in Connecticut	2018 - 2022 % Change	Median Annual Earnings	Annual Turnover Rate
Software Developers	16,711	19%	$110,156	29%
Software Quality Assurance Analysts and Testers	1,251	12%	$86,140	35%
Electronics Engineers, Except Computer	1,723	-9%	$104,612	23%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	9,217	-10%	$64,498	58%
Customer Service Representatives	30,155	-4%	$42,519	76%
Construction Laborers	13,138	-9%	$46,541	47%
First-Line Supervisors of Mechanics, Installers, and Repairers	6,089	23%	$78,986	46%
Telecommunications Equipment Installers and Repairers, Except Line Installers	2,131	-14%	$75,586	41%
Electrical Power-Line Installers and Repairers	1,187	25%	$111,855	62%
Telecommunications Line Installers and Repairers	894	40%	$60,642	50%

Source: Lightcast Datarun 2023.4

While most of these occupations have seen growth from 2018 to 2022, a few occupations have contracted in numbers, particularly Telecommunications Equipment Installers and Repairers, Sales Representatives, Electronics Engineers, and Construction Laborers. This could be due to retirements, technology changes rendering some jobs obsolete, reclassification of occupations, contractions in the industry, or wages that are lower than national averages, causing outward migration. While some workers may be enticed back out of retirement or brought back into the industry despite a previous contraction—and the state encourages employers to mount specific efforts to attract former workers— a large number may be out of the sector's workforce for good.

Turnover rates also give context for how often employees in each occupation are moving to different employers. High rates of turnover in certain categories should not be a cause for alarm, but instead generally indicate occupations where contract work is most common, such as seasonal work in construction and other occupations related to broadband deployment. To some extent, turnover also illustrates there are opportunities for employment elsewhere with a similar skill set and is a sign of a strong job market. However, the intensity and physical demands of broadband construction jobs are unavoidable, and so higher turnover rates are to some extent unavoidable.

9.1.2.3 Workforce Qualification Requirements

The following chart outlines qualification requirements for the 12 key broadband deployment occupations, along with typical education and work experience requirements, and typical amount of on-the-job training required to be proficient.

Table 16: Work Experience of Occupations Impacted by Broadband Investment

Occupation	Typical Entry-Level Education	Work Experience Required	On-The-Job Training Required
Project Management Specialists	Bachelor's degree	None	None
Business Operations Specialists, All Other	Bachelor's degree	None	None
Software Developers	Bachelor's degree	None	None
Software Quality Assurance Analysts and Testers	Bachelor's degree	None	None
Electronics Engineers, Except Computer	Bachelor's degree	None	None
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	High school diploma or equivalent	None	Moderate-term
Customer Service Representatives	High school diploma or equivalent	None	Short-term
Construction Laborers	No formal educational credential	None	Short-term
First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	Less than 5 years	None
Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary nondegree award	None	Moderate-term
Electrical Power-Line Installers and Repairers	High school diploma or equivalent	None	Long-term
Telecommunications Line Installers and Repairers	High school diploma or	None	Long-term

Occupation	Typical Entry-Level Education	Work Experience Required	On-The-Job Training Required
	equivalent		

Source: Lightcast Datarun 2023.4

A key workforce strategy for filling new roles, retaining existing employees, marketing career opportunities to new recruits, and leveraging on-the-job training opportunities is to define career pathways. Occupations that require more experience and qualifications can sometimes be filled by promotions, thereby transferring the process of bringing new people into the industry to roles that require less previous experience or fewer qualification requirements.

For example, a customer service representative will naturally learn the essential terminology, basic structure of an ISP and broadband network, and customer-facing soft skills through working in a customer service environment and responding to customer calls. With the right lexicon and customer-facing skills honed virtually, the training required to then start doing in-home installations becomes less onerous than training someone with no experience in ISP customer service. From there, that worker may wish to seek more training and transition again to various forms of higher-paid outside plant (OSP) work—such as fiber splicing—and after a few years, may become a supervisor of an OSP team.

9.1.2.4 Current Unemployment Metrics

Though unemployment numbers are only aggregated at more general occupation classification levels, some inferences can be made as to how current unemployment numbers may impact ability to fill open positions in broadband construction.

The chart below outlines the total number of unemployed workers in Connecticut by major occupation category, the share of all unemployed people in Connecticut represented by that category, and the comparable percentage of all unemployed people in that category for the nation. In other words, while 6 percent of unemployed people in Connecticut are from Sales and Related Occupations, 8 percent of people nationally who are unemployed are from that category, showing a proportionally smaller availability of those workers in Connecticut compared to the nation.

Table 17: Unemployment for Occupations Impacted by Broadband Investment

Occupation	Unemployed in Connecticut (May 2023)	% of State Unemployment	% of National Unemployment
Business and Financial Operations Occupations	4,010	6%	6%

Occupation	Unemployed in Connecticut (May 2023)	% of State Unemployment	% of National Unemployment
Project Management Specialists Business Operations Specialists, All Other			
Computer and Mathematical Occupations Software Developers Software Quality Assurance Analysts and Testers	2,637	4%	3%
Architecture and Engineering Occupations Electronics Engineers, Except Computer	936	1%	1%
Sales and Related Occupations Sales Representatives of Services	4,117	6%	8%
Office and Administrative Support Occupations Customer Service Representatives	9,871	14%	14%
Construction and Extraction Occupations Construction Laborers	6,624	10%	10%
Installation, Maintenance, and Repair Occupations First-Line Supervisors of Mechanics, Installers, and Repairers Telecommunications Equipment Installers and Repairers Electrical Power-Line Installers and Repairers Telecommunications Line Installers and Repairers	2,103	3%	4%

Source: Lightcast Datarun 2023.4

This analysis suggests that Connecticut largely mirrors the nation in terms of the proportional unemployment in the broadband construction sector. However, occupations in Installation, Maintenance, and Repair, which includes much of the telecommunications and construction roles that

will be needed for BEAD deployments, comprise a low proportion of the unemployed workforce of the nation (4 percent), and still a lower proportion of the workforce in Connecticut (3 percent), further indicating that these roles will be harder to fill.

Staffing shortages can also be examined via job postings. The chart below outlines average monthly postings versus average monthly hires. Hiring data are calculated using a combination of Lightcast jobs data, information on separation rates from the Bureau of Labor Statistics (BLS), and industry-based hiring data from the Census Bureau.

Table 18: Occupations Impacted by Broadband Investment, Job Postings vs. Hires (2022)

Occupation	Avg Monthly Postings (Jan – Dec 2022)	Avg Monthly Hires (Jan – Dec 2022)
Project Management Specialists	274	285
Business Operations Specialists, All Other	53	276
Software Developers	1,058	549
Software Quality Assurance Analysts and Testers	125	49
Electronics Engineers, Except Computer	28	35
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	90	506
Customer Service Representatives	683	1,940
Construction Laborers	108	564
First-Line Supervisors of Mechanics, Installers, and Repairers	124	263
Telecommunications Equipment Installers and Repairers, Except Line Installers	29	81
Electrical Power-Line Installers and Repairers	9	58
Telecommunications Line Installers and Repairers	27	43

Source: Lightcast Datarun 2023.4

One challenge of using job postings alone to quantify the hiring gaps is that hiring does not happen on a 1:1 ratio with postings. Within many occupations, more hiring is happening than job postings are listed, suggesting that hiring occurs via direct recruitment, re-hires, contractors, unions, career fairs, or directly from training or educational programs. In addition, it is common for large firms to use one posting to hire multiple roles at the same position and at the same time. That said, postings and hiring are a useful way

to understand almost in real time what specific roles are the most sought after and needed across the state.

9.1.2.5 Current Training Programs at Public Institutions in Connecticut

Training for broadband deployment happens in many ways, with a number of partnership configurations and program structures. The state wants to recognize that many successful programs have been established by unions and employers, such as the partnership between Key Line Construction and the International Brotherhood of Electrical Workers (IBEW) to utilize an apprenticeship training program to increase their workforce. Further, programs like BTS Training and BDI Datalynk are contributing significantly to training capacity in the state.

However, the demand for trained workers likely exceeds what any one sector could meet on their own, and developing a diverse and highly skilled workforce to meet the needs above requires a coordinated effort across the public and private sector. There are numerous examples of technical colleges that have created and grown programs to meet the needs of the construction workforce. Notable national examples that can be used as case studies for their innovative approaches include the Broadband Academy at Northwood Technical College in Rice Lake, Wisconsin,[19] and Bossier Parish Community College Fiber Technician Boot Camp in Bossier Camp, Louisiana;[20] however, robust training programs at public institutions are also present in Connecticut already.

The following is a list of institutions with degrees related to broadband construction, and the number of graduates of those programs in 2022—the most recent year data is available. The data were generated by accessing the Integrated Postsecondary Education Data System (IPEDS).[21]

Table 19: Broadband Workforce Training Programs at Public Higher Education Institutions

Institution	Degrees	Associated Occupations	County	Number of Degrees Granted in 2022
Central Connecticut State University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Capitol Planning Region	0

[19] "Broadband Academy," Northwood Technical College, https://www.northwoodtech.edu/continuing-education-and-training/professional-development/broadband-academy.
[20] "Case Study: Bossier Parish Community College | Fiber Optic Technician Bootcamp in Bossier Camp, Louisiana," Internet For All (NTIA), https://www.internetforall.gov/blog/case-study-bossier-parish-community-college-fiber-optic-technician-bootcamp-bossier-camp-0.
[21] Because the IPEDs data is collected using Classification of Instructional Programs (CIP) codes rather than the NAICs classification, a CIPs to NAICs crosswalk was used to identify programs training workers relevant to broadband deployment occupations.

Institution	Degrees	Associated Occupations	County	Number of Degrees Granted in 2022
Central Connecticut State University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Capitol Planning Region	13
Fairfield University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Greater Bridgeport Planning Region	17
Gateway Community College	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	South Central Connecticut Planning Region	0
Goodwin University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Capitol Planning Region	3
Sacred Heart University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Greater Bridgeport Planning Region	2
Southern Connecticut State University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	South Central Connecticut Planning Region	0
Trinity College	Electrical, Electronics, and Communications Engineering, Other	Electronics Engineers, Except Computer	Capitol Planning Region	0
United States Coast Guard Academy	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Southeastern Connecticut Planning	17

Institution	Degrees	Associated Occupations	County	Number of Degrees Granted in 2022
			Region	
University of Bridgeport	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Greater Bridgeport Planning Region	17
University of Bridgeport	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Greater Bridgeport	0

Though this data does not capture graduates from private training programs, technical high schools, or public post-secondary programs that are currently being planned or have been implemented after the last year of available data, it does give an indication of the long-standing programs in the state that are producing trainees able to fit into certain roles.

Another important aspect to consider with training programs is their geographic distribution around the state. While some professions related to broadband construction, like Fiber Network Engineers (which are produced under the Electrical and Electronics Engineering category), can very effectively operate remotely, others, like lineworkers and installers, are most valuable if they are available across the state to reduce travel and better achieve local hiring goals. To illustrate potential geographic gaps in training, the

Figure 1: 30-minute Drive Time Around Connecticut Institutions Training Roles Relevant to Broadband Construction Field-Work

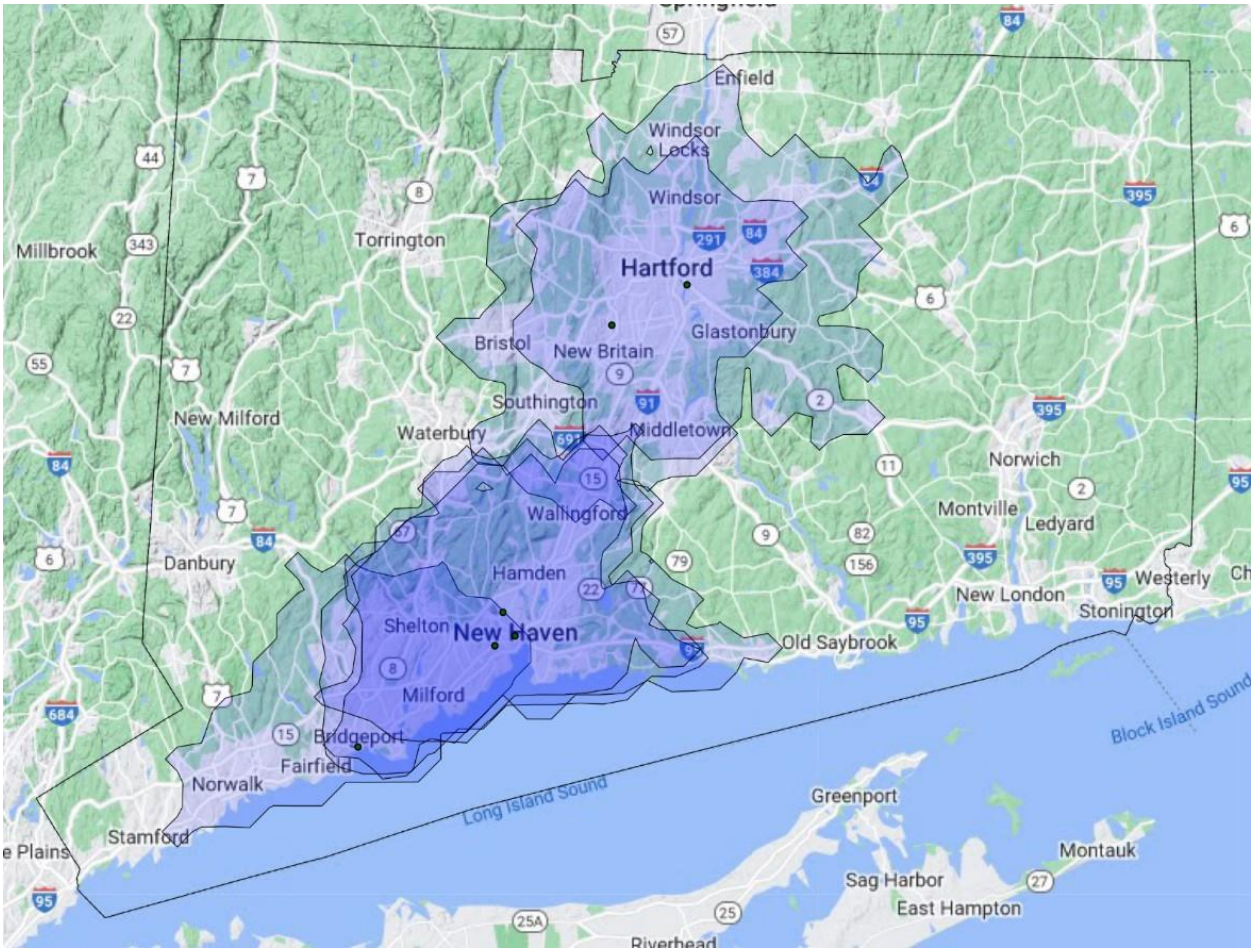

Figure 1 shows a 30-minute drive-time around public institutions that are producing trainees that may be needed for field work.[22]

Because the workforce distribution in Connecticut is based on population centers and training programs, building networks in the rural parts of the state—especially in the east and west—may require importing construction labor, which could increase the cost of construction due to the expense of transportation, and in some cases, lodging. Training skilled workers across the entire state will therefore be an important strategy to mitigate this problem.

[22] Sources: 2022 IPED; drive time derived using OpenStreetMap; basemap © 2020 Google.

9.1.3 Continuing to Support Workforce Development in Connecticut

Even though the constellation of higher education institutions and private training providers are producing qualified workers, Connecticut still endeavors to play an active role in ensuring that the state's workforce is ready to meet the needs of the BEAD deployment by actively working to increase the scale of the qualified, diverse workforce in the state.

In a collaborative effort to address the shortfall predicted in the telecommunications sector, especially regarding the availability of trained, and qualified telecommunications line installers, DEEP will engage with the Office of Workforce Strategy and local unions such as the Communications Workers of America (CWA) and the International Brotherhood of Electrical Workers (IBEW) to explore options such as developing comprehensive training programs that would leverage and support both union based and non-union based pathways to a capable and available workforce. The goal is to equip Connecticut residents with skills they need to be an important part of the telecommunications sector regarding the installation and management of broadband cable. These efforts will additionally support state initiatives to address digital equity and inequitable access to quality broadband speeds, as well as meeting state initiatives of improving workforce pipelines.

The following steps will be taken as a part of this collaborative effort, including, but not limited to:

1. Researching telecommunication-specific lineworker training programs available across the United States in order to determine applicability to Connecticut state workforce development efforts
2. Collaborating with industry partners to determine current training practices, limitations, and successes in both union and non-union sectors
3. Working with the Office of Workforce Strategy and the State of Connecticut Community College System to develop goals and objectives for possible training program solutions available within the state

Wrap-around services, including childcare and transportation, can bring people into the workforce who otherwise would be unable to participate. In addition to the coordination between trainers and providers described below, the state will take the broadest definition of workforce readiness groups, including, for example, providers of childcare, transportation advocates, and union resources for mentorship, in encouraging workforce readiness. The State will encourage dissemination of information about these opportunities as part of its continuing outreach and engagement.

The organizations and assets identified in the state's Digital Equity Plan,[23] as well as other organizations and programs, can also provide wrap-around support. For example, the UniteCT Workforce Rental Assistance Program provides rental assistance for qualifying individuals in state workforce training programs and other publicly funded training programs. The Governor's Workforce Council Workforce

[23] Draft available, "Digital Equity Plan," https://portal.ct.gov/-/media/das/ctedtech/publications/2023/das_de_draft_plan-public_comment.pdf.

Strategic Plan[24] set goals and described successful strategies for transportation and childcare access in the interest if promoting wraparound support to workers and training.

As part of this ongoing work across the state, DEEP affirms a few strategies employed in the industry—best practices demonstrated by the training providers locally and nationally noted above, as well as considering wrap around services (e.g., transportation, child-care, membership, etc.) to attract and support a diverse pool of workers. These best practices are critical to combatting worker shortages, retention challenges, and increasing retirement due to an aging workforce, all of which are present in much of the broadband construction sector.

- **Apprenticeships and On-the-Job Training Programs:** Apprenticeship models for industries where apprenticeships exist (i.e., for electricians and for lineworkers, such as those offered by the Communications Workers of America and the IBEW), as well as on-the-job training programs for all industries, provide benefits to both employees and employers. Employers can train people in their systems correctly from the beginning of their career and evaluate employees during introductory periods for the qualities that will set them up for long-term success. Furthermore, employees do not have to pay for separate training before getting a paycheck and can experience the rigors and learning curve of the work in a measured way as they come up to speed in the sector.
- **Marketing to Diverse Prospective Workers**: DEEP recognizes that our ability to build great networks will be improved with the inclusion of people from all parts of society—including people without significant past representation in the telecom sector. Trade schools, technical colleges, and community colleges have significant experience with outreach to nontraditional students, women, and minorities—and their participation in growing a diverse, qualified telecom sector workforce is essential.
- **Local Hiring:** Hiring local workers benefits telecom construction in several ways: It saves money by reducing the travel time and travel expenses (e.g., accommodations) required of laborers; it allows for better recruitment as employees often prefer to stay near their home; and it ensures the benefits of hiring in labor surplus areas stay in that community. DEEP encourages local hiring to be prioritized.
- **Explicit Pathways to Advancement:** Once a new hire takes the first step into a telecommunications career, their ability to stick with that career and grow in the sector requires well-established pathways to advancement. Establishing great growth pathways can both incentivize people to start in the sector, and ensure they stay to build on their skills and knowledge.
- **Coordination Between Training Providers and Employers:** Ongoing close coordination between training providers and employers is essential to ensure that training providers understand what

[24] "Workforce Strategic Plan," Governor's Workforce Council, 2020, https://portal.ct.gov/-/media/gwc/gwc-strategic-plan-final.pdf.

credentials are meaningful, adapt programs to stay current with the sector's needs, and collectively evaluate programs' success and iterate as needed.

- **Recruitment Strategies Tailored to the Realities and Challenges of the Industry:** Enticing people into a new sector and new career—especially one as unique as being a telecommunication worker—is difficult, especially when unemployment rates are low. Successful recruitment strategies involve screening for aptitude and ability to learn, marketing opportunities based on the tangible and intangible benefits of the career, and making sure there are diverse demographics represented in marketing materials. However, due to the challenges of the job that can only be understood fully by experience, there will always be significant numbers of people who quit within a few months of employment as a lineworker or installer. Because of this, it is recommended that programs and employers set recruitment targets at double or even triple the number of people needed.

Lastly, perhaps the most important workforce role for Connecticut is its commitment to ongoing and close coordination with employers, unions, and training programs in the broadband sector.

Ultimately, the state's workforce initiatives will be most successful if they are responsive to industry needs. A full description of how Connecticut intends to stay in close coordination with broadband construction stakeholders is in the next section.

9.2 Coordination with Unions and Other Workforce Stakeholders and Promotion of Sector-Based Partnerships

Without a robust and highly trained workforce, broadband deployment in our state will not happen on time, at cost, and to the high standards that will set Connecticut up for success for decades to come. Worker associations and organizations are critical partners both in the deployment of broadband and in the extensive preparation happening across the state to ensure the deployment goes according to plan.

The State of Connecticut established the Office of Workforce Strategy as a part of the executive branch of the Governor's Workforce Council. The mission of the Governor's Workforce Council is "to ensure that Connecticut maintains the most accessible, equitable, aligned and high-quality workforce pipeline in the country, ensuring our workforce remains agile through curricula and programming that is responsive to the needs of the 21st century economy."[25] The success of this effort relies on close partnership with the full range of workforce stakeholders across the Connecticut public school system, post-secondary educational opportunities, and workforce entities like employers and workforce boards. The administrative work of the Office of Workforce Strategy is focused on establishing the "systems, teams, and approaches that will make Connecticut a talent environment that attracts and motivates students, career builders, and companies alike."[26]

The Governor's Workforce Council developed a strategic plan in 2020 which laid out an action plan designed to address several key areas like collaborating with state business partners, bolstering the rigor

[25] Governor's Workforce Council, https://portal.ct.gov/GWC (accessed October 27, 2023).
[26] Office of Workforce Strategy, https://portal.ct.gov/GWC/OWS-Initiatives (accessed October 27, 2023).

of educational and training type programs, establishing equitable access initiatives, and using data to drive accountability and viability of efforts.

In addition to the entities listed above, DEEP has consulted a range of stakeholders across government on workforce issues. The feedback and ongoing coordination with workforce stakeholders has been instrumental in shaping state plans and understanding the workforce landscape. Some of the many notable examples of feedback that have shaped the planning process include descriptions from employers about the training and apprenticeship programs they currently offer and remaining gaps (such as with fiber technicians and trenchers). Importantly, stakeholders demonstrated full alignment with the need to grow Connecticut's trained workforce to keep labor costs down and retain the majority of the construction dollars in the state.

In alignment with NTIA Guidance 2.8.1 part b., the state encourages the continued promotion of sector-based partnerships among the range of entities consulted and convened for this plan. The state welcomes and plans on participating in ongoing close coordination with unions, employers, and worker groups, which is essential for the state to create programs to strengthen the workforce and ensure subgrantee awards can be built and executed according to plan. In addition, DEEP will encourage the adoption of workforce wrap-around services that provide multi-level family support so they can fully participate in these programs. As such, DEEP will work with previously identified stakeholders and other parties interested in workforce issues to meet regularly and establish open channels of communication.

Specifically, the state seeks ongoing updates from training providers, worker organizations, and firms with workforce needs on:

- Recruitment strategies and their effectiveness, including but not limited to the relative efficacy of online postings, job fairs, paid partnerships, and outreach to community and technical colleges, with specificity regarding the effectiveness of outreach designed to engage diverse communities.
- Progress in training and employing new workers, including training program entrance rates, training program graduation rates, job placement rates, and retention rates after three and six months of employment, or similar data illustrating retention.
- Industry trends that may impact training and recruiting needs, including changes in staffing models, technology, certifications, or skill sets required of workers to be effective throughout deployment.
- Feedback on state programs, as well as additional ideas the state may consider to improve workforce readiness and reach diverse populations.

The state encourages the sharing of findings and opportunities from this ongoing coordination efforts to ensure alignment across sector-based partners.

Ensuring strong labor standards throughout the entire BEAD deployment process is important not only for the wellbeing of the vast workforce that will be participating in the process; it is also important for the long-term integrity of the network. Treating employees well, which includes providing adequate

training, ensuring fair compensation and sufficient breaks, and following robust safety protocols, will have numerous benefits to the BEAD effort.

1. **Worker Safety:** Worker safety is a primary concern for any construction happening in the state. Many protocols and practices essential to ensuring strong labor standards are paramount to increasing worker safety, such as providing regular and sufficient work breaks, proper training and oversight to new workers, and reasonable working hours and expectations.
2. **Worker Satisfaction and Retention:** Construction trades are physically difficult, and when a job also requires working at dangerous heights, it is understandable that a portion of workers leave shortly after trying the work. Part of reducing turnover, however, involves implementing sufficient training, safety, pay, and break standards so that the physical challenges are minimized and new workers become accustomed to the work within a supportive environment.
3. **Quality, Resilient Networks:** Inordinately rushing construction, or building networks without appropriate oversight or training, will jeopardize the long-term integrity of the networks being built. Strong labor standards will ensure networks are built to the quality and standards expected of this critical infrastructure.

The first step to strong labor standards is recognizing and highlighting the regulations and laws by which subgrantee applicants are bound. Connecticut is very familiar with the nature of the following laws and the work needed to ensure compliance:

Table 20: U.S. Labor Laws Noted in the BEAD NOFO

Labor Law	Summary
Fair Labor Standards Act	Establishment of minimum wage, overtime pay, recordkeeping, and child labor standards affecting full-time and part-time workers across private and public sectors
Occupational Safety and Health Act	Establishment of safe and healthy workplace standards
Service Contract Act	Establishment of standards for contractors and subcontractors performing services on prime contracts in excess of $2,500
Title VI of the Civil Rights Act of 1964 (see also 15 C.F.R. Part 8)	Prohibition on discrimination on the basis of race, color, or national origin under programs or activities receiving federal financial assistance, including from the Department of Commerce
Title IX of the Education Amendments of 1972	Prohibition of discrimination on the basis of sex under federally assisted education programs or activities

Labor Law	Summary
The Americans with Disabilities Act of 1990	Prohibition of discrimination on the basis of disability under programs, activities, and services provided or made available by Eligible Entities and local governments or instrumentalities or agencies thereto, as well as public or private entities that provide transportation
Section 504 of the Rehabilitation Act of 1973	Prohibition of discrimination on the basis of handicap under any program or activity receiving or benefiting from federal assistance
Parts II and III of Executive Order 11246, Equal Employment Opportunity	Requires that federally assisted construction contracts incorporate and fulfill the nondiscrimination provisions of §§ 202 and 203 of E.O. 11246 and Department of Labor regulations implementing E.O. 11246 (41 C.F.R. § 60-1.4(b))
Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency	Requires federal agencies to examine the services that they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them
Executive Order 13798, Promoting Free Speech and Religious Liberty (see also OMB M-20-09 Guidance Regarding Federal Grants and Executive Order 13798)	States or other public grantees may not condition sub-awards of federal grant money in a manner that would disadvantage applicants based on their religious character

- To further support the goals listed in NTIA Guidance 2.8.1 part a., use of a highly trained workforce, Connecticut will ensure subgrantees support the development and use of a highly skilled workforce operating in a safe and effective manner. As the first step to ensuring compliance and promoting work Connecticut will ask applicants to self-certify compliance with the laws and regulations listed in the NOFO and the NTIA's guidance above, as well as all applicable state labor laws that either exceed or address different concerns than federal law. In alignment with NTIA rules, Connecticut the certification section 9.1, as well as a written.
- Written description of steps taken to mitigate any violations that occurred in the past three years.

Self-certification is a common practice that firms are accustomed to complying with and will take place during the application process. The state will ask applicants to certify compliance with state workforce and labor laws as well, should state regulations exceed or expand on guidance in the NOFO.

As with potential labor law infractions in other industries, the state makes it known that potential infractions may be reported to the Connecticut Department of Labor and/or DEEP. Reported infractions will be investigated under the existing protocols established by the state, and the individuals or entities filing reports will be covered under state whistleblower policies as applicable to the situation and law.

To further ensure self-certification results in appropriate adherence to labor laws, the state will follow best practices for evaluation upon indications of noncompliance. Specifically, auditors or compliance workers employed by the state may request and scrutinize business records of subgrantee applicant firms and impose fines should noncompliance be discovered.

In alignment with NOFO guidance, DEEP also encourages workers and unions to create worker-led health and safety committees that can then meet with employer management upon request to raise concerns about labor laws and ensure compliance with occupational safety and health requirements. Given Connecticut has a strong union presence, and unions in the state have avenues of communication with public officials who establish and oversee labor laws, unions will also provide another check on labor law compliance, especially regarding hours worked, pay, and safety.

9.3 Ensuring Recruitment of and a Diverse Worker Pool

Not only does the recruitment of qualified diverse firms as part of the BEAD deployment demonstrate a fair and unbiased process, the scale of the work that needs to be done is so profound that excluding any qualified firms could jeopardize the efficient completion of the work that needs to be done. DEEP will affirm its commitment to hiring qualified diverse firms and asks that applicants note in their application if they or any of their partners and subcontractors qualify as a women-owned or minority- owned business. As subgrantee awards are made, these metrics will be shared as part of the final proposal process and publication of awards.

The state also encourages women, minority, and veteran-owned businesses to prepare to engage in the BEAD process. Obviously, this includes firms that directly engage in telecommunications activities such as telecom construction contractors, lineworkers and installers, and ISPs; however, the deployment process will also require significant participation from firms and businesses not traditionally associated with telecommunications. For example, the deployment process also requires construction of all types, electricians, road flagging crews, tree-trimmers, accountants, utility locators, and more. The state expects firms that supply these services will frequently be brought on as subcontractors or partners to applicants, and ensuring recruitment of qualified, diverse firms is essential for these types of businesses as well.

To further encourage diverse participation in the workforce, in alignment with NTIA Guidance 2.8.1 part d., Connecticut will require grantees to ensure that job opportunities created by the BEAD program are available to a diverse pool of workers. The state may take the following additional actions:

1. Inform partners who share the goal of creating inclusive economies, such as the Office of Diversity and Equity, Office of Supplier Diversity, Supplier Diversity Program (also known as the Set-Aside Program), Connecticut Small Business Development Center's Minority Business Growth Program, Connecticut Minority Business Development Agency Advanced Manufacturing Center, Minority Business Initiative, Greater New England Minority Supplier Development Council, Minority Business Network, Southern Connecticut Black Chamber of Commerce, Black Business Alliance, Hispanic Chamber of Commerce of Greater Bridgeport, Veterans Business Outreach Center of New England, Southwestern Women's Business Center in Stamford, Naugatuck Valley Women's Business Center in New Haven, Southeastern Women's Business Center in New London, and other partners, to ensure Minority, Veteran, and/or Women's Business Enterprises are included wherever possible on all relevant solicitation lists and related materials via posting opportunities on DEEP's website, and proactively to the extent they consent to receiving DEEP's stakeholder newsletter.
2. Maintain and share a list of Minority, Veteran, and/or Women's Business Enterprises that have expressed interest in participation in BEAD deployments, and promote the list to help make connections to the broader telecommunications business community.
3. Foster recruitment efforts by training providers and employers who target diverse communities by being a conduit between those entities and groups whose goals include encouraging diverse workforce participation, such as job and career centers in communities with higher populations of people of color, as well as stakeholder groups we have consulted with such as tribal leaders, nonprofits, and others who have a focus on promoting inclusive economies.

Lastly, state and local economies and tax bases benefit the most when firms from Labor Surplus Areas are engaged, particularly when they fill staff openings locally. In Connecticut, those areas are designated by the U.S. Department of Labor as:

- Ansonia, New Haven County
- Bridgeport, Fairfield County
- Derby, New Haven County
- East Hartford, Hartford County
- Griswold, New London County
- Hartford, Hartford County
- Meriden, New Haven County
- New Britain, Hartford County
- New Haven, New Haven County
- New London, New London County

- Norwich, New London County
- Sprague, New London County
- Stratford, Fairfield County
- Waterbury, New Haven County
- Windham, Windham County

9.3.1 Subgrantee Selection Process Related to Workforce Considerations

Applicants will be required to provide data regarding their Workforce Plan with respect to a subgrant award, including information on training and safety, job quality, local hire and targeted hire, accountability and subcontracting practices, and ongoing operational workforce. These Workforce Plans and any associated labor commitments will be publicly disclosed on DEEP's website for transparency.

The Workforce Plan must include information detailing:

1. Training and Safety. For each job title that will carry out the proposed work, the applicant must provide:
    a. A description of safety training, certification, and/or licensure requirements
    b. Whether they have a robust in-house training program with requirements tied to certifications, titles, and uniform wage scales
    c. Whether they participate in a labor-management apprenticeship program
    d. Whether their workforce is union or non-union
    e. Whether there will be a labor-management health and safety committee on the work site
    f. A narrative detailing how the applicant will ensure that the workforce is appropriately trained
2. Job Quality. For each job title that will carry out the proposed work, the applicant must provide:
    a. A description of wages, wage scales, and minimum wage rates, overtime rates
3. Local Hire and Targeted Hire. The applicant must provide information on the following:
    a. Whether the applicant has any policies or programs that encourage career pathways and hiring for marginalized communities or the local community, including and especially any programs for women and people of color
4. Accountability and Subcontracting. The applicant must provide information on the following:
    a. Whether the workforce will be directly employed by the applicant, and, how the applicant will disclose their Workforce Plan for the subcontracted workforce

   b. How the applicant will ensure the subcontractor is held accountable for labor law compliance and abiding by the commitments in the Workforce Plan

5. Ongoing Maintenance and Operations. The applicant must provide information on the following:

   a. Whether the applicant has an existing workforce to perform the customer service and operations work

   b. Whether that workforce is based locally and directly hired by the employer, and, if those functions will be outsourced, whether any of the jobs will be overseas

   c. How the project will support high-quality jobs

In addition, the state will require further information from applicants if the project workforce or any subgrantee's, contractor's, or subcontractor's workforce is not unionized, including the following:

1. The job titles and size of the workforce (FTE positions, including for contractors and subcontractors) required to carry out the proposed work over the course of the project and the entity that will employ each portion of the workforce

2. For each job title required to carry out the proposed work (including contractors and subcontractors), a description of:

   a. Safety training, certification, and/or licensure requirements (e.g., OSHA 10, OSHA 30, confined space, traffic control, or other training as relevant depending on title and work), including whether there is a robust in-house training program with established requirements tied to certifications and titles.

   b. Information on the professional certifications and/or in-house training in place to ensure that deployment is done at a high standard. Please see the Deployment Subgrantee Selection section for a full description of the proposed subgrantee selection process, including the workforce requirements for applications.

9.4 Economic Development Impacts and Opportunities from BEAD Deployments

Connecticut's economy is undoubtedly going to benefit directly from the cash infusion that broadband expansion will bring over the next few years, but it will also see a deeper, lasting, and more expansive economic boost over the next few decades due to the significant benefits that broadband can bring to the people and businesses of the state.

9.4.1 Short-Term Economic Impact from Initial Construction Outlay

Input-output models are industry-standard tools that use advanced data modeling to estimate how money and workforce flow through the economy and between industries; in this case, the model shows

how the sector contributes significant direct, indirect, and induced benefits to the state's economy.[27] The initial broadband construction spending leads to a direct effect that results from the increased demand for goods and services in the broadband construction supply chain (for example, the increased demand for conduit, fiber, and network electronics). The indirect effect results from the increased demand for goods and services that the broadband supply chain uses (for example, the increased demand for the materials and equipment that contribute to the manufacture of conduit and fiber, or the transportation needed to deliver said goods). As the initial, direct, and indirect effects increase earnings for workers, these workers spend their earnings on various goods and services (for example, at grocery stores, restaurants, and clothing stores), which is represented by the induced effect.

The charts below outline the total estimated benefits from a $173 million investment and a $222 million investment in broadband in Connecticut. Sales are the industry's total annual gross receipts for products and services. A job is any position in which a worker provides labor in exchange for monetary compensation. Earnings include wages, salaries, supplements (additional employee benefits), and proprietor income.

Table 21: Estimated Economic Effects of Investing $173 Million in Broadband Construction[28]

Effect	Sales		
Initial	$173,016,951	279	$37,492,882
Direct	$42,296,785	170	$14,276,712
Indirect	$14,642,021	72	$5,375,527
Induced	$59,898,116	329	$23,524,577
Total	**$289,853,873**	**850**	**$80,669,699**

Table 22: Estimated Economic Effects of Investing $222 Million in Broadband Construction[29]

Effect	Sales	Jobs	Earnings
Initial	$221,976,951	358	$48,102,545
Direct	$54,265,847	218	$18,316,708
Indirect	$18,785,392	92	$6,896,684

[27] Direct effects result from expenditures within that industry's supply chain. Indirect effects are the changes in expenditures and employment in the supply chains of the initial supply chain (as in, one level removed). Induced effects are the effects generated by the subsequent spending money at a household level (e.g., lineworkers' use of their paycheck for food, clothing, etc.).
[28] Lightcast Datarun 2023.4.
[29] Lightcast Datarun 2023.4.

Effect	Sales	Jobs	Earnings
Induced	$76,847,968	422	$30,181,516
Total	**$371,876,158**	**1,090**	**$103,497,453**

9.4.2 Long-Term Objectives for Enhancing Economic Growth and Job Creation

While the economic benefits from construction spending are considerable, and some economic benefits (like an increase in home values, as demonstrated by Deller and Whitacre in 2019)[30] can be expected just from the presence of fiber on a street, the long-term benefits to Connecticut's economy will be fully realized as a result of increased utilization of the internet. In other words, building better networks is good, but encouraging as much adoption as possible is necessary to maximize the long-term economic benefits.

Because broadband touches almost every aspect of life, it is nearly impossible to quantify the economic impacts across all potential aspects of savings, efficiencies, benefits from innovation, or benefits to quality of life. However, a significant number of distinct and measurable benefits have been identified by academic researchers over the years, including:

- Local employment growth[31]
- Lower unemployment rates[32]
- Faster income growth[33]
- Faster growth in firms and employees[34]
- Higher attraction rate in new and existing firms[35]
- Greater civic engagement[36]

[30] Steven Deller and Brian Whitacre, "Broadband's relationship to rural housing values," Papers in Regional Science, May 2019, https://rsaiconnect.onlinelibrary.wiley.com/doi/full/10.1111/pirs.12450.
[31] Jed Kolko, "Broadband and local growth," Journal of Urban Economics, January 2012, https://www.sciencedirect.com/science/article/abs/pii/S0094119011000490.
[32] Krisha Jayakar and Eun-A Park, "Broadband and Unemployment: Analysis of Cross-Sectional Data for U.S. Counties," Journal of Information Policy, January 2013, https://www.jstor.org/stable/10.5325/jinfopoli.3.2013.0181.
[33] Brian Whitacre, Roberto Gallardo, and Sharon Strover, "Broadband's contribution to economic growth in rural areas: Moving towards a causal relationship," Telecommunications Policy, December 2014, https://www.sciencedirect.com/science/article/abs/pii/S0308596114000949.
[34] Ibid.
[35] Younjun Kim and Peter F. Orazem, "Broadband Internet and New Firm Location Decisions in Rural Areas," American Journal of Agricultural Economics, November 2016, https://onlinelibrary.wiley.com/doi/10.1093/ajae/aaw082.
[36] Brian Whitacre and Jacob L. Manlove, "Broadband and civic engagement in rural areas: What matters?" Community Development, 2016, https://www.tandfonline.com/doi/abs/10.1080/15575330.2016.1212910

Since it is nearly impossible to measure long-term benefits across all possible avenues directly, this report uses a Consumer Surplus Analysis methodology to roughly quantify total economic benefits to consumers. The premise of this type of analysis is that if a consumer would pay more for a service than they currently are paying, they are deriving a quantifiable value from that service. For example, if a broadband connection costs $60 per month, but the family would pay $250 per month because it provides them so much opportunity and value across their work and personal life, then one could say that the household is deriving $190 of surplus value each month from that service.

Analysis by Rembert et al. (2017) suggests that each household has an annual added benefit from broadband worth an estimated $1,850 per year.[37] Given that this research occurred before the COVID-19 pandemic, when broadband increased the benefits and opportunities available to users, that estimated value can be considered conservative.

To estimate the potential economic impacts of expanded broadband in this regard, this report must first model the rate at which adoption may increase across the state.[38] Connecticut's 5-Year Broadband Action Plan notes that currently, 87 percent of Connecticut households have a

broadband connection, so conversely, 13 percent do not. This analysis estimates the impacts of reducing that gap in home adoption in the state by half—in other words, decreasing the percentage of households without broadband from 13 percent to 6.5 percent.

In Connecticut, cutting the home adoption gap in half will result in 77,582 new households enrolled in a broadband plan after 10 years. But clearly, broadband adoption cannot happen all at once; only after infrastructure is built can households become subscribers. The estimated adoption percentages for this analysis are included in the table below, based on adoption trends and projections outlined in previous research from Spell and Low (2021). These adoption percentages assume most new infrastructure is built in years 1 to 5.[39]

Table 23: Estimated Rate at Which Households Adopt Broadband

Year	1	2	3	4	5	6	7	8	9	10
Percent of Households Adopted	0%	20%	40%	80%	90%	92%	94%	96%	98%	100%
Cumulative New Households	0	15,516	31,033	62,066	69,824	71,376	72,928	74,479	76,031	77,582

[37] Mark Rembert, Bo Feng, and Mark Partridge, "Connecting the Dots of Ohio's Broadband Policy," Swank Program in Rural-Urban Policy, Ohio State University, 2017, https://kb.osu.edu/handle/1811/81414.
[38] Baseline data were derived from the 2021 American Community Survey 5-Year Estimates.
[39] Alan Spell and Sarah Low, "Economic Benefits of Expanding Broadband in Select Missouri Counties," University of Missouri Extension, June 2021, p 7. https://mobroadband.org/wp-content/uploads/sites/44/2021/06/Exceed_BroadbandImpactReport_Jun2021.pdf.

Year	1	2	3	4	5	6	7	8	9	10
Yearly Surplus Value	0	$28.7 million	$57.4 million	$114.8 million	$129.2 million	$132 million	$134.9 million	$137.8 million	$140.7 million	$143.5 million

Then, multiplying the value of broadband identified by Rembert et al. to the new adopters in each year, the cumulative consumer surplus value calculated over 10 years for Connecticut can be estimated at more than $881.2 million.

9.4.3 Economic Development Opportunities in Connecticut as a Result of BEAD Deployments

Importantly, increased high-speed broadband usage and adoption will greatly benefit the state's existing economic development priorities and plans. The Connecticut Department of Economic and Community Development described the following economic development priorities in their most recent (2021) strategic plan:[40]

- Broaden the base of skilled workers to meet increasing industry demand
- Attract and retain talent by investing in vibrant and affordable communities for all
- Support growth and generate inclusive economic opportunity within Connecticut's most innovative and specialized industries
- Improve Connecticut's environment and reputation for starting and growing businesses

All of these goals dovetail with the ways in which broadband has been shown to impact economies and accelerate efforts like the ones Connecticut has prioritized.

There is significant evidence that innovation, entrepreneurship, and talent growth happens more readily with increased access to broadband, and Connecticut's emphasis on improving its business environment and broadening its talent pool fits with the types of benefits that broadband can bring. Broadband provides growth opportunities for small businesses, enables entrepreneurs to reach new markets and find talent outside of their immediate location, and provides everyone with the bandwidth needed to access innovative technology to help businesses be more efficient.

Importantly, research by Kolko (2012)[41] and Mack and Faggian (2013)[42] indicates that employment gains that occur with new access to and utilization of high-speed broadband are not achieved across all

[40] "Connecticut's Economic Action Plan: Driving Inclusive Growth," Connecticut Department of Economic and Community Development, AdvanceCT, 2021, https://portal.ct.gov/-/media/DECD/Research-Publications/ED_StrategyPlans/DECD-Economic-Plan-2021final.pdf.
[41] Jed Kolko, "Broadband and local growth," Journal of Urban Economics, January 2012, https://www.sciencedirect.com/science/article/abs/pii/S0094119011000490.
[42] Elizabeth Mack and Alessandra Faggian, "Productivity and Broadband: The Human Factor," International Regional Science Review, July 2013, https://www.researchgate.net/publication/258142952_Productivity_and_Broadband_The_Human_Factor.

sectors, but instead concentrated in knowledge-intensive industries. These industries are ones that rely on specialized human capital—often digitally enabled, or working in concert with technology—to create value. These roles often have higher wages than other industries; a Brookings report identifies digital jobs as the second-fastest-growing industry in the country, and wage growth in tech is the highest of any industry.[43]

One reason that tech jobs and knowledge-intensive jobs have such an outsized impact on local economies—and why increasing these jobs will support the state's goal of creating stable rural economies—is the "multiplier effect":[44] for every high-tech job created, three to five additional jobs are created locally. And since tech jobs offer an income that is more than twice the national average,[45] increased investment in tech workforces (starting with high-speed broadband as a foundation) can lead to greater opportunity for households and entire communities.

Because of this, broadband realized across the state should create a virtuous cycle. As high-speed broadband is shared more equitably across geographies, it will allow professionals with digitally enabled jobs to live in or visit more places. In turn, this will allow more communities to increase downtown vibrancy, leveraging tourism and enhanced economic activity in new ways.

[43] Mark Muro, Sifan Liu, Jacob Whiton, and Siddharth Kulkarni, "Digitalization and the American Workforce," Metropolitan Policy Program at Brookings, November 2017, https://www.brookings.edu/wp-content/uploads/2017/11/mpp_2017nov15_digitalization_full_report.pdf.
[44] "The Multiplier Effect of Innovation Jobs," MIT Sloan Management Review, June 6, 2012, https://sloanreview.mit.edu/article/the-multiplier-effect-of-innovation-jobs/.
[45] American Community Survey Table S2411, U.S. Census Bureau, https://data.census.gov/cedsci/table?q=S2411&g=01000H0US.

10. Minority Business Enterprises (MBEs)/ Women-Owned Business Enterprises (WBEs)/ Labor Surplus Area Firms Inclusion (Requirement 13)

This section documents how DEEP will promote recruiting, utilizing, and retaining minority business enterprises (MBE), women's business enterprises (WBE), and labor surplus area firms (LSAF), when possible.

The State of Connecticut is dedicated to recruiting, using, and retaining MBEs, women-owned business enterprises WBEs, and other small businesses (SBEs), as well as LSAFs, during the BEAD planning and implementation processes.

Connecticut prides itself on its diverse and vibrant small business community. WBEs account for 40.8 percent of Connecticut's businesses, and MBEs account for 21 percent.[46] These businesses will be crucial in the successful and efficient deployment of the BEAD program and all its associated contracts and subcontracts.

Through the Supplier Diversity Program (SDP) of the Connecticut Department of Administrative Services (DAS), the state certifies and lists Small and Minority Businesses, including women-owned businesses. The SDP also recruits businesses to participate in the Program, assists them in identifying procurement opportunities, measures government agencies' usage of Small and Minority Businesses, and conducts outreach campaigns to connect businesses.[47] Similarly, the Connecticut Department of Economic and Community Development (DECD) Minority Business Initiative (MBI) enhances MBEs' access to support in business training and government contract opportunities.

To promote inclusivity of under-represented or historically marginalized groups, DEEP will work to foster partnerships with the SDP and the DECD MBI, as well as other regional and municipal organizations involved in development of, outreach to, and coordination with MWBEs across Connecticut, including:

- The Black Business Alliance, which seeks to empower, promote, and grow small- and medium-sized Black and minority businesses throughout Connecticut by addressing the gap in access to funding and resources[48]
- The City of Bridgeport Small & Minority Business Enterprise Department, which assists with certification, business development, access to capital, and networking opportunities to help businesses succeed, and which ensures businesses have access to government contract and

[46] "2022 Small Business Profile – Connecticut" SBA Office of Advocacy, 2022, https://advocacy.sba.gov/wp-content/uploads/2022/08/Small-Business-Economic-Profile-CT.pdf (accessed October 20, 2023).
[47] "SBE/MBE Program Certification Application (Small or Minority Business Enterprise), Department of Administrative Services, https://portal.ct.gov/DAS/Procurement/Supplier-Diversity/SBE-MBE-Program-Certification-Application-Small-or-Minority-Business-Enterprise (accessed October 20, 2023).
[48] "About Us," The Black Business Alliance, https://www.bbusinessalliance.org/about-us (accessed October 20, 2023).

procurement opportunities[49]

- The City of Hartford Supplier Diversity Program, which encourages the participation of small and minority/women business enterprises in government programs[50]
- The City of New Haven Small Contractor Development Program, which helps small, minority and women-owned construction businesses grow and overcome challenges that may make it more difficult to win contracts and work with local and state governments[51]
- The Collaboration of Minority Women Professionals, which provides entrepreneurial support, workshops, coaching, and networking for MWBEs, specifically those owned by minority women[52]
- The Greater New England Minority Supplier Development Council, which advances business opportunities for certified Asian, Black, Hispanic and Native American business enterprises and connects them to corporate members[53]
- The Southern Connecticut Black Chamber of Commerce, which provides support to a large network of MBEs, running certification programs, connecting businesses to contracts, and giving MBEs access to capital, technology, and information to its small businesses[54]
- The Women's Business Development Council, which provides entrepreneurial and financial education services, including one-on-one coaching and training programs[55]

The U.S. Secretary of Labor is required to annually designate Labor Surplus Areas (LSAs) and disseminate this information for the use of all federal agencies in directing procurement activities and in locating new plants or facilities. States may direct federal funding to designated LSAs where there is high unemployment. Employers located in those areas can be given preference in bidding on federal procurement contracts.[56] An area must have an unemployment rate at least 20 percent above the

[49] "Small & Minority Business Enterprise Department," City of Bridgeport, https://www.bridgeportct.gov/government/departments/small-minority-business-enterprise (accessed October 20, 2023).
[50] "Procurement," City of Hartford, https://www.hartfordct.gov/Government/Departments/Finance/Procurement (accessed October 20, 2023).
[51] "Small Contractor Development," City of New Haven, https://www.newhavenct.gov/government/departments-divisions/small-contractor-development (accessed October 20, 2023).
[52] "CMWP Foundation," The Collaboration of Minority Women Professionals, https://www.bbusinessalliance.org/about-us (accessed October 20, 2023).
[53] "About GNEMSDC," Greater New England Minority Supplier Development Council, https://gnemsdc.org/about-us/ (accessed October 20, 2023).
[54] "Southern Connecticut Black Chamber of Commerce," Southern Connecticut Black Chamber of Commerce, https://www.scbcc.us/ (accessed October 20, 2023).
[55] "Our Mission," Women's Business Development Council, https://ctwbdc.org/our-mission/ (accessed October 20, 2023)
[56] See "Executive Order 12073 – Federal procurement in labor surplus areas," Office of the Federal Register, https://www.archives.gov/federal-register/codification/executive-order/12073.html; and "Executive Order 10582 – Prescribing uniform procedures for certain determinations under the Buy-American Act," Office of the Federal Register, https://www.archives.gov/federal-register/codification/executive-order/10582.html.

national rate (including Puerto Rico) during the previous two calendar years to qualify as an LSA. The U.S. Department of Labor includes 15 areas in Connecticut as qualified areas for LSA in its 2024 update, including Ansonia, Bridgeport, Derby, East Hartford, Griswold, Hartford, Meriden, New Britain, New Haven, New London, Norwich, Sprague, Stratford, Waterbury, and Windham.[57] In the counties containing these LSAs, there are about 75,000 small businesses, according to the U.S. Census County Business Patterns statistics.[58] This means that small-business LSAFs may account for approximately 84 percent of Connecticut businesses. Many of the small business organizations cited in this section serve LSAs in Connecticut and support LSAFs.

DEEP will require successful applicants to take the necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps will include:

1. Place qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assure that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Use the services and assistance, as appropriate, of such organizations as the CT Small Business Administration and the Small/Minority Business Center with the Department of Administrative Services;
6. Require subgrantees to take these affirmative steps as they relate to its subcontractors; and
7. Monitor project compliance with the above commitments throughout the BEAD process.

10.1 Process, strategy, and data tracking methods to ensure that minority businesses, women-owned business enterprises (WBEs), and labor surplus area firms are recruited, used, and retained when possible

DEEP is committed to promoting diversity and inclusion by encouraging the recruitment, utilization, and retention of MBEs, WBEs, and LSAFs whenever possible.

[57] "Labor Surplus Area," U.S. Department of Labor, https://www.dol.gov/agencies/eta/lsa (accessed October 20, 2023).
[58] "All Sectors: County Business Patterns," U.S. Census Bureau, https://data.census.gov/table/CBP2021.CB2100CBP?q=CBP2021.CB2100CBP&g=040XX00US09$0500000 (accessed October 24, 2023).

10.1.1 Place Qualified Small and Minority Businesses and Women's Business Enterprises on Solicitations Lists

The State of Connecticut lists MWBEs through its Supplier Diversity Program on a searchable online portal for state procurement and subgrantee use, currently listing 616 women- or minority-owned businesses, as well as other small businesses, including those owned by individuals with disabilities.[59] They also track the usage of MWBEs by state agencies. The Connecticut Department of Transportation likewise certifies and lists MWBEs through its Disadvantaged Business Enterprise Program.[60] Through these lists and tracking systems, and through further outreach to other organizations that have an existing robust network and list of MWBEs, including the partner regional and municipal organizations and programs listed above, DEEP will list qualified MWBEs and seek to further track, list, and publicize MWBEs on solicitations lists throughout the BEAD process.

Additionally, DEEP will coordinate with DAS's office of Supplier Diversity and other state, regional, and municipal organizations as they provide regional MWBE business development events and outreach aimed at connecting MWBEs with Connecticut agencies, authorities, and local contracting opportunities. Through these efforts, DEEP may be able to identify more small businesses and MWBE firms to connect with its funding and contact opportunities.

10.1.2 Assure that Small and Minority Businesses, and Women's Business Enterprises are Solicited Whenever they are Potential Sources

DEEP will work with DAS's office of Supplier Diversity and DECD's MBI and partner with other organizations, such as the ones listed above, to make information available about grant and contracting opportunities is made available for MWBEs through training and mentorship programs, public information offerings, and outreach efforts to connect subgrantees with certified MWBEs.

Subcontractors will be encouraged to make all of their grant-funded contracting opportunities available to MWBEs.

10.1.3 Divide Total Requirements, When Economically Feasible, into Smaller Tasks or Quantities to Permit Maximum Participation by Small and Minority Businesses, and Women's Business Enterprises

If and when feasible, DEEP will require successful applicants to break tasks and requests into smaller, more manageable subcontracts to maximize participation by small and state-certified minority owned as well as women's business enterprises.

[59] "Search for Small/Minority Companies," State of Connecticut, https://www.biznet.ct.gov/SDSearch/SDSearch.aspx (accessed October 20, 2023).
[60] "Disadvantaged Business Enterprise Program," Connecticut Department of Transportation, https://portal.ct.gov/DOT/Business/Office-of-Equity/Disadvantaged-Business-Enterprise (accessed October 20, 2023).

10.1.4 Establish Delivery Schedules, Where the Requirements Permit, Which Encourage Participation by Small and Minority Businesses, and Women's Business Enterprises

Where requirements permit, DEEP will establish delivery schedules to encourage participation by small and minority businesses, and women's business enterprises. DEEP may also seek to be flexible with its requirements to enable greater MWBE participation.

10.1.5 Use the Services and Assistance, as Appropriate, of Such Organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce

Small businesses make up 99.4 percent of Connecticut businesses and employ 48.2 percent of the Connecticut workforce.[61] Organizations such as the SBA and the MBDA are critical to Connecticut's thriving economy and entrepreneurial spirit.

Through partnerships with organizations such as the Small Business Administration and the Minority Business Development Agency, DEEP will require successful applicants to use services and assistance, as appropriate, to support MWBEs, thus further developing the thriving and diverse business community in Connecticut and the effective implementation of the BEAD program.

DEEP will draw upon organizations such as the Small Business Administration (SBA) and the Minority Business Development Agency (MBDA) and will encourage MWBEs to access the resources and expertise of their many business development programs and offices in the state, including the SBA offices in Hartford and Bridgeport and the MBDA Advanced Manufacturing Center in East Hartford. There are also other centers to help MWBEs in the business and contracting process, including the Connecticut Small Business Development Center[62] and the Women's Business Development Council offices through the SBA Office of Women's Business Ownership in Stamford, New Haven, and New London.[63] These organizations will be able to provide individual assistance, as well as more information on multiple contracting assistance programs, including the Small Disadvantaged Business program[64] and the Women-Owned Small Business Federal Contract program.[65]

[61] "2022 Small Business Profile – Connecticut" SBA Office of Advocacy, 2022, https://advocacy.sba.gov/wp-content/uploads/2022/08/Small-Business-Economic-Profile-CT.pdf (accessed October 20, 2023).
[62] "About Us," Connecticut Small Business Development Center, https://ctsbdc.uconn.edu/about-us/ (accessed October 20, 2023).
[63] "Our Locations," Women's Business Development Council, https://ctwbdc.org/sba-womens-business-center-locations/ (accessed October 20, 2023).
[64] "Small Disadvantaged Business," SBA, https://www.sba.gov/local-assistance/resource-partners/small-business-development-centers-sbdc (accessed October 20, 2023).
[65] "Women-Owned Small Business Federal Contract program," SBA, https://www.sba.gov/federal-contracting/contracting-assistance-programs/women-owned-small-business-federal-contract-program (accessed October 20, 2023).

10.1.6 Require Each Subgrantee to Take These Affirmative Steps as They Relate to its Subcontractors

Through the Workforce Plan scoring criteria above, DEEP will require subgrantees to ensure that they take steps to include qualified MWBEs and LSAFs whenever possible. DEEP may take steps that include, but are not limited to:

- Providing subgrantees with opportunities to connect with qualified MBEs, WBEs and LSAFs
- Demonstrating diversity in in suppliers and equitable procurement practices
- Formal commitment from subgrantee confirming organizational commitment to supplier diversity and equity inclusion
- Reporting requirements regarding supplier diversity

10.2 Certification

DEEP certifies that it will take all necessary affirmative steps to ensure minority businesses, women's business enterprises, and labor surplus area firms are used when possible, including the following outlined on pages 88-89 of the BEAD NOFO:

- ✓ Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- ✓ Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- ✓ Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- ✓ Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
- ✓ Using the services and assistance, as appropriate, of such organizations as the CT Small Business Administration and the Small/Minority Business Center with the Department of Administrative Services; and
- ✓ Requiring subgrantees to take the affirmative steps listed above as it relates to subcontractors.

11. Cost and Barrier Reduction (Requirement 14)

This section documents the steps DEEP may take to reduce costs and barriers to deployment. This section also includes potential strategies that may reduce costs associated with construction, labor, overhead, and materials which DEEP has identified as additional barriers in the state.

DEEP is committed to taking steps to reduce costs and barriers to deployment where possible, including the following.

11.1 Promote the Use of Existing Infrastructure

11.1.1 Streamline Access to State Conduits and Rights-Of-Way

DEEP is in discussions with the Connecticut Department of Transportation (CTDOT) to further consider streamlining access to conduits and rights-of-way on state roads.

CTDOT states that it is "committed to continuing to work with telecommunication and broadband companies seeking to expand broadband deployment to communities throughout Connecticut."[66] In accordance with the Federal Highway Administration's (FHWA) Broadband Infrastructure Deployment Rule § 645.307(a),[67] effective March 2022, CTDOT has designated a point of contact within the Department for broadband-related inquiries and established a process to register broadband providers who are interested in opportunities to coordinate installation of facilities with roadway projects.[68] CTDOT will notify this list of providers during project planning. CTDOT will also send these providers yearly updates on the State Transportation Improvement Program (STIP), which lists projects expected to receive federal funding over a four-year period,[69] and other relevant notifications as appropriate.[70]

11.1.2 Streamline Access to Poles

Through collaboration with industry stakeholders and government entities, DEEP has established an understanding of the complexities with which pole owners and subgrantee applicants face in the pole attachment sector.

An estimated 85 percent of broadband and telecommunications infrastructure in Connecticut is aerial,[71] heightening the importance of streamlining this process for BEAD subgrantees. The state has taken proactive steps to facilitate deployment through regulatory proceedings and developing resources to help providers navigate the process.

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[66] "Broadband Infrastructure Coordination," CTDOT, https://portal.ct.gov/-/media/DOT/documents/dutilities/Broadband-Infrastructure-Coordination.pdf.
[67] 86 FR 68553, published December 3, 2021, https://www.federalregister.gov/documents/2021/12/03/2021-26231/broadband-infrastructure-deployment.
[68] Registration list established by the Connecticut Public Utilities Regulatory Authority under Docket No. 23-02-03, Application and Notification Implementation for Conduit Excavations for Telecommunications Service Provider and Broadband Internet Access Service Providers; see, https://www.dpuc.state.ct.us/FINALDEC.NSF/5cb88b8d5493c31d852588db0067d96d/b51fc327bcc5a1ab8525895000545f33?OpenDocument&Highlight=0,23-02-03.
[69] "State Transportation Improvement Program," CTDOT, https://portal.ct.gov/DOT/PP_Bureau/ConnDOT-Plans/State-Transportation-Improvement-Program.
[70] "Broadband Infrastructure Coordination," CTDOT, https://portal.ct.gov/-/media/DOT/documents/dutilities/Broadband-Infrastructure-Coordination.pdf.
[71] See Five-Year Action Plan, p. 33; https://portal.ct.gov/-/media/DEEP/energy/Broadband/CT-BEAD-Five-Year-Action-Plan.pdf.

DEEP serves as a member of a statewide Pole Attachment Working Group consisting of representatives of pole owners and attachers, the Office of Consumer Counsel (OCC), and municipalities. The group was convened by the Public Utilities Regulatory Authority (PURA),[72] a quasi-judicial agency that interprets and applies the statutes and regulations governing all aspects of Connecticut's utility sector; PURA's Office of Education, Outreach & Enforcement (EOE) moderates the group and serves as a pole attachment complaint mediator.

11.1.2.1 Streamline Pole Attachment Process

Connecticut utility pole infrastructure contains both electrical and telecommunications attachments. Subgrantee applications will utilize existing pole infrastructure and must work collaboratively with Connecticut's Single Pole Administrators (SPA), who own the poles, and the Incumbent Local Exchange Carrier (ILEC) as a part of the application process.

Subgrantee applications will also be expected to maintain proper documentation of their work on this existing infrastructure in the approved asset management system, Alden One.

DEEP is developing a Pole Attachment Toolkit for providers both currently operating in the State of Connecticut, and providers who may be new to the state, which includes information on the various types of attachment applications, pole owners by region, and other resources which may be needed to streamline the attachment process. DEEP plans to post this Toolkit on its website in early 2024.

11.1.2.2 Establish Regulatory Processes

In recent years, PURA has accelerated its multi-pronged approach to addressing pole integrity and pole access issues. PURA established in several dockets regulatory requirements related to temporary attachments, overlashing requirements, labeling requirements, asset management reporting expectations, and pole attachment processes—including establishing a one-touch make-ready (OTMR) process.[73] All relevant docket information is provided for providers in the DEEP Pole Attachment Toolkit to provide clarity related to these regulations.

11.1.3 Encourage Local Communities to Leverage Their Poles and Conduits and Develop a Unified Strategy for Coordinating Facility-Sharing Efforts

DEEP will encourage municipalities that own poles or conduits to make them available. DEEP may consider creating a collaborative task force comprising representatives from telecommunication companies, regulatory bodies, and relevant stakeholders to facilitate communication, if determined to be necessary in addition to existing working groups and opportunities for input and collaboration.

[72] Public Utilities Regulatory Authority, https://portal.ct.gov/pura.
[73] OTMR process established in Docket No. 19-01-52RE01, see, Decision issued May 11, 2022, https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/4d4b047910a0304d8525883f0055a9cb?OpenDocument

Pursuant to state statute, a municipality or CTDOT 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.[74] .

11.2 Explore Issues Concerning Access to Limited Access Rights-Of-Way for Last-Mile Broadband Providers Providing Service to Unserved Locations

The state will also explore ways it can facilitate subgrantees gaining access to limited access rights-of-way through streamlined public interest and resource sharing arrangements. Generally, CTDOT does not permit new longitudinal utility installations within the rights-of-way of limited-access highways "except that in special cases, the state may allow such occupancy under strictly controlled conditions." CTDOT states that it does not permit such installations for private lines (i.e., "privately owned facilities … devoted exclusively to private use.")[75]

11.2.1 Consider Online State-Hosted Middle-Mile Database and Conduct RFI

The state's commitment to asset sharing does not end with physical assets; DEEP will also consider building a robust and comprehensive database containing information (geospatial and otherwise) on known public and private assets. The state will consider publishing a request for information which will invite internet service operators, utility providers, pole owners, and local governments to submit information, with an emphasis on documenting middle-mile presence (from which many applicants' projects will branch).

11.3 Promoting Dig-Once Policies

DEEP will encourage sharing of open trenches and available conduit via the promotion of dig-once policies, which ensure proper notification has been made before rights-of-way are open with the goal of facilitating collaborative (and concurrent) construction timelines between entities hoping to dig in the same rights-of-way.

11.3.1 Promote Established Dig-Once Policy

PURA has established a dig-once policy as a part of Docket No. 21-12-21 in 2023[76] in an effort to better coordinate CTDOT, town, and municipal infrastructure maintenance and development with conduit installations.

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[74] General Statutes of Connecticut Title 16, Chapter 283, Sec. 16-233, https://www.cga.ct.gov/current/pub/chap_283.htm#sec_16-233. 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.

[75] "Utility Accommodation Manual," CTDOT, February 2009, https://portal.ct.gov/-/media/DOT/documents/dutilities/ACCOMODATIONpdf.pdf, pp. 16, 9

[76] See, "PURA Implementation of Process and Procedures for Conduit Excavations for Telecommunications Service Providers and Broadband Internet Access Service Providers," PURA, December 17, 2021, https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/08631f6b9720736852587b2006a2aa4?OpenDocument.

As directed by the Connecticut General Assembly, all telecommunications service providers and Broadband Internet access service providers are required to submit an application to PURA in order to proceed with construction of underground facilities installed using conduit. If notification is required of the CT Department of Transportation, a municipality, and/or another service provider, applications to all affected parties must be filed on the same day as the application is submitted to PURA. The application must be submitted to PURA, pending that notification is NOT required to the entities identified above, at least 30 days before the beginning of work. Conditions required for approval are available in Docket No. 21-12-21 for subgrantees desiring to install conduit.

This approach is in alignment with guidance from the U.S. Federal Highway Administration (FHWA) Office of Transportation Policy Studies, which notes in a policy brief that "the largest cost element for deploying broadband is burying fiber optic cables and conduit underground," citing the FCC. In the brief, FHWA emphasizes the importance of implementing dig-once policies at the local level as permits to install or work on existing facilities are often requested from cities and counties.[77]

11.4 Address Construction Costs

11.4.1 Encourage Specialized Equipment Sharing

Smaller ISPs in particular may struggle with the high cost and access to specialized equipment needed to drill into hard rock when installing underground fiber. DEEP will encourage providers to enter into resource-sharing agreements as a way to reduce costs and risks.

11.5 Address Drop Costs

Drop costs, especially in rural areas where houses are often set back far from the public road, can be very high. Since Applicants are required to absorb such costs to connect subscribers under BEAD terms, they will factor these costs into cost proposals. Prospects for lowering such costs could lead to lower BEAD outlay requests and therefore more unserved and underserved locations that can be connected with Priority Broadband Projects.

According to analysis by the state conducted for its Five-Year Action Plan,[78] over 60 percent of unserved locations in Connecticut likely represent non-standard installations.[79] "Long-driveway" locations account for an estimated 5,000 to 6,000 of these unserved locations.[80] State-collected data and the June 15, 2023

[77] "Minimizing Excavation Through Coordination," policy brief from the FHWA Office of Transportation Policy Studies, October 2013, https://www.fhwa.dot.gov/policy/otps/policy_brief_dig_once.pdf.
[78] See Five-Year Action Plan, pp. 30-32; https://portal.ct.gov/-/media/DEEP/energy/Broadband/CT-BEAD-Five-Year-Action-Plan.pdf.
[79] A standard broadband installation is defined in the federal Broadband Deployment Accuracy and Technology (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;" https://www.congress.gov/116/plaws/publ130/PLAW-116publ130.pdf.
[80] Note that 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.

release of the National Broadband Map both indicate that many of the state's unserved locations are concentrated in Northwest Hills and Northeast Connecticut planning regions—rural areas with the lowest population densities in the state, characterized by large-lot and agricultural properties.

11.5.1 Cost Sharing for Drop Costs

DEEP is considering designing its ConneCTed Communities Grant Program to incentivize ISPs to perform non-standard "long driveway" installations with a grant subsidy, and it anticipates taking a similar approach in its BEAD grant program. Applicants to the ConneCTed Communities Program may be asked to define what comprises a non-standard installation per guidance by the Broadband DATA Act and identify any such locations in their project area. DEEP is also considering whether applicants must pay for standard installation costs up to the network interface point at no cost to the end user or to DEEP, but whether, at its own discretion, DEEP may compensate any installation costs that exceed the standard installation cost average proposed by the applicant.

11.5.2 Map Pole Site Locations and Overlashing Possibilities

DEEP may utilize PURA working groups to discuss overlashing possibilities and may consult with pole owners to determine if they are amenable to making pole locations publicly available for design and cost estimation purposes. If pole owners agree in certain areas, DEEP may opt to offer to disseminate this information to registrants in a prequalification round.

11.6 Reduce Labor Costs

11.6.1 Strike a Balance Between Skilled and Certified Labor Requirements and the Cost of Labor

Extending Priority Broadband to the maximum number of unserved and underserved residents and business requires lowering barriers to entry and the cost of construction, which includes labor costs. At the same time, the state is committed to fair labor standards and wages that reflect the skills and certifications of workers.

In addition, when engineering documentation requiring a Professional Engineer (PE) certification is a condition of grant participation, DEEP will accept in-house engineering.

11.6.2 Increase Supply of Labor Through Workforce Development Initiatives

DEEP's workforce development plan is outlined in Section 9.

11.7 Address Overhead Costs

11.7.1 Adopt Reasonable, Compliance-Focused Regulatory and Reporting Requirements

DEEP will attempt to reduce the overhead costs of construction and network operation by striking an appropriate balance in its regulatory and reporting policies. DEEP will keep the interval of required reporting reasonable, publish clear and concise reporting workflows so awardees can focus resources and efforts on construction, and leverage existing reporting templates for state grants where appropriate.

11.8 Address the Initial Capital Cost Burden on Smaller ISPs

11.8.1 Connect Local and Community Banks with Service Areas Overlapping Eligible Locations to Local Grant Participants

DEEP may reach out to the Federal Reserve Bank of New York to provide a list of credit unions and community banks for Connecticut that subgrantees can use to match to unserved locations in their service areas. In addition, it encourages information sharing models where the Federal Reserve Bank provides options for banks to work with community development organizations and private partners to underwrite loan guarantees for local banks to provide letters of credit and banks, insurance companies and other approved entities to issue performance bonds.

12. Climate Assessment (Requirement 15)

This section provides an assessment of current and future weather and climate-related risks to new broadband infrastructure in Connecticut.

Between 1980 and 2023, three flooding, 17 winter storm, 10 tropical cyclone, 11 severe storm, one drought, and one freeze billion-dollar disaster events affected Connecticut and its infrastructure.[81] Cities and towns across the state are developing and implementing plans for adaptation and resilience in the face of a changing climate that brings with it a greater frequency and severity of environmental hazards.

To identify, address, and mitigate these risks, Governor Lamont issued Executive Order No. 3 on September 3, 2019. The Executive Order rejuvenated the Governor's Council on Climate Change (GC3) and expanded its scope and responsibilities to include both mitigation of carbon emissions and climate change adaptation and resilience. In 2021, the GC3 released their Phase 1 report, Taking Action on Climate Change and Building a More Resilient Connecticut for All (GC3 report), which identified near-term actions.

The GC3 is ultimately working to develop a statewide Adaptation and Resilience Plan for Connecticut that, amongst other things, will encompass the most current and locally-scaled scientific information and analysis available with respect to the effects of climate change and provide updated recommendations for adapting to and improving the state's resilience to such changes in areas such as infrastructure, agriculture, natural resources, and public health. Those recommendations will include:

- A review and assessment of the recommendations in the 2011 Climate Change Adaptation and Preparedness Plan;
- Recommendations and proposals for funding sources and financing mechanism to advance investment in recommended strategies;
- Recommended strategies to prioritize climate change adaptation efforts to protect vulnerable communities that may be disproportionately impacted by the effects of climate change; and
- Recommendations aligning with municipal and regional adaptation efforts.

12.1 Identifying Geographic Areas Subject to an Initial Hazard Screening

Connecticut's Natural Hazard Mitigation Plan[82] (2019 CT NHMP) and the Federal Emergency Management Agency's (FEMA) National Risk Index served as the two main sources of interests for

[81] Adjusted for CPI: "U.S. Billion-Dollar Weather and Climate Disasters: Connecticut," NOAA, 2023, https://www.ncei.noaa.gov/access/billions/events/CT/1980-2023?disasters[]=all-disasters

[82] "2019 Connecticut Natural Hazards Mitigation Plan Update," Department of Emergency Services and Public Protection (Division of Emergency Management and Homeland Security) and Department of Energy and Environmental Protection, 2019, https://portal.ct.gov/-/media/DEMHS/_docs/Plans-and-Publications/EHSP0023--NaturalHazardMitPlan.pdf; "Connecticut Natural Hazard Mitigation Plan 2023 Update," Connecticut Division of Emergency Management and Homeland Security, https://experience.arcgis.com/experience/01d04d2fab6d43f9b09dbc31c3606001/page/Introduction/.

evaluating and locating high risk areas in an initial hazard screening. Specifically, this analysis employed the FEMA classification scheme, assessing each county's risks relative to other counties around the nation, and ranking counties' risks from Very Low (0-20th percentile), Relatively Low (20th-40th percentile), Relatively Moderate (40th-60th percentile), Relatively High (60th-80th percentile), and Very High (80th-100th percentile).[83] The counties identified as relatively moderate and relatively high risk below may be vulnerable to current and projected future weather and climate-related risks, particularly related to coastal and inland flooding and strong winds which can impact underground and aerial infrastructure, and therefore are subject to an initial hazard screening for current and future weather risks.

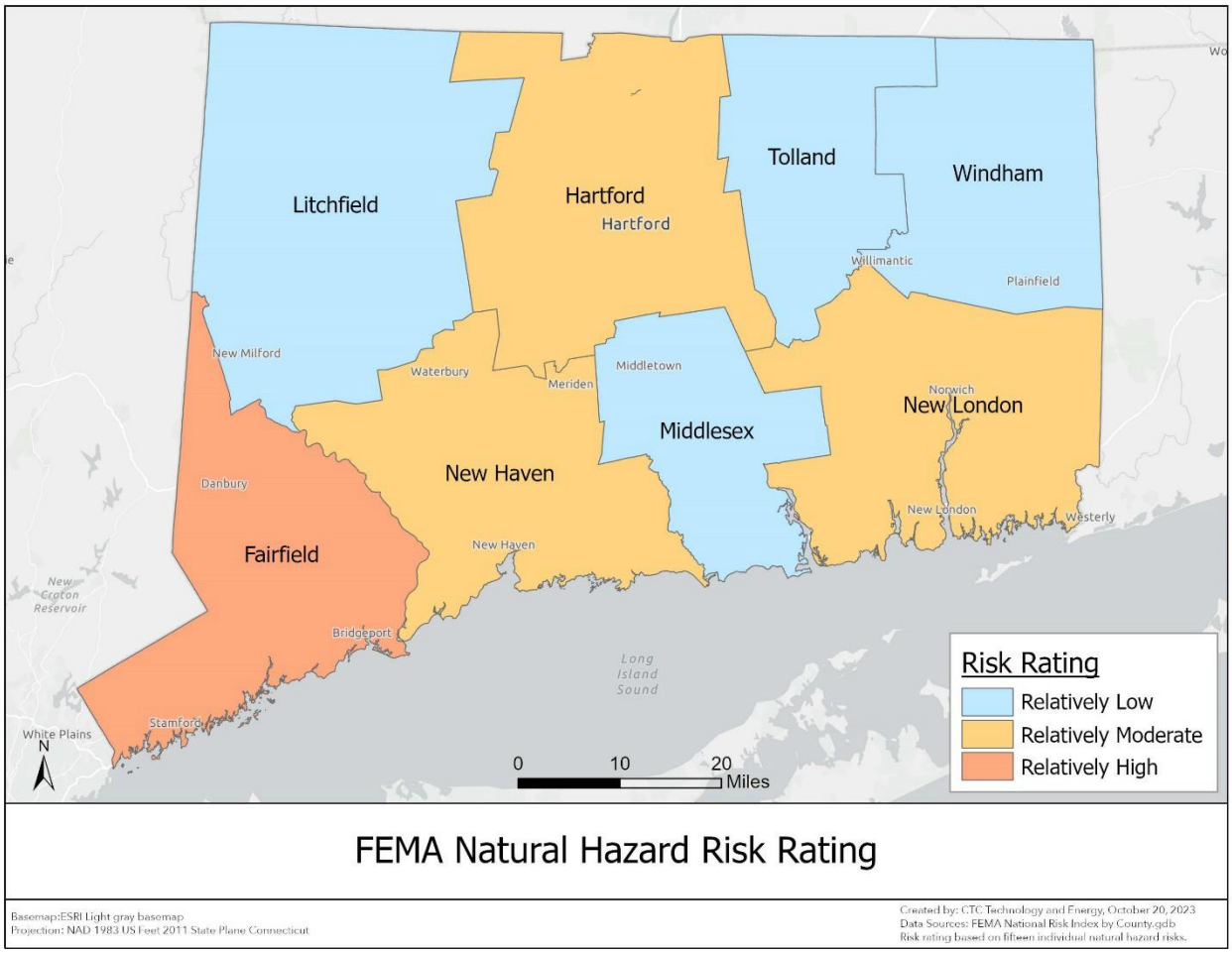
Table 24: Natural Hazards Classified as Very High Risk or Relatively High Risk by FEMA's National Risk Index

County	Regional Risk	Primary Natural Hazards
Fairfield	Relatively High	Coastal Flooding, Hurricane, Ice Storm, Lightning, Strong Wind, Winter Weather
Hartford	Relatively Moderate	Ice Storm, Lightning
New Haven	Relatively Moderate	Hurricane, Ice Storm, Lightning, Flooding
New London	Relatively Moderate	Ice Storm, Lightning, Flooding

FEMA's risk ratings generally agree with Connecticut's. According to FEMA, Fairfield is at Relatively High risk of natural hazards, while Connecticut's other counties are at Relatively Moderate or Relatively Low risk, as shown in the map below. The analysis will be reviewed for the inclusion of updated information on a periodic basis. The time scales for full screenings will occur in parallel with the State of Connecticut's Natural Hazard Mitigation Plan, beginning in 2024 and being updated in coordination with the periodic updating of the Natural Hazard Mitigation Plan.

[83] "National Risk Index Technical Documentation," FEMA, March 2023, https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf, p.3-3.

Figure 2: Composite Risk Ratings for Counties in Connecticut



12.2 Characterizing Which Projected Weather and Climate Hazards May be Most Important to Account for

For the 2019 Connecticut Natural Hazards Mitigation Plan Update (2019 CT NHMP),[84] the Connecticut State Hazard Mitigation Planning Team (SHMPT) identified natural hazards that threaten Connecticut and ranked them according to the relative extent of risk they pose to the lives and property of the state's residents and its economy. Vulnerability assessments and loss estimations, which are based on the history of occurrences and exposure, were developed to present an understanding of the potential impacts to the state from natural hazard events. Across all counties, winter weather and thunderstorms were notably higher risk hazards, with tornado, flood, and tropical cyclone having a slightly lower, but still significant risk. Dam failure and wildland fire were particularly low risk across all counties.

[84] "2019 Connecticut Natural Hazards Mitigation Plan Update," Department of Emergency Services and Public Protection (Division of Emergency Management and Homeland Security) and Department of Energy and Environmental Protection, 2019, https://portal.ct.gov/-/media/DEMHS/_docs/Plans-and-Publications/EHSP0023--NaturalHazardMitPlan.pdf.

12.2.1 Coastal Flooding

According to the GC3 Infrastructure and Land Use Adaptation Working Group Recommendations Report from November 2020,[85] 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.[86] 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 significant impact tropical storms and hurricanes can occur from nor'easters and more common annual storms. These challenges highlight the importance of resilient broadband infrastructure and industry best practices.

Connecticut continues to bolster its commitment to studying and analyzing climate change and sea level rise through investments at the state level in collaborative projects with universities, neighboring states, non-profits, and federal agencies, as noted in the 2019 CT NHMP.

Coastal barriers are unique landforms that provide protection for diverse aquatic habitats and serve as the mainland's first line of defense against coastal storms and erosion. Congress recognized the vulnerability of development on coastal barriers and passed the Coastal Barrier Resources Act of 1982 (COBRA) and the Coastal Barrier Improvement Act of 1990 (CBIA), establishing a system of protected COBRA areas and Otherwise Protected Areas (OPAs) known as the Coastal Barrier Resources System (CBRS).

The Acts protect these areas by prohibiting the expenditure of most Federal funds that encourage development, including "any form of loan, grant, guarantee, insurance, payment, rebate, subsidy or any other form of direct or indirect federal assistance." Federal disaster assistance is limited to emergency relief – there are no loans or grants to repair or rebuild structures in CBRS areas. COBRA also banned the sale of National Flood Insurance Program (NFIP) flood insurance for structures built or substantially improved on or after October 1, 1983, in these areas. By restricting federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers, Congress aimed to minimize the loss of human life and damage to fish, wildlife, and other natural resources associated with coastal barriers.

The severity of sea level rise, and the extensive secondary impacts rising seas could bring to the State of Connecticut, are wide ranging and dependent on a number of interrelated factors including greenhouse gas emissions, varying ocean temperatures, land subsidence along the coast, coastal erosion due to

[85] "Governor's Council on Climate Change (GC3) Infrastructure and Land Use Adaptation Working Group Recommendations Report," DEEP, November 2020, https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3_Infrastructure_LandUse_FinalReport_111320.pdf.

[86] "Governor's Council on Climate Change (GC3) Infrastructure and Land Use Adaptation Working Group Recommendations Report," DEEP, November 2020, https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3_Infrastructure_LandUse_FinalReport_111320.pdf. The Connecticut state climate summary from the NOAA National Centers for Environmental Information predicts a sea level rise of between one foot and four feet for Connecticut by 2100, higher than the national average, with even higher sea level rises possible for Connecticut. "Connecticut," NOAA National Centers for Environmental Information, 2022, https://statesummaries.ncics.org/downloads/Connecticut-StateClimateSummary2022.pdf.

severe storms, as well as resilience and mitigation measures that the state has and continues to implement. Only in time will the severity of the threat become clearer, but projections show that the impact will be severe if average global temperatures and average ocean temperatures continue to increase. The warning time for sea level rise has been, and will continue to be, extensive. Sea level rise is expected to occur gradually over time, though the near-term impacts will vary depending on severity.

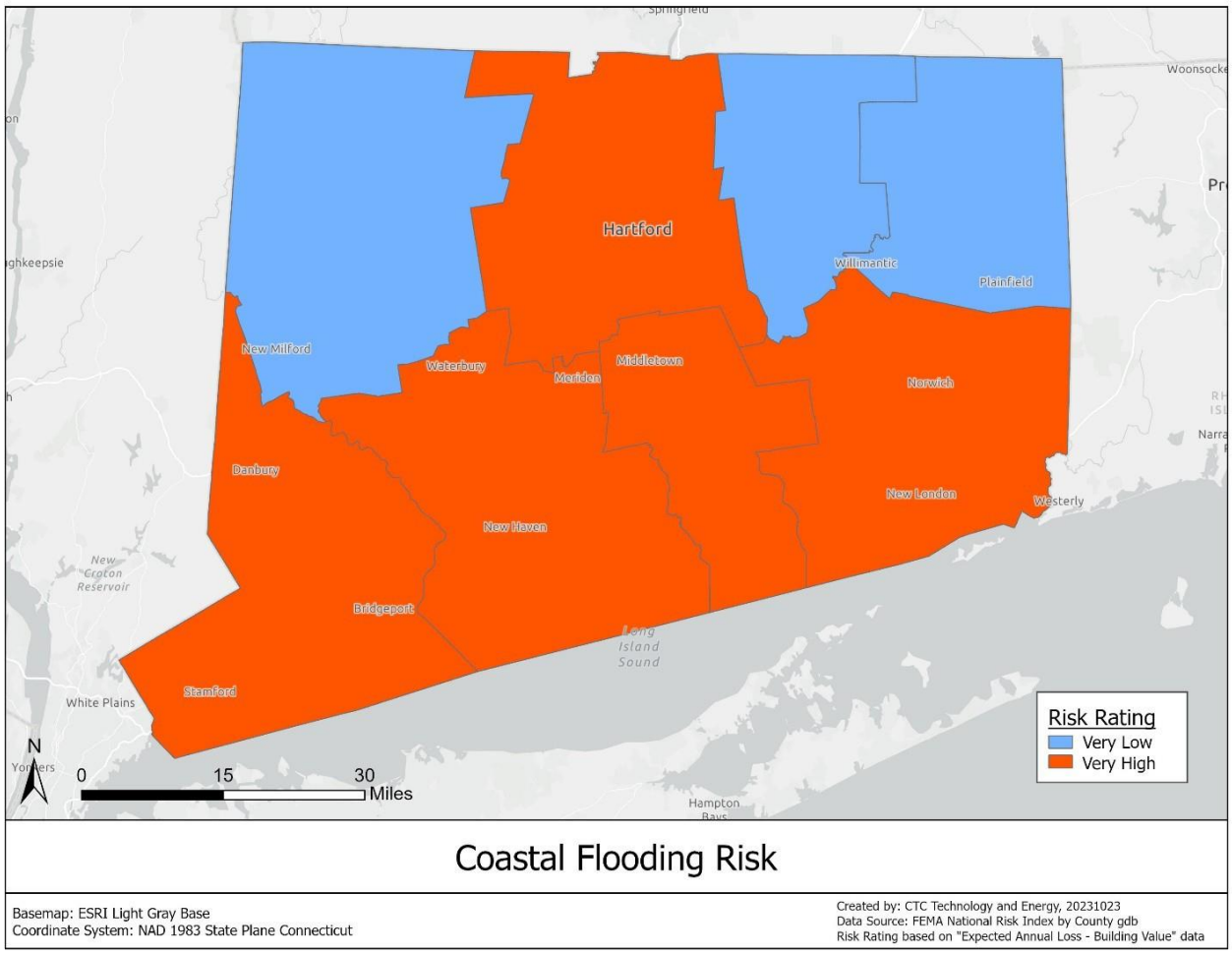
It is difficult to assign quantitative probabilities to projections of sea level increases. Climate planning is being completed in an adaptive approach to allow for the best available science to be continually updated. No widely accepted method is currently available for probabilistic projections at the regional or local level.

Coastal flooding brings salt water which can be especially damaging to coaxial broadband infrastructure.[87] BEAD-funded deployments will need to take mitigation practices into account, including the use of more resilient fiber broadband technology.

FEMA defines coastal flooding as "when water inundates or covers normally dry coastal land as a result of high or rising tides or storm surges."[88] As shown in the map below, most Connecticut counties are at Very High risk of coastal flooding, according to FEMA, except that the counties of Litchfield, Tolland, and Winham are at Very Low risk.

[87] Rebecca Hersher, "Rising Seas Could Cause Problems For Internet Infrastructure," NPR, July 16, 2018, https://www.npr.org/2018/07/16/627254166/rising-seas-could-cause-problems-for-internet-infrastructure; "Rising seas threaten coastal internet infrastructure, study says," University of Oregon, July 16, 2018, https://around.uoregon.edu/content/rising-seas-threaten-coastal-internet-infrastructure-study-says.
[88] "Coastal Flooding," FEMA, https://hazards.fema.gov/nri/coastal-flooding.

Figure 3: Coastal Flooding Risk in Connecticut



12.2.2 Riverine Flooding

Flooding is the most prevalent and frequent natural hazard that impacts Connecticut. The state features thousands of miles of rivers, brooks and streams along with lakes, and ponds. Flooding in Connecticut is a direct result of frequent weather events such as coastal storms, Nor'easters, heavy rains, tropical storms, and hurricanes. The severity of a flood depends on water accumulation over time and the watershed's capacity to absorb and manage flood waters. It is unusual for a flood to occur without warning due to the pattern of meteorological conditions needed to cause flooding.

Riverine flooding occurs when streams, rivers, channels and other bodies of water receive more rain or snowmelt from their watershed than their capacity can handle within the normal floodplain or when the body of water becomes blocked by an ice jam or debris. Excess water overloads the channel and extends into or even beyond the natural floodplain. Flash flooding can occur during a rapid rise of water throughout a watershed or in poorly drained urban areas composed mostly of impervious surfaces which cannot absorb precipitation. Flash flooding is typically a result of an unusually large amount of rain

and/or high velocity of water flow (especially in hilly areas) within a very short period of time (e.g., intense rainfall, dam failure, ice jam).

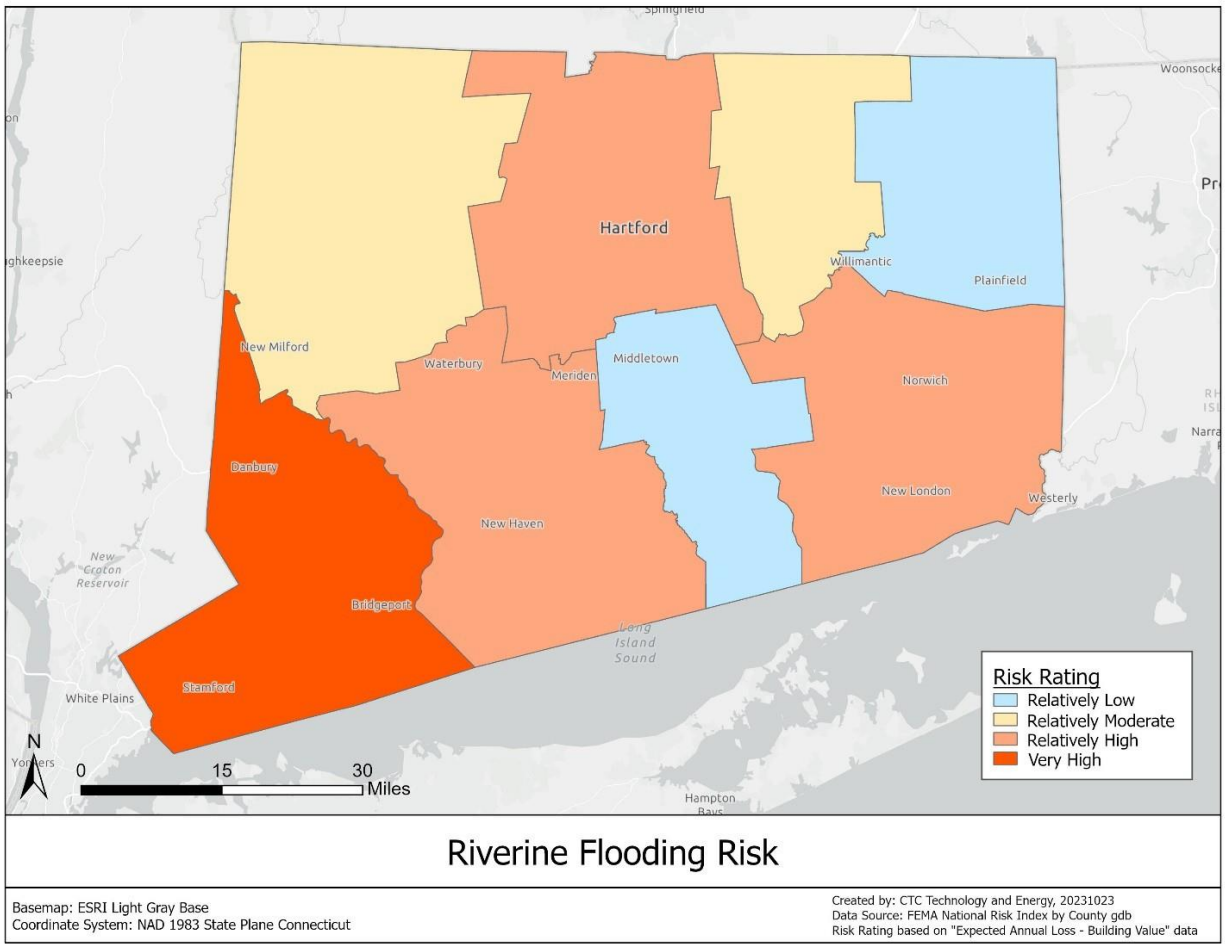
An ice jam is an accumulation of ice in a river that restricts water flow causing backwater that floods low-lying areas upstream from the jam. Ice jams occur when early spring warming temperatures combined with heavy rain cause rapid snow melt. The combination of snow melt and heavy rains can cause frozen rivers to swell, breaking the ice layer on top of the river. Areas below the ice jam can be affected by flash flooding when the jam releases, sending water and ice downstream rapidly.

More intense rainfall, the result of climate change, is likely to increase peak flooding, particularly in urban environments in the future. The magnitude of this increase is dependent on the level and rate of greenhouse gas emissions through the end of the century. Changes in precipitation patterns in Connecticut are likely to amplify flood and drought impact.

In regions that frequently experience flooding, and especially in coastal areas which experience saltwater flooding, 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 fiber broadband network that can better withstand both wind-related and flood-related challenges.

As shown in the map below, FEMA data show Fairfield County at Very High risk and three counties at Relatively High risk for riverine flooding.

Figure 4: Riverine Flooding Risk in Connecticut



A landslide, as defined by FEMA, is "the movement of a mass of rock, debris, or earth down a slope,"[89] a definition which, in Connecticut, mostly refers to the movement of rock, debris, or earth as a result of riverine flooding (in contrast to a narrower definition of landslide in the 2019 CT NHMP). FEMA ranks all counties in Connecticut as at Very High risk of landslide.

12.2.3 High Winds and Severe Storms

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.

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

[89] "Landslide," FEMA, https://hazards.fema.gov/nri/landslide.

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.

Severe thunderstorms, like tornadoes, are often accompanied by strong winds and hail. Both of these hazards have the potential to damage critical infrastructure. Additionally, flash flooding, particularly in low lying areas, is a secondary effect of thunderstorms as intense rain often accompanies thunderstorms. The most significant secondary hazard of high windstorms is utility failure resulting from downed power lines and falling tree branches.

Meteorologists can often predict the likelihood of a severe thunderstorm and hailstorms. This can give several days' warning. However, meteorologists cannot predict the exact time of onset, specific location, or the severity of the storm.

The 2019 CT NHMP contains a detailed analysis of historical data regarding these hazards. Due to the somewhat unpredictable nature (especially in the longer term) of damaging wind, and thunderstorms in particular, it is difficult to quantitatively determine the future probability of the hazard. However, it is reasonable to assume that Connecticut will continue to experience thunderstorms and is considered to have a high probability of future events.

Connecticut's climate is changing. The state has warmed two to three degrees Fahrenheit in the last century. Major clusters of summertime thunderstorms in North America will grow larger, more intense, and more frequent later this century in a changing climate, unleashing far more rain and posing a greater threat of flooding across wide areas.

12.2.3.1Thunderstorms

Thunderstorms are formed when the right atmospheric conditions combine to provide moisture, lift, and warm unstable air that can rise rapidly. Thunderstorms occur any time of the day and in all months of the year but are most common during summer afternoons and evenings and in conjunction with frontal boundaries. The National Weather Service classifies a thunderstorm as severe if it produces hail at least one inch in diameter, winds of 58 mph or greater, or a tornado.

Thunderstorms affect relatively small, localized areas, rather than large regions like winter storms and hurricane events. Connecticut experiences an average of between 20 and 30 thunderstorms annually.

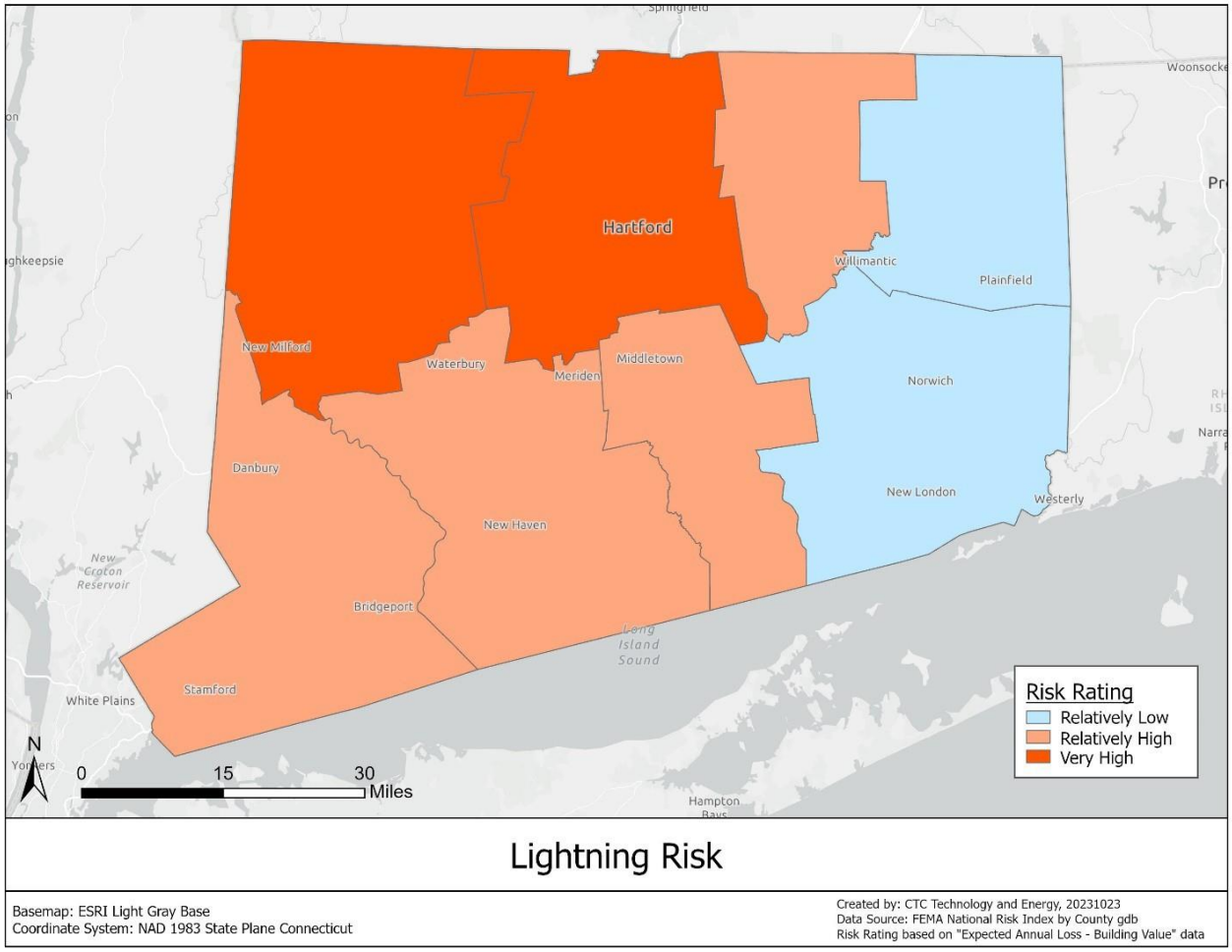
12.2.3.1.1 Lightning

All thunderstorms produce lightning, and therefore all thunderstorms are dangerous. Lightning often strikes outside of areas where it is raining and may occur as far as 10 miles away from rainfall. It can strike from any part of the storm and may even strike after the storm has seemed to pass.

Lightning is a severe hazard to broadband equipment, but the internet industry, including equipment manufacturers, have developed mitigation best practices.

As shown the in the map below, FEMA ranks Hartford and Litchfield counties at Very High risk of lightning, four counties at Relatively High risk, and two counties at Relatively Low risk.

Figure 5: Lightning Risk in Connecticut



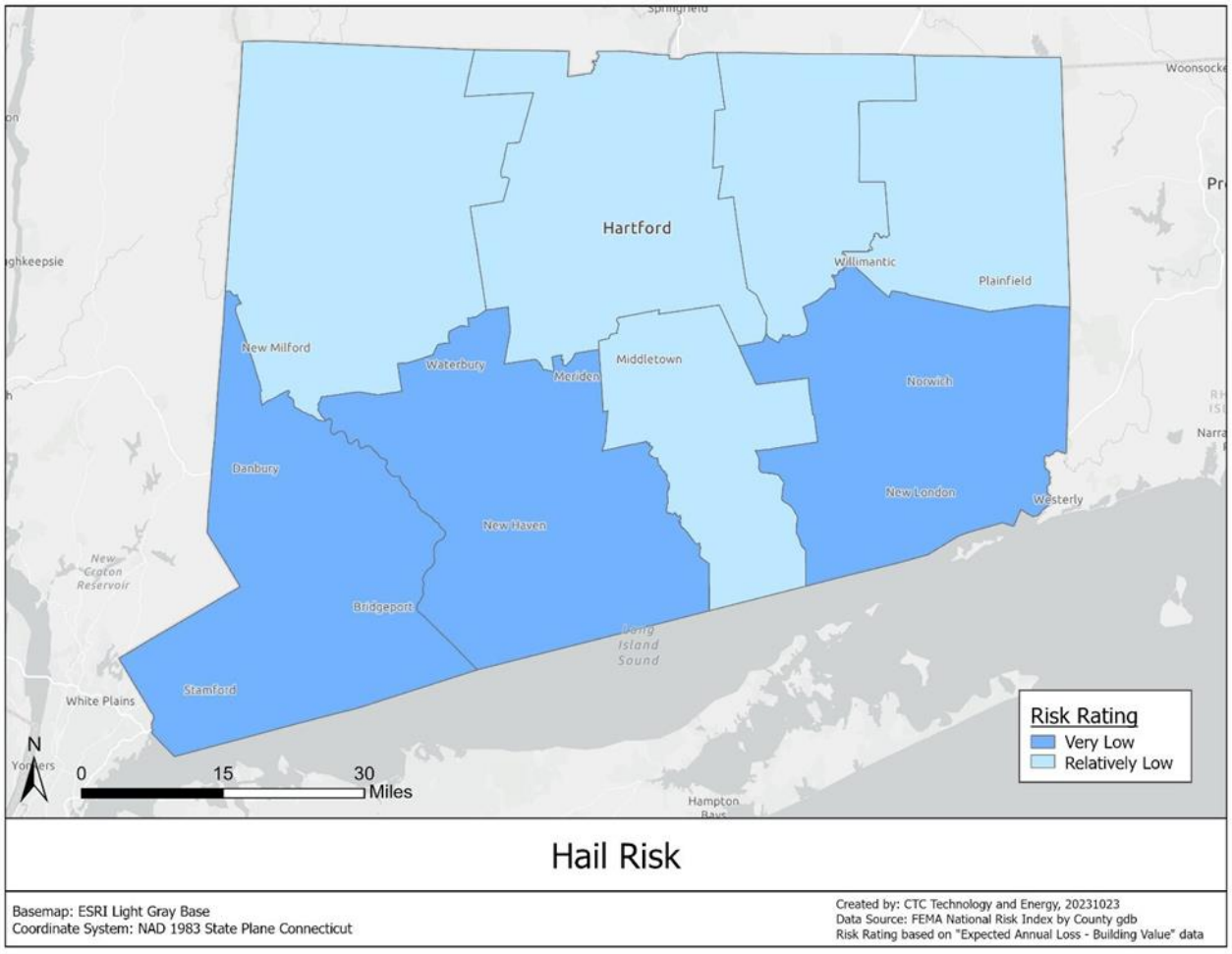
12.2.3.1.2 Hail

Hail forms inside a thunderstorm where there are strong updrafts of warm air and downdrafts of cold water. If a water droplet is picked up by the updrafts, it can be carried well above the freezing level. As the frozen droplet begins to fall, it may thaw as it moves into warmer air toward the bottom of the thunderstorm. However, the droplet may be picked up again by another updraft and carried back into the cold air and re-freeze. With each trip above and below the freezing level, the frozen droplet adds another layer of ice. Most hail is small and typically less than two inches in diameter.

Hail occurs most frequently in the southern and central plain states; however, since hail occurs with thunderstorms, the possibility of hail damage exists throughout the entire United States. Connecticut experiences between three and four severe hail days a year, on average.

As shown in the map below, all counties in Connecticut are at Very Low or Relatively Low risk of hail.

Figure 6: Hail Risk in Connecticut



1. Straight-Line Winds

High winds, other than tornadoes, are experienced in all parts of the United States. Effects from high winds can include downed trees and power lines, and damage to buildings.

Two basic types of damaging wind events other than tropical systems affect Connecticut: synoptic-scale winds and thunderstorm winds. Synoptic-scale winds are high winds that occur typically with cold frontal passages or Nor'easters. When thunderstorm winds exceed 58 mph, the thunderstorm is considered severe, and a warning is issued. "Downbursts" cause the high winds in a thunderstorm.

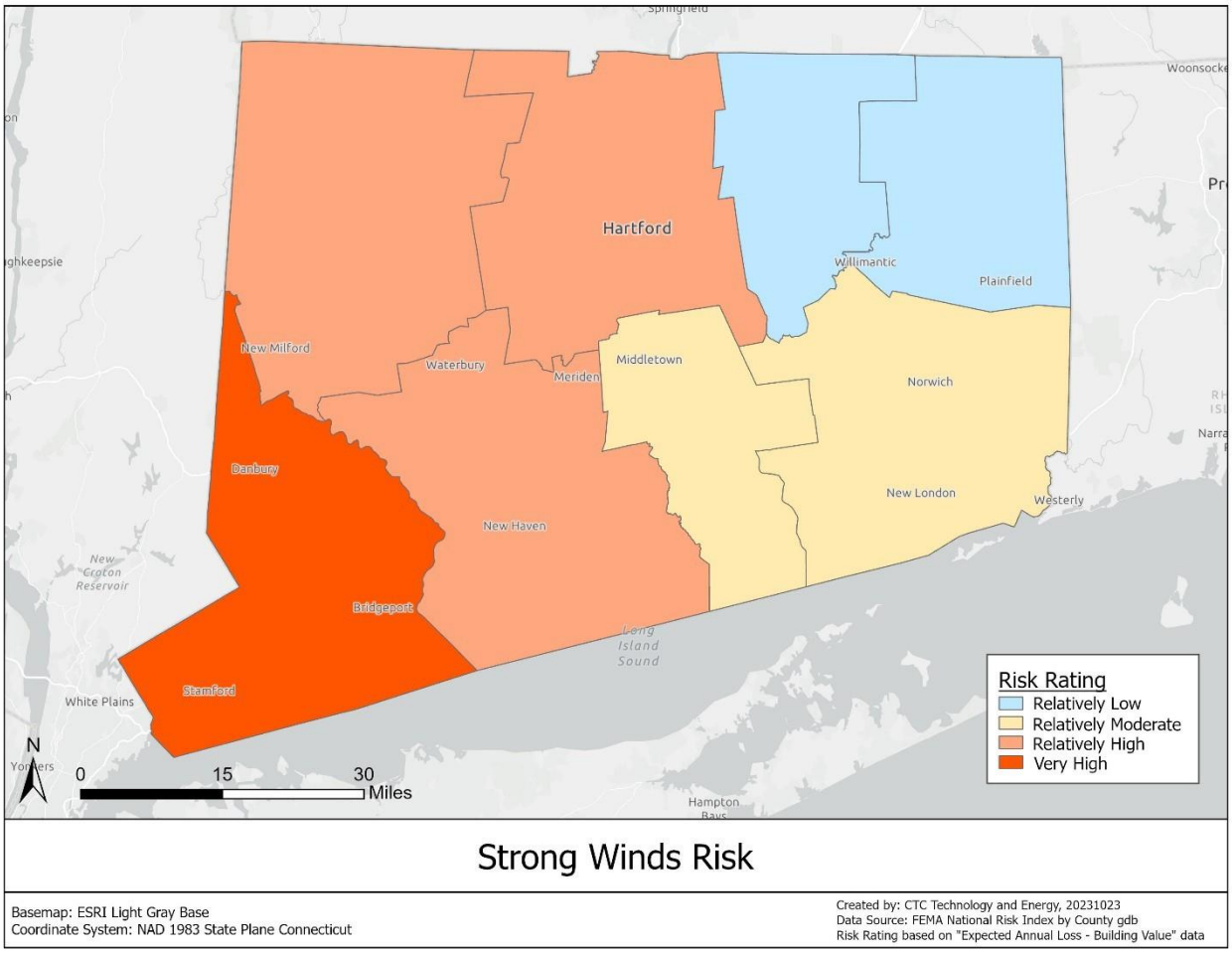
Downburst winds result from the sudden descent of cool or cold air toward the ground. As the air hits the ground, it spreads outward, creating high winds. Unlike tornadoes, downburst winds move in a

straight line, without rotation. The term “microburst” refers to a small downburst with damaging winds up to 168 mph and less than 2.5 miles in length. The term “macroburst” refers to a large downburst that can extend greater than 2.5 miles with winds up to 134 mph and can last 5 to 30 minutes.

Another widespread thunderstorm wind event is known as a derecho. Derechos are associated with lines (squall lines) of fast-moving thunderstorms that might vary in length and have the potential to travel hundreds of miles. Winds in these types of events can rival those of “weaker” tornadoes with gusts of 80 to 100 mph covering a wide area.

FEMA defines strong winds as “damaging winds, often originating from thunderstorms, that are classified as exceeding 58 mph.”[90] As shown in the map below, Fairfield County is at Very High risk of strong winds, and three counties are at Relatively High risk: Hartford, Litchfield, and New Haven.

Figure 7: Strong Wind Risk in Connecticut



2. Tornadoes

Tornadoes are nature’s most violent storms and can cause fatalities and devastate neighborhoods in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the

[90] “Strong Wind,” FEMA, https://hazards.fema.gov/nri/strong-wind.

ground with whirling winds that can reach 250 mph. Damage paths can be greater than one mile in width and 50 miles in length. Tornadoes typically develop from either a severe thunderstorm or hurricane as cool air rapidly overrides a layer of warm air. Tornadoes typically move at speeds between 30 and 125 mph and can generate internal winds exceeding 300 mph. The lifespan of a tornado rarely is longer than 30 minutes.

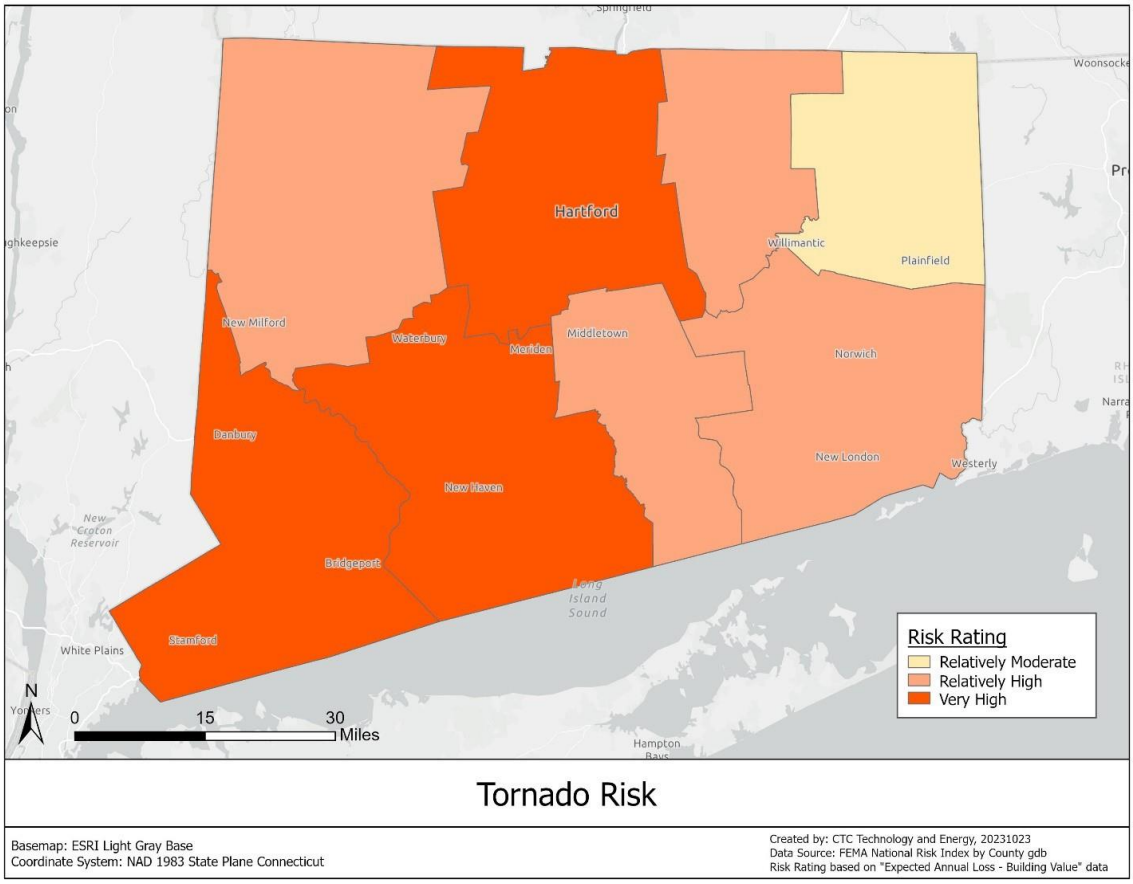
Tornadoes have been documented in every state in the United States, and on every continent except Antarctica. Approximately 1,200 tornadoes occur in the United States each year, with the central portion of the country experiencing the most. Connecticut experiences an average of two tornadoes per year.

Tornadoes have the potential to lead to widespread utility outages, downed trees, closed roadways, and damage to critical and essential infrastructure. Tornado events may also be accompanied by strong thunderstorms, straight-line winds, and hail which can lead to traffic accidents and flash flooding.

Since tornadoes occur on such small spatial scales and are a product of current weather patterns (they can occur with very little warning), it is difficult to provide a detailed and highly specific predictive analysis for this type of hazard event. In general, the pattern of occurrence and potential locations for tornadoes to occur in Connecticut is expected to remain relatively unchanged in the 21st Century.

As shown in the map below, FEMA ranks most counties in Connecticut as at Very High or Relatively High risk of tornadoes, with the exception of Windham County, which is at Relatively Moderate risk.

Figure 8: Tornado Risk in Connecticut



12.2.3.4Tropical Cyclones Including Hurricanes

A tropical cyclone is a rotating, organized system of clouds and thunderstorms that originates over tropical or sub-tropical waters and has a closed low-level circulation.[91] Tropical depressions, tropical storms, and hurricanes are all considered tropical cyclones. These storms rotate counterclockwise in the northern hemisphere around the center and are accompanied by heavy rain and strong winds. Almost all tropical storms and hurricanes in the Atlantic basin (which includes the Gulf of Mexico and Caribbean Sea) form between June 1 and November 30 (hurricane season). August and September are peak months for hurricane development. September is typically the most active month for tropical cyclones in Connecticut.

Tropical storms and hurricanes are typically accompanied by a storm surge, an abnormal local rise in sea level. Hurricanes are a very real and costly hazard to Connecticut. A hurricane strike to Connecticut has the potential to cause moderate to extensive damage within the state. The severity of the damage varies greatly depending on the track, intensity, and duration of the tropical cyclone. Tropical cyclone secondary impacts include increased risk of fire hazards, hazardous materials, coastal erosion, compromise of dams or levees, increased risk of landslides, and other environmental impacts.

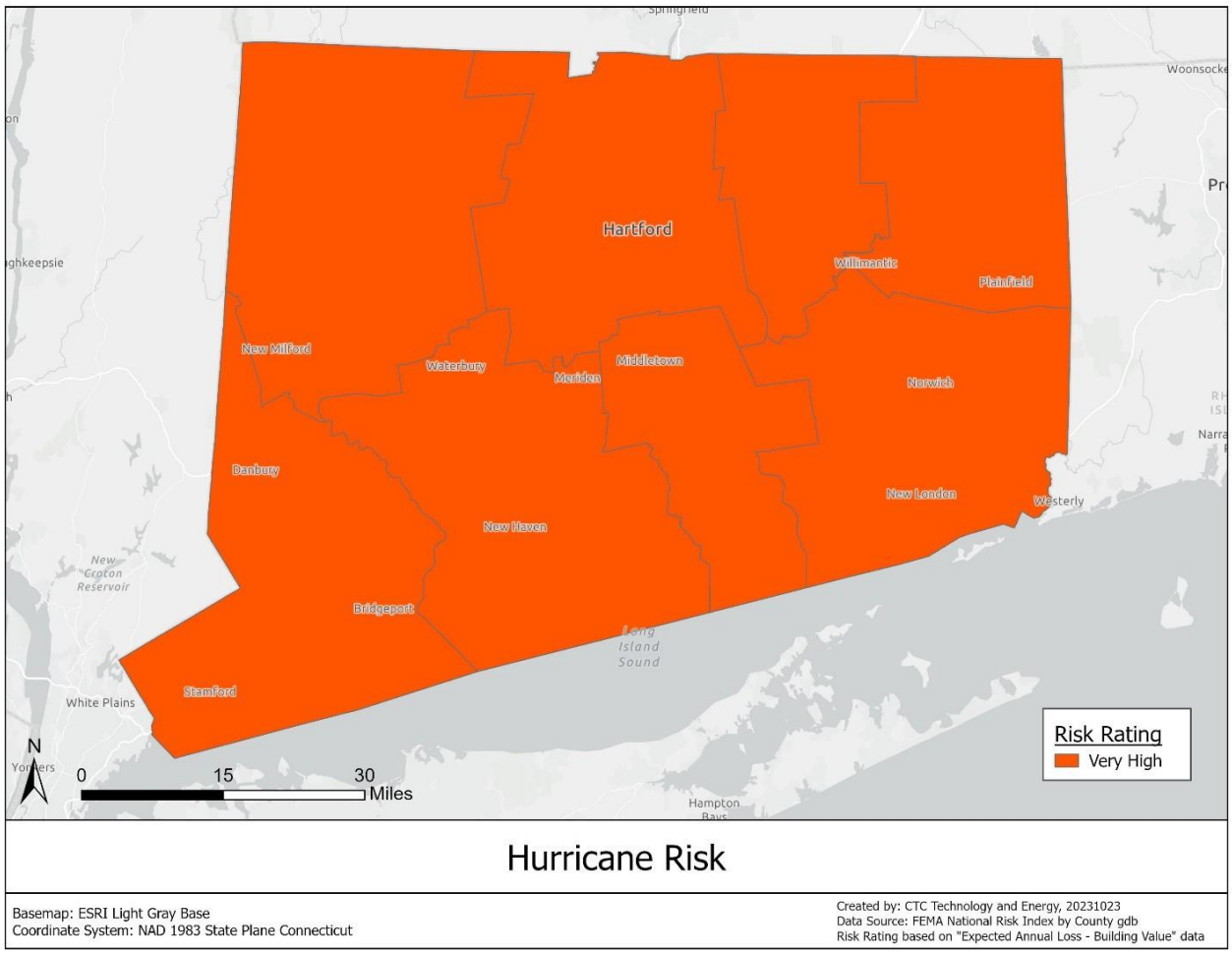
Although one of the most damaging storms in Connecticut history, Super Storm Sandy was not a Hurricane by definition when it made landfall in Connecticut. It had both extratropical cyclone and nor'easter characteristics combined, illustrating the possibility of dangerous changes in storm dynamics. In Connecticut, all eight counties saw damages, with more than $360 million in total damage. At its peak, Sandy cut power to 640,000 homes and businesses.

Tropical cyclones rely on warm surface waters to develop and thrive. With increasing global temperatures, an increase in the frequency and severity of tropical cyclones would appear likely. However, climactic changes beyond surface water temperatures make predicting the likely impacts of climate change on tropical cyclones difficult. However, given the past history of major storms and a reasonable estimate of likely future scenarios, it would be prudent for Connecticut to expect that there will be forthcoming hurricanes which make landfall in or near Connecticut and they will be of a greater intensity and longer duration than in the past.

As shown in the map below, all counties in Connecticut are at Very High risk of hurricanes.

[91] "How do hurricanes form?" National Ocean Service, NOAA, https://oceanservice.noaa.gov/facts/how-hurricanes-form.html.

Figure 9: Hurricane Risk in Connecticut



12.2.4 Ice Storms and Winter Weather

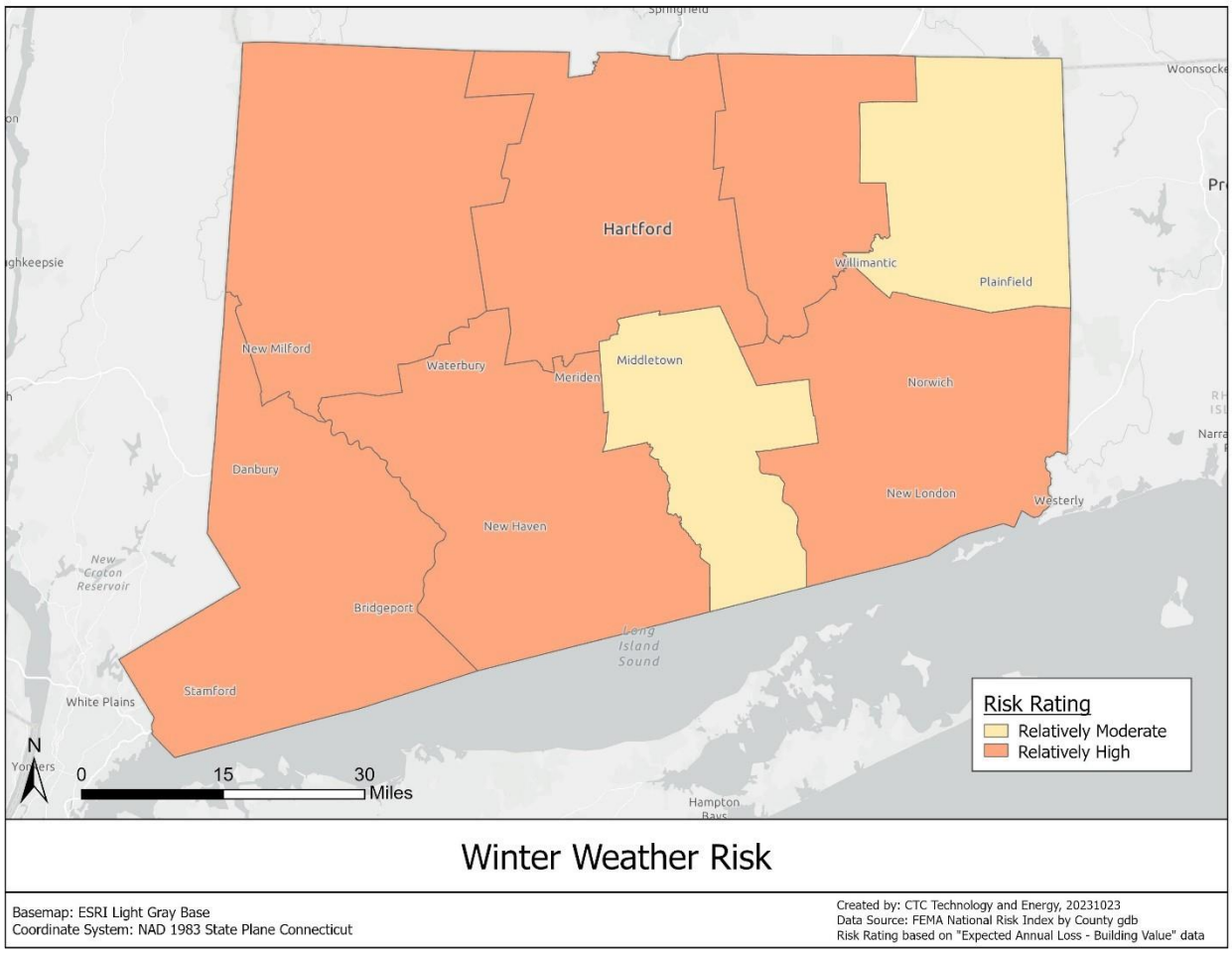
Winter weather is one of the most impactful hazards to the state and its 174 municipalities, tribes, and boroughs annually. Winter weather includes snow, sleet, freezing rain, and cold temperatures.

According to the Northeast States Emergency Consortium (NESEC), winter weather can occur from late September through late April in Connecticut. The most severe storm and weather conditions usually occur from December through March. Severe winter weather events may include ice storms, Nor'easters with coastal flooding, blizzards, and large accumulation snowstorms. Winter weather affects the entire state because of its New England location. Warning time for winter weather events is typically greater than 24 hours. Connecticut's geographic location in the Northeastern United States leads to at least 14 winter weather events annually.

Climate models have indicated that fewer but more intense precipitation events will occur during winter with more rainfall than snow. This change in winter precipitation could result in less frequent but more intense snowstorms with heavier (denser) snow.

FEMA defines winter weather as "winter storm events in which the main types of precipitation are snow, sleet, or freezing rain."[92] As shown in the map below, most counties in Connecticut are at Relatively High risk of winter weather.

Figure 10: Winter Weather Risk in Connecticut

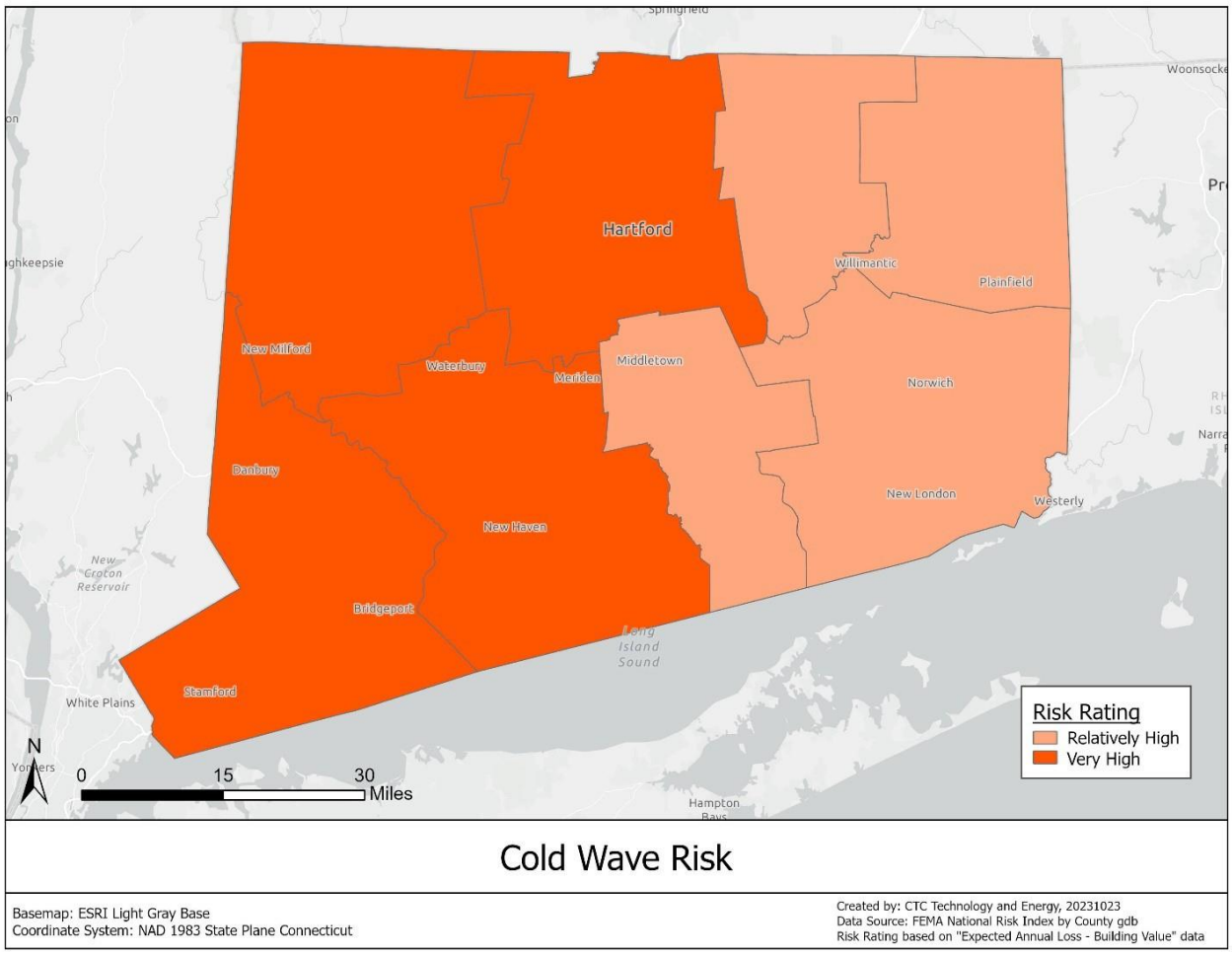


FEMA defines a cold wave as "a rapid fall in temperature within 24 hours and extreme low temperatures for an extended period. The temperatures classified as a cold wave are dependent on the location and defined by the local National Weather Service (NWS) weather forecast office."[93]

As shown in the map below, Connecticut's four western counties are at Very High risk of cold waves, while the eastern counties are at Relatively High risk of cold waves.

[92] "Winter Weather," FEMA, https://hazards.fema.gov/nri/winter-weather.
[93] "Cold Wave," FEMA, https://hazards.fema.gov/nri/cold-wave.

Figure 11: Cold Wave Risk in Connecticut



12.2.4.1 Winter Storm

A winter storm is a winter weather event that has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12- and/or 24-hour warning criteria for at least one of the precipitation elements.

Winter weather, including heavy snow, ice, sleet, and freezing rain can slow or halt commerce and daily life through transportation and utility infrastructure disruption. Snow load poses a threat to structures. Roads and bridges may also experience structural damage due to rapid temperature variation during winter weather, chemicals used to treat roads, and ice loads.

12.2.4.2 Ice Storm

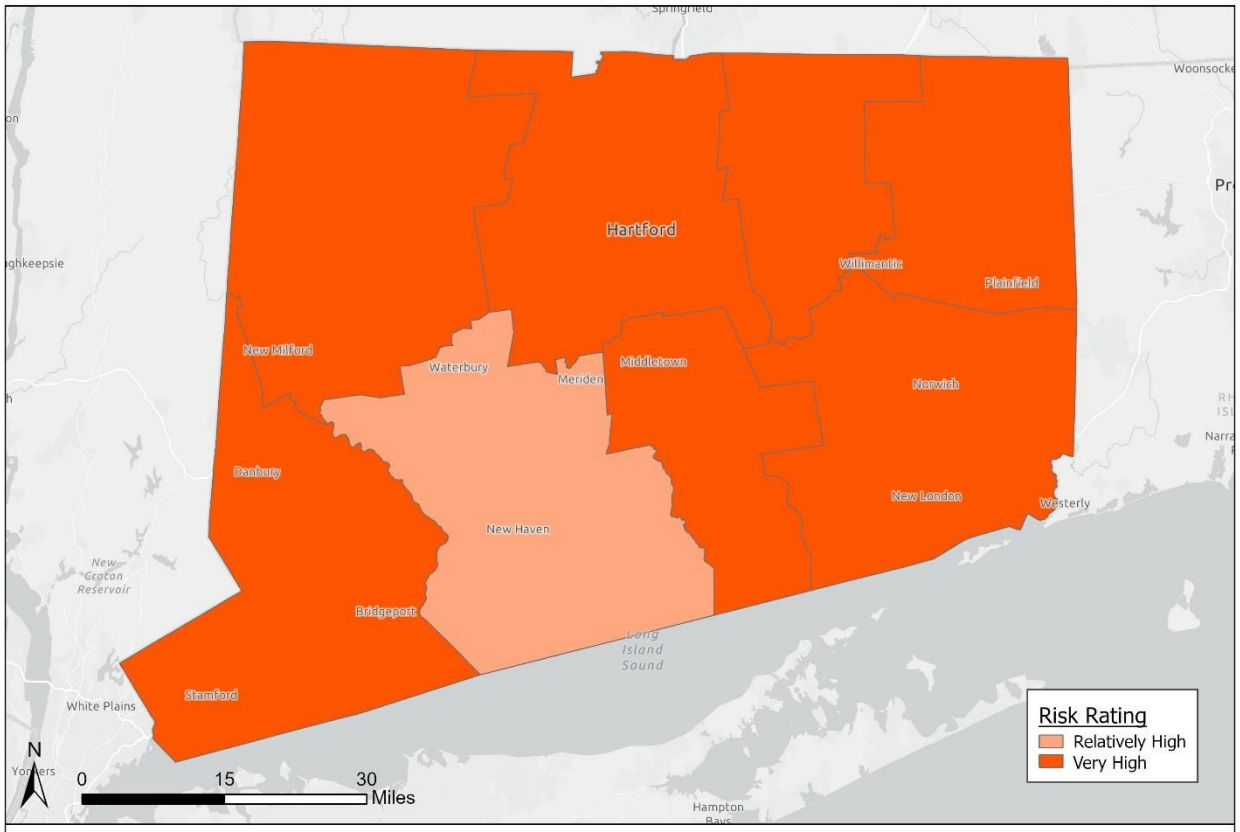
An ice storm is ice accretion meeting or exceeding locally/regionally defined warning criteria, usually over 1/4 inch or 1/2 inch. Due to rising temperatures, increased rain could mean more ice storms.

Climate change will have significant impacts on winter weather patterns and precipitation during the winter months. Connecticut continues to analyze possible scenarios of how climate variations will impact weather patterns.

Ice storms are a hazard to broadband infrastructure and to power grids, and BEAD deployments in relevant areas will need to take into account best practices regarding mitigation.

FEMA defines ice storms as those with ice accumulations of 1/4 inch.[94] As shown in the map below, all counties in Connecticut are at Very High risk of ice storms, with the exception of New Haven, which is at Relatively High risk.

Figure 12: Ice Storm Risk in Connecticut



[94] "Ice Storm," FEMA, https://hazards.fema.gov/nri/ice-storm.

12.2.5 Wildland Fire

A wildland fire, or wildfire, can be defined as any non-structural fire that occurs in the wildland. Wildland fires can be caused by lightning, human carelessness, and arson. According to the U.S. Bureau of Land Management, in order to have any type of fire, wildland or otherwise, three elements must be present: fuel, heat, and oxygen.

Wildfires can increase the probability of other natural disasters, specifically floods and mudflows. Wildfires, particularly large-scale fires, can dramatically alter the terrain and ground conditions, making land already devastated by fire susceptible to floods.

DEEP is tasked with conserving, improving, and protecting the natural resources and environment of the State of Connecticut. Within DEEP, the Forestry Division[95] maintains an active forest fire prevention program and a specially trained force of firefighting personnel to combat fires that burn an average of 500 acres of woodland per year. The Division also has crews that are able to assist the U.S. Forest Service in controlling large fires that take place outside of Connecticut.

The Wildland/Urban Interface (WUI) is the area where houses and wildland vegetation coincide. In addition to being one of the most heavily forested states in the nation, Connecticut also ranks among the most densely populated, and in turn, among the highest in terms of percentage of land in WUI areas.

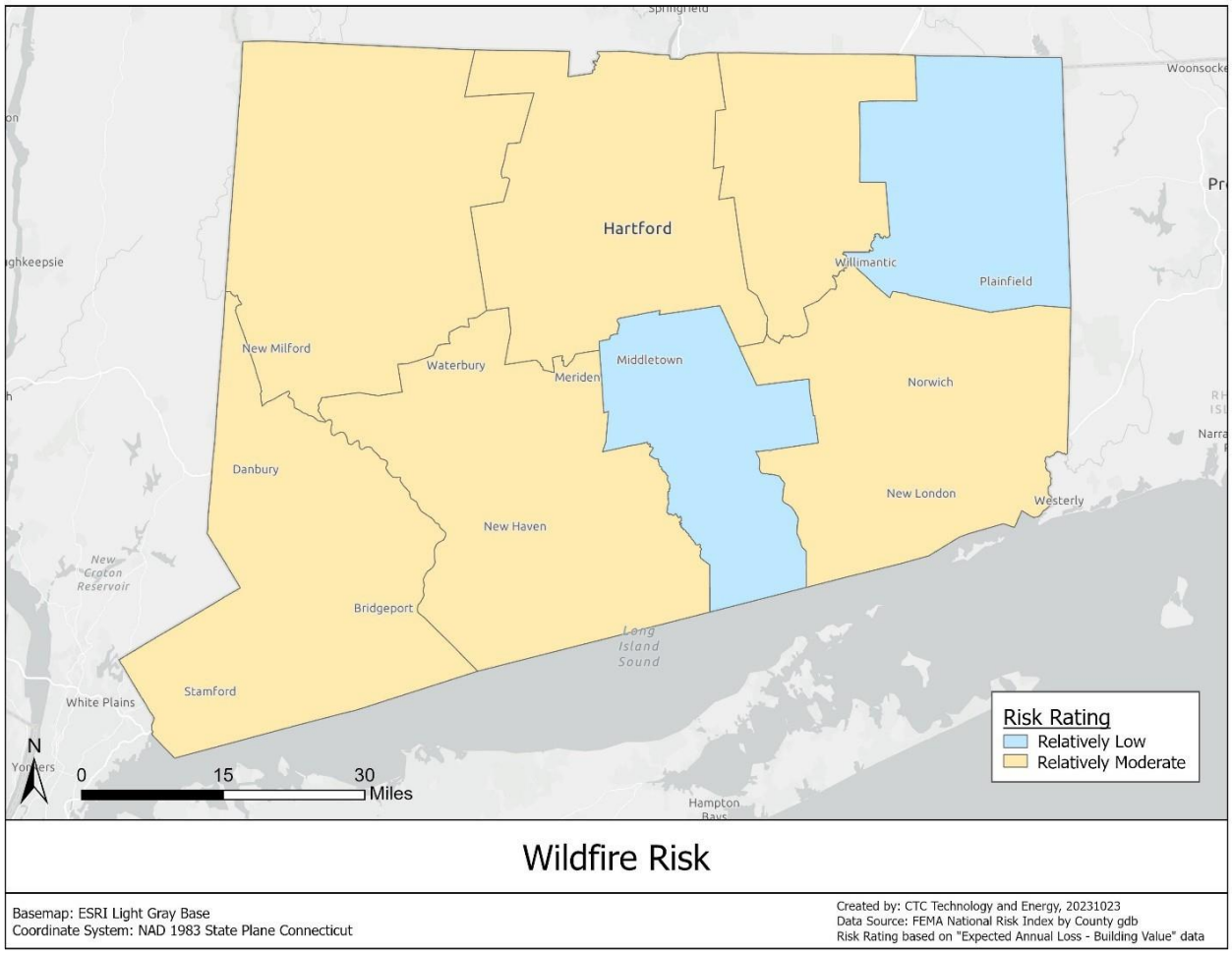
Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out. However, there are tools used to identify the possibility of fire weather in an area. Fire weather watches and red flag warnings are used to convey the possibility of severe fire weather to wildland fire agencies. Because fireworks often cause brush fires, extra diligence is warranted around the Fourth of July holiday when the use of fireworks is highest.

A Red Flag warning is a warning to the firefighting community that extreme burning conditions are expected. Red Flag warnings are issued when winds will be sustained or there will be frequent gusts above a certain threshold (normally 25 mph). In addition, relative humidity must be below 30-percent and precipitation for the previous five days must have been less than 1/4-inch. The DEEP Division of Forestry issues Red Flag warnings.[96]

[95] "CT Forestry Division," DEEP, https://portal.ct.gov/DEEP/Forestry/CT-Forestry-Division.
[96] "Fire Prevention and Control," DEEP Forestry Division, https://portal.ct.gov/DEEP/Forestry/Forest-Fire/Fire-Prevention-and-Control.

As shown in the map below, most counties in Connecticut are at Relatively Moderate risk of wildfire, except that two counties are at Relatively Low risk: Middlesex and Windham.

Figure 13: Wildfire Risk in Connecticut



12.2.6 Earthquake

An earthquake, also known as a seismic event, is a shaking of the ground caused by the sudden movement of large sections (tectonic plates) of the earth's lithosphere. Areas of steep slopes can collapse during an earthquake, creating landslides. Seismic activity can also break utility lines, such as water mains, electric and telephone lines, and storm water management systems. Dam failures also pose a significant threat to developed areas during an earthquake. Structures in these areas are at increased risk from earthquakes due to amplification of seismic energy and/or collapse.

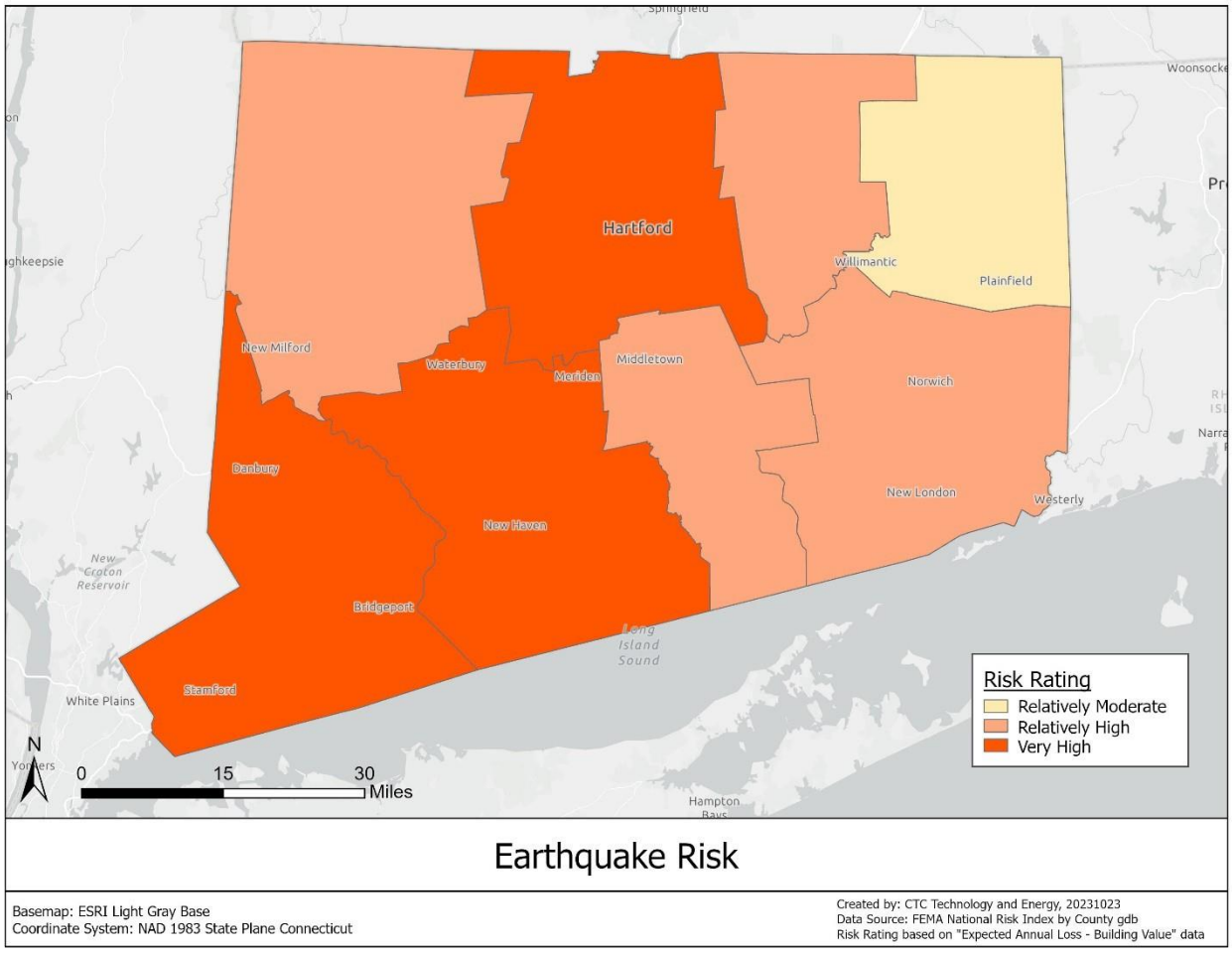
Earthquake events do occur in the state, though of much less intensity than elsewhere in the region or on the west coast. Additionally, earthquake events are more likely to be felt as a result of an earthquake that occurs in the surrounding region rather than originating within Connecticut. Based on historical information, it is reasonable to assume that Connecticut has a medium-low probability of future

earthquake events. Evidence that climate change has an impact on the occurrence or magnitude of earthquakes is currently inconclusive. Earthquakes are low probability, high-consequence events.

Although earthquakes may occur infrequently, they can have devastating impacts.

Earthquakes are high intensity but rare events. As shown in the map below, according to FEMA, Connecticut's most densely populated counties are at Very High risk from earthquakes: Fairfield, Hartford, and New Haven.

Figure 14: Earthquake Risk in Connecticut



12.2.7 Drought

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC).[97] Indicators are used to describe broad scale drought conditions across the U.S. Indicators correspond to the intensity of drought. NMDC regularly updates its map of conditions for Connecticut.[98] As of the writing of this

[97] National Drought Mitigation Center, https://drought.unl.edu/.
[98] "Connecticut," NMDC, https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?CT.

Proposal, drought is not present in Connecticut. However, the drought in 2016 raised awareness that even in Connecticut, river basins can be depleted.

Predicting the future occurrence of a drought within a given time period is difficult. Other factors may also contribute to the degree of droughts and their impacts on Connecticut. These include projections of humidity levels (decrease), hotter temperatures and increased heat wave occurrences, transpiration rates, and increased water demands by the general population as well as industry. There is a general consensus in climate models for a hotter and wetter future. Because Connecticut has so many small reservoir systems, these systems could be very sensitive to such changes.

The Interagency Drought Workgroup updated Connecticut's Drought Preparedness and Response Plan in 2018.[99] The Drought Plan provides guidance to assess and to minimize the impacts of a drought for all water users in Connecticut.

12.2.8 Dam Failure

Although not directly caused by climate, dam failure can be hazardous to broadband infrastructure. A dam is an artificial barrier that has the ability to store water, wastewater, or liquid-borne materials for many reasons (flood control, human water supply, irrigation, livestock water supply, energy generation, containment of mine tailings, recreation, or pollution control. Many dams fulfill a combination of the stated functions.

Connecticut has experienced many dam failures, mainly resulting from significant rainfall events that led to major flooding. They often occur suddenly and without warning. Dam failures may occur during normal operation conditions, referred to as a "sunny day" failure.

DEEP runs Connecticut's Dam Safety Regulatory Program.[100] Dam safety regulations were most recently revised in 2016. Connecticut requires owners of dams of all hazard classes register their dam and provide information to the Commissioner of DEEP. As of the 2019 CT NHMP, 3,088 of a total of 4,800 dams had been registered with DEEP. More than 600 dams in Connecticut are categorized as requiring annual inspection due to height, significance, or hazard.

Dam failure events are infrequent and usually coincide with events that cause them, such as earthquakes, landslides, and excessive rainfall and snowmelt. Dam failure that occurs during a flood or other natural hazard can exacerbate an existing hazardous situation. While considered an unlikely occurrence, the potential for dam failure in Connecticut is a significant concern given the large number of dams across the state and numerous dam failure events in the past. The probability of future dam failure events is not easily measured but correlates with the probability of future major flood events coupled with preventative measures, including the routine inspection, maintenance, repair, and proper operation of dams by their owners, as regulated by DEEP's Dam Safety Section.

[99] "Connecticut Drought Preparedness and Response Plan," Interagency Drought Workgroup, November 6, 2018, https://portal.ct.gov/-/media/Water/Drought/20181106statedroughtplanadopted.pdf.
[100] "Dam Safety Regulatory Program," DEEP, https://portal.ct.gov/DEEP/Water/Dams/Dams-Safety.

12.3 Characterizing Weather and Climate Risks to New Infrastructure Deployed Using BEAD Program Funds

The top natural hazard risks impact broadband infrastructure in the following ways: through power outages, through equipment damage, and through signal degradation.

Table 25: Threats to Infrastructure Posed by Weather and Climate Risks

Risks	Potential Causes
Power Outages	Strong Winds, Hurricanes, Ice Storms, Flooding
Equipment Damage	Lightning, Tornadoes, Ice Storms, Flooding, Hail, Wildfire
Signal Degradation	Flooding, Hail

Strong winds, hurricanes, ice storms, and other hazards can cause power lines to go down or power to be turned off for safety resulting in a break in internet accessibility. Additionally, aerial fiber (and coaxial cable) is frequently overlashed on power lines that run along poles. When falling tree branches or ice accumulation cause power lines to break, the applied force may also damage the over lashed asset. This risk is raised when a technician untrained in internet infrastructure or fiber attempts to fix the downed power lines by cutting through otherwise intact fiber.

Risks such as lightning, tornadoes, and flooding can threaten aerial assets of all kinds. Intense winds and debris can damage fiber and even knock down utility poles. Lightning can strike antenna and satellite equipment that is necessary for fixed wireless communications. In either case, the result is severed connectivity.

In addition, risks such as floods, wildfires, and hail can cause the signal between fixed wireless transmitters and receivers to be absorbed or scattered, weakening their performance.

12.4 Strategies for Avoiding and/or Mitigating Weather and Climate Risks

Initial strategies for mitigating environmental risks can be implemented in internet infrastructure technology selection. Fiber networks are well known to be more resilient than their coaxial cable and fixed wireless counterparts,[101] and therefore will be prioritized in the subgrantee selection scoring process.

Fiber's benefits over fixed wireless connections include the ability to be buried underground. Any antenna hung on a pole or other vertical asset must contend with the physical threats introduced by weather, such as hail, ice, lightning, and winds. Buried fiber (and buried cable) are sufficiently shielded from such physical threats. Additionally, any end-to-end wireless connection risks signal attenuation

[101] PJ Hughes, "Why Fiber Internet is more Reliable in All Weather," Fastnet, June 7, 2023, https://www.4cfastnet.com/why-fiber-internet-is-more-reliable-in-all-weather/.

when passing through precipitation and other airborne materials. Once again, buried fiber sidesteps this risk and provides end-users with the least loss of any internet delivering medium.

Fiber-optic wires have three main advantages over coaxial cable that make it a more resilient technology. First, fiber is able to bend flexibly (up to a point) without introducing signal degradation or service outages. In cases of aerial cables, this makes fiber far less likely than copper to break when faced with ice or fallen branches.

Second, fiber is less vulnerable than coaxial cable to electromagnetic interference, a process through which nearby electromagnetic fields can induce noise into a current-carrying wire. Because fiber is made of glass and "carries" light as opposed to an electrical current, it is far less susceptible to interference.

Third, fiber is a more attractive technology for deployment in coastal areas as it does not corrode at the same rate as coaxial cable.[102] Given the need for coastal construction, any infrastructure deployed will be in relatively close proximity to salt water. Because fiber utilizes glass as opposed to a metal, fiber does not need the same insulation and bears far less risk of corrosion.

When taking into consideration the lifetime of the various available technologies and the quality of their service, fiber is not just a more resilient investment than coaxial cable or fixed wireless, but frequently a more efficient monetary investment.[103] The resiliency of networks will also be prioritized in their larger design.

ISPs generally build their networks using principles of resiliency and reliable networks, which often mitigate risks against natural hazards. For example, ISPs are under competitive pressures to keep their networks working effectively 24 hours a day, 7 days a week.[104] Given the technical capability and experience that DEEP and the BEAD program require of subgrantees, Connecticut expects that BEAD subgrant applicants will be familiar with these practices and incentivized by their profit motive to deploy resilient network technology. Therefore, the state will focus on providing guidance in areas where additional risk mitigation techniques should be considered. The state will encourage subgrantees to adopt climate resiliency and hazard mitigation best practices in their BEAD funded projects in Connecticut.

[102] See "Moisture Effects on Coaxial Cable)," Picwire, https://www.electronics-notes.com/articles/antennas-propagation/rf-feeders-transmission-lines/coaxial-cable-environmental-moisture-sunlight.php.
[103] "Fixed Wireless Technologies and their Suitability for Broadband Deployment," Andrew Afflerbach, Benton Institute for Broadband & Society. https://www.benton.org/sites/default/files/FixedWireless.pdf.
[104] See Chuck Moozakis, "Five-nines availability: What it really means," TechTarget, https://www.techtarget.com/searchnetworking/feature/The-Holy-Grail-of-five-nines-reliability, explaining why corporations need an always-on service-level agreement from their ISP.

12.5 Plans for Periodically Repeating This Process Over the Life of the Program

Every five years, the State of Connecticut updates its Natural Hazard Mitigation Plan to meet FEMA standards.[105] Connecticut is currently updating its Plan for 2023.[106] The outreach strategy for the 2023 Natural Hazard Mitigation Plan (2023 NHMP) included stakeholder engagement, a project website, meetings with the public and with stakeholders, an online survey, review of the draft plan, and meeting recordings.[107] The plan incorporates insights from Local Hazard Mitigation Plans (LHMPs), especially hazard ranking and loss estimates. The state's hazard mitigation strategy is designed to be based on local needs. It incorporates the latest FEMA guidance.[108] The goal is to complete FEMA approval by November 2023.

The Natural Hazard Mitigation Plan is meant to guide the actions that Connecticut will take to reduce risk from disasters over the next five years and beyond. The plan includes an assessment of the natural hazards that can impact the state and a strategy to reduce the impacts and build resilience. Current and future iterations of this plan will be integrated into the BEAD Program to ensure that evolving risks are understood, characterized, and addressed, and that the most up-to-date tools and information resources are utilized.

The 2023 update will also take a much closer look at how future conditions, including climate, population, and development, will impact the hazards and how equity can be further elevated and integrated into the strategy. In line with Governor Lamont's Executive Order 21-3, the updates will utilize climate change data to support the implementation of mitigation actions across state agencies. Connecticut Institute for Resilience and Climate Adaptation (CIRCA)[109] data will be used to explore the impacts of climate change on the natural hazards affecting the state. These additional focus areas will ensure that Connecticut responsibly and equitably plans actions and projects that will effectively mitigate risk from natural hazards for many years to come.

12.6 Relevant Reports Conducted within the Past Five Years

The following relevant reports were conducted within the past five years and have been considered in the development of the narrative above:

[105] "Hazard Mitigation Planning," FEMA, https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning.
[106] "Connecticut Natural Hazard Mitigation Plan 2023 Update," Connecticut Division of Emergency Management and Homeland Security, https://portal.ct.gov/DEMHS/Emergency-Management/Resources-For-Officials/Hazard-Mitigation/2023-State-Natural-Hazard-Mitigation-Plan-Update
[107] "Connecticut Natural Hazard Mitigation Plan 2023 Update Kick-Off Meeting," DEHMS, March 28, 2023, https://portal.ct.gov/-/media/DEMHS/_docs/Program-and-Unit-Forms---Advisories/Grants/HMGP/2023-HMA/CT-HMP-2023---HMPT-Kick-Off---Presentation.pdf.
[108] "Create a Hazard Mitigation Plan," FEMA, https://HYPERLINK "http://www.fema.gov/emergency-managers/risk-" \hwww.fema.gov/emergency-managers/risk- management/hazard-mitigation-planning/create-hazard-plan. See also, "State Mitigation Planning Policy Guide," FEMA, released April 19, 2022, effective April 19, 2023, https://www.fema.gov/sites/default/files/documents/fema_state-mitigation-planning-policy-guide_042022.pdf.
[109] "Connecticut Institute for Resilience & Climate Adaptation," CIRCA – UCONN, https://circa.uconn.edu/.

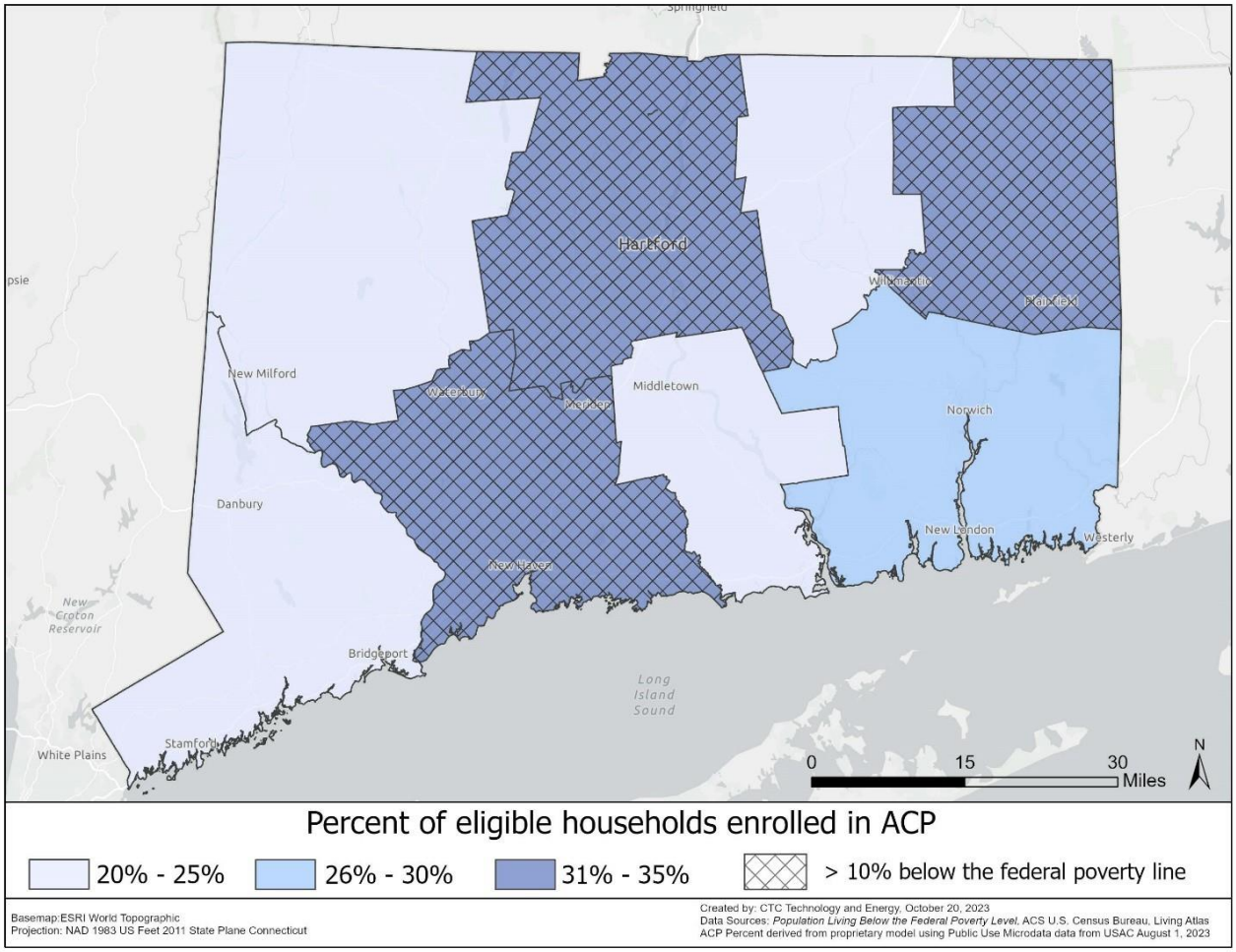
- Governor's Council on Climate Change (GC3) Infrastructure and Land Use Adaptation Working Group Recommendations Report from November 2020[110]
- January 2021 GC3 report, 'Taking Action on Climate Change and Building a More Resilient Connecticut for All'[111]

[110] "Governor's Council on Climate Change (GC3) Infrastructure and Land Use Adaptation Working Group Recommendations Report," GC3, November 2020, https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3_Infrastructure_LandUse_FinalReport_111320.pdf.
[111] "Taking Action on Climate Change and Building a More Resilient Connecticut for All," GC3, January 2021, https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3_Phase1_Report_Jan2021.pdf.

13. Low-Cost Broadband Service Option (Requirement 16)

This section describes DEEP's approach to improving the availability of affordable broadband service options. Subgrantees are required to offer a Low-Cost Broadband Service Option. Consumers eligible for the FCC's ACP benefit will be eligible for the BEAD Low-Cost Service Option and must be permitted to apply the ACP benefit to help pay for the service. (See the map below for an overview of ACP eligibility across the state.)

Figure 15: Percentage of ACP-Eligible Households Enrolled in Connecticut



13.1 Low-Cost Broadband Service Options That Must be Offered and Why the Options Best Serve the Needs of Connecticut Residents

Affordable broadband service, while not the primary barrier to internet adoption in Connecticut, nevertheless presents a meaningful challenge to connectivity for many Connecticut residents. In the state, low-income individuals are 22 percentage points less likely than higher-income individuals to have

a home internet subscription of any kind[112]—highlighting the connection between affordability and internet adoption.

The American Community Survey reports that 92 percent of Connecticut households have a home internet subscription of any kind which—while outperforming the national rate by 1 percentage point[113]—still indicates that a sizable number of Connecticut households are disconnected from the internet at home. Accordingly, among Connecticut households that do not subscribe to internet service of any kind, an estimated 18 percent report that a primary reason they do not pay for an internet service at home is an inability to afford service.[114]

Perhaps the most widely recognized intervention to lower the cost of internet service is the FCC's Affordable Connectivity Program (ACP), which subsidizes up to $30 per month (or $75 for Tribal applicants) for broadband for qualifying households and may include a one-time subsidy toward buying a laptop or tablet. Nevertheless, despite the benefit of the subsidy, the ACP is known to be greatly underutilized nationwide. In Connecticut, 172,554 residents were enrolled in ACP as of October 16, 2023, representing approximately 29 percent of the 584,357 households in the state estimated to be eligible for the program.[115]

DEEP plans to work with the Commission for Educational Technology, in partnership with trusted community organizations, to raise awareness about government programs like the ACP among potentially eligible households. The Town of East Hartford and the City of New Haven also received FCC ACP outreach grants to raise awareness about the program, conduct direct notification, and provide enrollment assistance.[116]

Additionally, nine providers operating in Connecticut offer home internet plans at no cost to eligible subscribers who enroll in the ACP,[117] such as Spectrum[118] and Cox Communications.[119]

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[112] U.S. Census Bureau, American Community Survey Public Use Microdata, 2022, 1-year estimate (accessed October 24, 2023).
[113] U.S. Census Bureau, American Community Survey, 2022, 1-year estimate (accessed October 24, 2023).
[114] U.S. Census Bureau, Current Population Survey Public Use Microdata, November 2021 (accessed August 29, 2023).
[115] "ACP Enrollment and Claims Tracker," USAC, https://www.usac.org/about/affordable-connectivity- program/acp-enrollment-and-claims-tracker/ (accessed October 23, 2023); 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 percent 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. See, https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/.
[116] "Consumer and Governmental Affairs Bureau Announces ACP Outreach Grant Program Target Funding," FCC public notice, released March 10, 2023, https://docs.fcc.gov/public/attachments/DA-23-194A1.pdf.
[117] Data from USAC and reported by ISPs; available at https://cnm.universalservice.org/ (accessed October 20, 2023).
[118] "Low-Income Internet Service," Spectrum, https://www.spectrum.com/internet/spectrum-internet-assist.
[119] "Get Low-Cost Internet Options as Low as Free," Cox Communications, https://www.cox.com/residential/internet/low-cost-internet-plans.html.

Connecticut residents can also apply for Lifeline—a federal program which subsidizes up to $9.25 of eligible consumers' monthly phone or internet service bill (and up to $34.25 for residents on Tribal lands).

The State of Connecticut is committed to providing residents with the opportunity to receive low-cost broadband service, while simultaneously recognizing that ISPs have a variety of different plans and may be unable to alter their pricing structure on a large scale. Based on previous experiences, it is highly unlikely that ISPs would implement different pricing structures for BEAD-funded areas only, while maintaining other pricing in areas that are not BEAD-funded. That said, the $30 monthly ACP subsidy figure aligns with many current ISP low-cost offerings (in Connecticut and nationwide) and represents a sensible benchmark cost for a low-cost service option to be offered by subgrantees.

DEEP's intention is to aid as many Connecticut residents as possible while ensuring that the scale of the low-cost obligation—and its resulting impact on the business case for ISP proposals to build to unserved Connecticut locations—does not discourage competitive applications.

As required in the BEAD Notice of Funding Opportunity, subgrantees receiving BEAD funds to deploy broadband infrastructure are required to offer a low-cost broadband service option that is available to customers

The applicant offers a service option that meets, at a minimum, the following criteria:

- Will be available to all households that meet the eligibility requirements of the federal Affordable Connectivity Program.
- Costs $30 per month or less, exclusive of directly government-imposed taxes and fees,[120] but inclusive of all other charges billed to the customer, with application of an annual inflation factor based on the Consumer Price Index for the State of Connecticut.
- Available to households with income equal to or below 200 percent of the federal poverty line.
- Allows the end user to apply the Affordable Connectivity Program and Lifeline program benefit subsidies to the service price and makes a demonstrable effort to inform prospective customers of these programs and the steps necessary to enroll and apply the benefit to the service plan.
- Meets performance requirements as established by the BEAD program by consistently and reliably providing download speeds of at least 100 Mbps and typical upload speeds of at least 20 Mbps.
- Provides typical latency measurements of no more than 100 milliseconds.

[120] As these taxes and fees result from government action, they are not able to be subject to a cap, formula, or prediction for their total value. These taxes and fees will not be determined by the service provider. This change to the low-cost service option model is adopted as these externally determined taxes and fees may change and impact the cost calculations, making the future implications of a tax-and-fee-inclusive rate on a service option's financial sustainability difficult to predict. As of 2024, charges for internet access services are not taxable in Connecticut.

- Is not subject to data caps, surcharges, or usage-based throttling, and is subject only to the same acceptable use policies to which subscribers to all other broadband internet access service plans offered to home subscribers by the participating subgrantee must adhere.
- In the event the applicant later offers a low-cost plan with higher speeds downstream and/or upstream, permits Eligible Subscribers that are subscribed to a low-cost broadband service option to upgrade to the new low-cost offering at little to no cost.

The true cost of the plan will be $30, with an additional marginal cost that will come from mandatory government-imposed taxes and fees not determined by the service provider. The future of the ACP is uncertain as of the time of the writing of this Proposal, and as such the final cost to end users is also uncertain. If the ACP and the Lifeline subsidy are applied to the low-cost service option, there is likely to be no cost for eligible subscribers. If the ACP expires and there is a successor program, the end-user cost will depend on the nature of the successor program. If the ACP expires and there is no successor program, the Lifeline subsidy can be applied, resulting in no cost to residents on Tribal lands and a cost of $20.75, with an additional marginal cost that comes from mandatory government-imposed taxes and fees not determined by the service provider.

This low-cost broadband service option best serves the needs of residents within Connecticut because it creates a foundation of affordability for service from BEAD-funded projects while also encouraging participation, predictability, and flexibility for service providers (important outcomes for the BEAD Program, as they encourage greater competition in the subgrantee selection process, wider deployment coverage, and more efficient use of BEAD funds).

The applicant is required to participate in the Affordable Connectivity Program, and encouraged to ensure that prospective customers are aware of their participation in the ACP. The applicant is encouraged to participate in any successor broadband subsidy programs should funding for the Affordable Connectivity Program be depleted and the Program not renewed.

The low-cost broadband service option must be made available to those who qualify for the FCC's Affordable Connectivity Program.[121] Subgrantees may not impose additional eligibility restrictions beyond those applicable to the Affordable Connectivity Program.

DEEP strongly encourages the low-cost broadband service option be made available to all eligible prospective customers across the subgrantee's service territory; however, this service option must at least be available to locations within the awarded project areas under the BEAD program.

While the State of Connecticut is deeply committed to affordability, it also wishes to encourage participation in the BEAD Program, as well as ensure long-term financial viability of BEAD-funded projects and the BEAD Program's efficiency. To promote efficiency and viability, DEEP wishes to provide additional flexibility to the low-cost service option.

[121] Eligibility criteria for the Affordable Connectivity Program are located at https://www.affordableconnectivity.gov/do-iqualify/.

As a result, DEEP is willing to consider a modification to the low-cost service option from the $30 target rate with the following requirements:

- The offered rate must not exceed $50
- Modifications to offered rates to a level between $30 and $50 (the not to exceed [NTE] level) may be granted based on the following evidence supporting the applicant's proposed rate:
    - Per-subscriber costs in an area indicating that DEEP's target rate ($30 or less) would be financially unsustainable; and/or
    - The impact on average revenue per user (ARPU) and total project revenue of the target rate ($30 or less) would be financially unsustainable given actual or projected subscriber adoption and subscription patterns.
- If a modification request is granted, the new modified level shall remain for the lifetime of the asset (as defined by NTIA).

Applicants may seek a waiver from DEEP to increase the maximum cost of the service plan to $50, holding all other above-listed requirements of the low-cost service option constant. The waiver must clearly demonstrate that offering a $30 low-cost service option is cost-prohibitive or not reasonably possible. DEEP will evaluate waivers on a case-by-case basis and reserves the right to decline an applicant's waiver should it not clearly demonstrate the need for an increase in the service cost from $30 to $50. DEEP will not dictate a particular cost or take rate model for such projections and will allow applicants to provide their own models. DEEP will evaluate any such waiver request to ensure the methodology and assumptions are sound.

13.2 Certification

- ✓ DEEP certifies that all subgrantees will be required to participate in the Affordable Connectivity Program or any successor program.

14. Middle-Class Affordability Plans (Requirement 20)

This section details DEEP's plan to ensure that middle-class households in the service area of a BEAD-funded network have access to high-quality broadband services at reasonable prices.

The Initial Proposal Guidance (p. 82) states that the purpose of the Middle-Class Affordability Plan is to ensure that DEEP will adopt diverse strategies to meet the BEAD Program's goal of ensuring every resident (including middle-class residents) has access to a reliable, affordable, high-speed broadband connection. The key difference between this and the Low-Cost Broadband Service Option is that the middle-class plan is not a mandated ISP service offering with defining eligible criteria; it is a strategy designed and implemented by DEEP.

DEEP will continually assess the affordability of available service options across Connecticut and work with providers to offer a range of choices that make broadband accessible to residents regardless of their income, particularly mid- to lower-income subscribers.

Based on digital equity research and data compiled by the International Telecommunication Union, an affordable broadband service is typically considered one that costs no more than 2 percent of a household's disposable income.[122] It is important to note that while the 2 percent benchmark is a useful guideline, measuring affordability is not solely a matter of a simple percentage. Other factors, such as service availability and quality, as well as variations in household income and personal financial situations must also be considered to comprehensively evaluate the true affordability of broadband services. In 2016, the FCC adopted this 2 percent benchmark but acknowledged that it serves "as a clear yardstick for charting changes, not as an inherently meaningful level."[123]

Therefore, DEEP will consider how to apply these findings in a manner which reflects the unique social and economic characteristics of Connecticut households.

Middle-income households, considered those with an income that is two-thirds to twice the U.S. median household income as defined by the Pew Research Center, make between $46,014 and $138,042 according to 2022 U.S. Census Data.[124] Applying the same definition to Connecticut households, middle-income households would be considered those with an income of $55,714.67 to $167,144.[125]

Given that household income is a critical aspect of assessing financial capability but does not provide a complete picture of a family's ability to afford broadband services, DEEP will work to develop a definition

[122] "The affordability of ICT services 2022," International Telecommunication Union policy brief, April 2023, https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2022/ITU_Price_Brief_2022.pdf, p. 2.
[123] Third Report and Order, Further Report and Order, and Order on Reconsideration in the matter of WC Docket No. 11-42, WC Docket No. 09-197, and WC Docket No. 10-90, FCC, released April 27, 2016, https://docs.fcc.gov/public/attachments/FCC-16-38A1.pdf.
[124] Jesse Bennett, Richard Fry, and Rakesh Kochhar, "Are you in the American middle class? Find out with our income calculator," Pew Research Center, July 23, 2020, https://www.pewresearch.org/short-reads/2020/07/23/are-you-in-the-american-middle-class/.
[125] "QuickFacts: Connecticut," U.S. Census Bureau, https://www.census.gov/quickfacts/fact/table/CT,US/PST045222 (accessed October 23, 2023).

that considers a broader spectrum of these factors, ensuring a more comprehensive and accurate evaluation of affordability.

DEEP will encourage providers to offer price points that accommodate subscribers' ability and desire to pay for reliable, high-speed service through a range of solutions, including but not limited to establishing, making publicly available to consumers, and monitoring benchmarks for affordability; providing subsidies for broadband service; encouraging providers to extend low-cost service options to all subscribers; weighting affordability criteria in the scoring of its BEAD grant program; and promoting structural competition through regulations.

To support increased adoption of broadband, the state must ensure residents have access to reliable service. To that end, DEEP seeks to effectively address affordability for middle-class subscribers without restricting providers' participation in BEAD—which could lead to higher-cost awards and fewer residents that are served Priority Broadband (i.e., fiber).

Accordingly, DEEP plans to manage middle-class affordability within the context of the BEAD program by addressing the following areas of risk:

- **Small, Local Providers Propose Low Requested BEAD Support but Set High Subscription Costs:** DEEP will encourage ISPs participating in the state BEAD grant program to offer areas they serve with grant funding their best price for analogous products they offer in other areas, in alignment with the gigabit best offered pricing requirement in the BEAD program rules. (ISPs should include current pricing through the prequalification process, and a rigorous financial proficiency test will be built into the letter of credit and prequalification process.)
- **Providers Shift Drop and Installation Costs to the Consumer to Recover Capital Costs:** Grant participation rules will make clear that drops and network equipment are eligible BEAD costs and should be built into grant proposals to avoid inflated subscriber prices. DEEP expects this risk to be somewhat mitigated by expanding competition in rural areas from 5G home internet and LEO satellite options.
- **Providers Refuse to Provide Service to Expensive Locations:** DEEP will monitor and ensure that awardees make good on their BEAD service commitments, including not assessing additional fees beyond standard installation fees.
- **Differential Pricing Between Urban and New Project Areas:** The gigabit best pricing policy mandated in the BEAD program scoring matrix sets requirements around geographic non-discrimination.

The State of Connecticut is committed to establishing policies that would ultimately lead to more widespread affordability among middle-income residents. This holistic commitment to expanding the adoption of broadband throughout Connecticut necessitates the accommodation and partnership of subgrantees. In doing so, the state increases the likelihood of ISP participation and, in effect, will provide middle-income Connecticut residents a genuine opportunity to be fully engaged in the digital world.

15. Use of 20 Percent of Funding (Requirement 17)

The purpose of this section is to identify whether DEEP intends to access Initial Proposal funding and describe how DEEP intends to use the funding allocation that is made available upon approval of the Initial Proposal, contingent on specific guidelines outlined in the BEAD NOFO.

15.1 Planned Use of Funds Requested

DEEP requests 100 percent of the remaining funds from its BEAD allocation of $144,180,792.71, with access to at least 5 percent of the funding to cover administrative and programmatic expenses, as well as compliance expenses related to NTIA oversight, immediately (i.e., at least 5 percent available upon approval of this Initial Proposal and before approval of the Final Proposal). DEEP, working closely with its partners from local governments, industry and community organizations, and other stakeholders, will use the funding to begin closing the digital divide as quickly as possible upon approval, as required, from NTIA. With 100 percent of the funding obligated, these partners will have the assurance they need to invest appropriate time and resources to participate fully in the state's grant processes. These assurances will allow the state and its partners to move to broadband deployment more efficiently.

NTIA provides that the state may budget its BEAD allocation in four expense categories: Deployment, Non-Deployment, Administrative, and Programmatic. Accordingly, DEEP requests 100 percent of its remaining BEAD allocation as follows for its initial BEAD deployment budget:

Table 26: BEAD Funding Allocation

Category	Details	Percent
Deployment Costs	Subgrantee deployment costs (e.g., purchase of inventory including electronics and customer premises equipment, construction) and planning (e.g., environmental permitting, rights-of-way analysis, network design)	95%
Non-Deployment Costs	If DEEP has funds remaining after subgrantee selection, it may use those funds to support digital equity initiatives including activities identified in Requirement 9 and in the state's forthcoming digital equity goals.	0%**
Administrative Costs subject to 2 percent cap	Staffing, travel, audits, responding to NTIA compliance requests, developing policies and procedures, training staff	2%

Category	Details	Percent
Other Programmatic Costs	BEAD planning, monitoring and oversight of subgrantees, challenge process, IT systems to run challenge and grant applications, subgrantee selection process development and management	3%

*Per the BEAD NOFO (p.46), DEEP may use the funds made available to fully fund deployment projects that:

1. Consist of at least 80 percent unserved locations; and
2. Are in a location in which the percentage of individuals with a household income at or below 150 percent of the poverty line applicable to a family of the size involved (as determined under Section 673(2) of the Community Services Block Grant Act (42 U.S.C. § 9902(2)) that is higher than the national percentage of such individuals.

*Given that Connecticut anticipates using its full BEAD allocation to cover broadband deployment expenses to reach all unserved, underserved and if possible, community anchor institution locations, it will not initially request funds for non-deployment activities. However, if after the state has remaining funds after running a competitive grant process, it will amend its budget as part of its final proposal.

15.2 Amount of Initial Proposal Funding Request

DEEP requests 100 percent of the funds remaining from Connecticut's BEAD allocation of

$144,180,792.71, which is $139,180,972.71.

15.3 Certification

- ✓ DEEP certifies that it will adhere to BEAD Program requirements regarding Initial Proposal funds usage.

16. DEEP's Regulatory Approach (Requirement 18)

DEEP does not restrict public sector providers from providing broadband services and will not limit such providers' participation in the subgrant process or impose specific requirements and limitations on public sector entities. Therefore, a waiver of state law is not applicable.

17. Certification of Compliance with BEAD Requirements (Requirement 19)

17.1 Certification of Compliance

- ✓ DEEP certifies it will comply with all applicable requirements of the BEAD Program, including the reporting requirements.

DEEP will work with subgrantees to ensure they understand and fulfill the requirements of statute,

2 CFR Part 200, and the BEAD NOFO. DEEP seeks to ensure that subgrantees can also avail themselves of any exceptions or adjustments under 2 CFR Part 200 that NTIA applies to the BEAD program. If any modifications to this Initial Proposal are required to achieve this goal, DEEP requests the chance to make those revisions.

17.2.1 Subgrantee Accountability Procedures

a. BEAD subgrants will be issued on a reimbursable basis. Disbursement of grant funds will require submission of proof of expenditures on eligible costs for review prior to reimbursement.

b. DEEP will work with state legal counsel to incorporate clawback provisions into its grant awards. If a subgrantee fails to fulfill its obligations as outlined in the grant agreement, which includes commitments made in the application, DEEP has the authority to take several actions. This includes rejecting reimbursement requests, demanding the partial or complete return of BEAD funds, or imposing financial penalties for instances of fraud, misconduct, or non-performance.
    - The state will utilize state mechanisms to report waste, fraud, and abuse.[126] The state will also utilize federal reporting mechanisms such as the U.S. Department of Commerce's Inspector General hotline.[127]

c. DEEP will require that subgrantees submit timely reports in order to identify and manage risks and ensure that both the state and subgrantees adhere to state and federal statutory and BEAD program requirements. These reports will include, but not be limited to the following elements:
    - Regular meetings with DEEP staff and/or authorized representatives to discuss project progress
    - Periodic reports on project progress and financial performance
    - Intermittent informational requests from DEEP regarding the project

[126] See, "Report Fraud," Connecticut, https://portal.ct.gov/FightFraud/Content-Pages/Report-Fraud.
[127] "Report Fraud, Waste, Abuse, & Whistleblower Reprisal," Office of the Inspector General, U.S. Department of Commerce, https://www.oig.doc.gov/Pages/Hotline.aspx.

- Occasional on-site inspections to evaluate project compliance and performance

d. Awardees of grant funds must comply with post-award monitoring and reporting requirements to maintain continued eligibility for disbursement of grant funds. Awardees are responsible for active technical, financial, and project management of awarded projects by contracting with well-qualified professional engineers and managers. Awardees must retain professional management expertise for the project design and construction phases and for ongoing oversight of operations. As stated above, disbursement of grant funds will require submission of proof of expenditures on eligible costs for review prior to reimbursement. Awardees must cooperate with field audits performed by Program contractors to verify completeness and quality and must submit as-built network documentation by a licensed professional engineer prior to final closeout of the grant. Any differences between the network design in the approved final application and the as-built documentation shall be noted and accompanied by the reasons for the differences and any impacts resulting from these differences.

DEEP will set and adjust monitoring levels for its projects according to the results of ongoing monitoring activities.

17.3 Certification of Nondiscrimination and Civil Rights

- ✓ DEEP certifies that it will account for and satisfy authorities relating to civil rights and nondiscrimination in the selection of subgrantees including:
    - Parts II and III of Executive Order 11246, Equal Employment Opportunity[128]
    - Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency[129]
    - Executive Order 13798, Promoting Free Speech and Religious Liberty[130]
- ✓ Additionally, DEEP certifies that, prior to distributing any BEAD funding to a subgrantee, it will require the subgrantee to agree, by a commitment to be determined, to abide by the following non- discrimination requirements, to the extent applicable, and to acknowledge that failure to do so may result in cancellation of any award and/or recoupment of funds already disbursed:
    - Title VI of the Civil Rights Act[131]

[128] "Executive Order 11246, As Amended," U.S. Department of Labor, https://www.dol.gov/agencies/ofccp/executive-order-11246/as-amended.
[129] "Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency," Federal Register, August 16, 2000, https://www.govinfo.gov/content/pkg/FR-2000-08-16/pdf/00-20938.pdf.
[130] "Executive Order 13798, Promoting Free Speech and Religious Liberty," Federal Register, May 9, 2017, https://www.govinfo.gov/content/pkg/FR-2017-05-09/pdf/2017-09574.pdf.
[131] "Title VI, Civil Rights Act of 1964," U.S. Department of Labor, https://www.dol.gov/agencies/oasam/regulatory/statutes/title-vi-civil-rights-act-of-1964.

- Title IX of the Education Amendments of 1972[132]
- The Americans with Disabilities Act of 1990[133]
- Section 504 of the Rehabilitation Act of 1973[134]
- The Age Discrimination Act of 1975[135]
- Any other applicable non-discrimination law(s) including Conn. Gen. Stat. §§ 4-60 and 4-60a.

17.4 Certification of Cybersecurity and Supply Chain Risk Management

DEEP will certify subgrantee compliance with the cybersecurity and supply chain risk management requirements on pages 70 - 71 of the BEAD NOFO to require prospective subgrantees to attest that:

✓ Cybersecurity

1) The prospective subgrantee has a cybersecurity risk management plan (the plan) in place that is either: (a) operational, if the prospective subgrantee is providing service prior to the award of the grant; or (b) ready to be operationalized upon providing service, if the prospective subgrantee is not yet providing service prior to the grant award;
2) The plan reflects the latest version of the National Institute of Standards and Technology (NIST) Framework for Improving Critical Infrastructure Cybersecurity (currently Version 1.1) and the standards and controls set forth in Executive Order 14028 and specifies the security and privacy controls being implemented;
3) The plan will be reevaluated and updated on a periodic basis and as events warrant; and
4) The plan will be submitted to the Eligible Entity prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, a new version will be submitted to the Eligible Entity within 30 days.

✓ Supply Chain Risk Management (SCRM)

1) The prospective subgrantee has a SCRM plan in place that is either: (a) operational, if the prospective subgrantee is already providing service at the time of the grant; or (b) ready to be operationalized, if the prospective subgrantee is not yet providing service at the time of grant

[132] "Title IX, Education Amendments of 1972," U.S. Department of Labor, https://www.dol.gov/agencies/oasam/centers-offices/civil-rights-center/statutes/title-ix.
[133] "The Americans with Disabilities Act of 1990, as amended," ADA Archive, https://archive.ada.gov/pubs/adastatute08.pdf.
[134] "Section 504, Rehabilitation Act of 1973," U.S. Department of Labor, https://www.dol.gov/agencies/oasam/centers-offices/civil-rights-center/statutes/section-504-rehabilitation-act- of-1973.
[135] "Age Discrimination Act of 1975," U.S. Department of Labor, https://www.dol.gov/agencies/oasam/regulatory/statutes/age-discrimination-act.

award;

2) The plan is based upon the key practices discussed in the NIST publication NISTIR 8276, Key Practices in Cyber Supply Chain Risk Management: Observations from Industry and related SCRM guidance from NIST, including NIST 800-161, Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations and specifies the supply chain risk management controls being implemented;

3) The plan will be reevaluated and updated on a periodic basis and as events warrant; and

4) The plan will be submitted to the Eligible Entity prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, a new version will be submitted to the Eligible Entity within 30 days. The Eligible Entity must provide a subgrantee's plan to NTIA upon NTIA's request.

18. Public comment process and results

This section describes the public comment period conducted for the Initial Proposal Volume 2 and provides a high-level summary of the comments received as well as how they were addressed by DEEP.

DEEP made Volume 2 available for public comment for a period of 34 days ending on December 12, 202,3 to gather feedback from stakeholders and promote transparency in the development of the Proposal. DEEP conducted a separate comment period for the Initial Proposal Volume 1, which is described in that volume, following the same process. A draft of Volume 2 was posted publicly on DEEP's website with a description of its role in the BEAD program and an invitation to submit comments on the content by emailing or mailing comments to DEEP. This inbox was monitored by DEEP for the duration of the comment period.

To encourage broad awareness, participation, and feedback during the public comment period, DEEP conducted outreach and engagement activities to solicit participation by a diverse range of stakeholders, with a particular focus on local community organizations, unions and worker organizations, and other underrepresented groups. These included social media posts, in-person and virtual events, and an email campaign to the established stakeholder list.

DEEP received comments from a wide variety of stakeholders, including individual residents, unions and labor organizations, trade associations, nonprofits and foundations, service providers, academics and other researchers, and community organizations.

At a high level, these comments addressed a myriad of themes, including, but not limited to, the strengthening of labor requirements, the easing of the project area process to allow more flexibility, the ideal type of technology for BEAD-funded programs, ways to promote equitable deployment, suggestions for making the low-cost service option more flexible and general for service providers, alternatives to the letter of credit requirement, feedback on individual scoring criteria and point allocations, and feedback on DEEP's choices of potential non-deployment activities. Accordingly, the following paragraphs address prevalent themes observed by DEEP during its comment review process.

Numerous industry stakeholders urged DEEP to change its town-level project area designations in favor of allowing applicants to determine their own project areas. Based on the NTIA and State's strong preference for defined project areas in order to avoid 'cherry-picking' and ensure every unserved and underserved location receives service, DEEP has chosen to move forward with its initial plan for defined project areas at the town level.

Likewise, many stakeholders requested that DEEP use both wireless and fiber technologies to maximize coverage of unserved and underserved locations—comments often accompanied by the recommendation for a lower EHCPLT. The State will likely have to consider using wireless technology; however, given both the State preference for and NTIA's requirements regarding fiber technology, DEEP will use criteria and processes that generally give preference to fiber in its subgrantee selection process, as indicated in its Initial Proposal, to best meet current and future demand.

Additionally, some industry stakeholders urged DEEP to adjust the letter of credit requirement. These comments suggested a wide range of modifications, such as the adoption of the NTIA waiver or seeking alternatives to the letter of credit akin to Virginia or Ohio. As a result of these requests, DEEP has adopted NTIA's letter of credit waiver and has included an alternative in the form of a performance bond.

Industry stakeholders recommended against setting a specific price for the low-cost service option, and instead requested a more flexible and general definition, such as accepting participation in the ACP as sufficient to satisfy the requirement for a low-cost service option or using the FCC's reasonable comparability benchmark. Given the importance of affordability to the NTIA and the State, DEEP will maintain its current specific price for the low-cost service and its other requirements for the low-cost service option, as it provides a concrete assurance that Connecticut's underserved populations will be able to benefit from BEAD-funded broadband.

Several workforce and labor stakeholders and one service provider requested stronger workforce and labor requirements, including mandating certain labor and workforce practice and increasing the number of points for Fair Labor Practices. DEEP values the input of labor organizations and has increased the current balance of points and workforce and labor requirements in the Initial Proposal, as it balances NTIA's priorities of a competitive accessible application process and ensuring quality jobs and broadband projects. DEEP made additional adjustments the Proposal in response to labor stakeholder feedback, including revisions in the binding legal commitments section regarding prevailing wage and the allowance for the creation of worker-led health and safety committees that management will meet with on reasonable request.

DEEP carefully considered the feedback it received from a variety of stakeholders to inform this Proposal. The comments received, as well as the State's responses to those comments, are documented in the Local Coordination Tracker Tool, which is attached as Appendix A.

DEEP will continue to take this input into account as it implements the Challenge Process and develops the Final Proposal, and will conduct ongoing communications to inform and engage the public through this process.

Appendix A: Local Coordination Tracker

This tracker follows NTIA's template (https://broadbandusa.ntia.doc.gov/assistance/local-coordination). See Section 4 for more details.

Appendix B: Sample Dear Tribal Leader Letter

The following language was sent in an initial Dear Tribal Leader Letter to the designated Tribal contacts on May 24, 2023:

***

As the State of Connecticut prepares to distribute federal funds to increase internet connectivity and advance digital equity, collaboration with all Nations and communities is integral to gathering the perspective and experience needed to build a comprehensive plan. To that end, the State of Connecticut invites you to an upcoming consultation to discuss the availability, reliability, and affordability of high-speed internet at a mutually agreeable date and time.

The consultation will include representatives from two state agencies implementing broadband programs under the Bipartisan Infrastructure Law, specifically the Department of Energy and Environmental Protection (DEEP) and Department of Administrative Services' (DAS) Connecticut Commission for Educational Technology. The Bipartisan Infrastructure Law allocated $42.45 billion to create the Broadband Equity, Access, and Deployment (BEAD) Program, as well as the Digital Equity Act of 2021, which provides $2.75 billion to further advance federal goals relating to digital equity and digital inclusion.

DEEP/DAS respectfully propose the consultation occur in person at an accessible location convenient to the Mohegan Tribe but will facilitate a remote and/or hybrid consultation if that is preferable.

This discussion will provide opportunities for leaders from tribal nations and DEEP/DAS to open a dialogue to better identify and understand tribal priorities and needs with the goal of advancing Connecticut's support for and collaboration with tribal nations and to improve the internet connectivity of the [Tribe]. DEEP/DAS will summarize the programs and cover the following topics during the consultation session:

DEEP/DAS will summarize the programs and cover the following topics during the consultation session:

- Connecticut Broadband Maps
- Program timelines and eligibility
- The development of a BEAD Five-Year Action Plan and Digital Equity Plan
- Opportunities to submit comments on, and plans for inclusion in, the state's proposals to the National Telecommunications and Information Administration (NTIA)

We value your input as we work to improve the state's programs and strengthen partnerships with tribes and Indigenous community organizations. DEEP and DAS remain committed to respecting tribal sovereignty while working together to leverage capacity, expertise, and resources to achieve the greatest impact on connectivity issues affecting the [Tribe].

For more information on the programs and digital equity initiatives, please visit www.broadband.ct.gov and www.internetforall.gov. If you have any questions regarding the programs or this consultation, please contact Kevin Pisacich, Director, Office of Telecommunications and Broadband, by phone at (860) 827-2638 or email at kevin.pisacich@ct.gov.

Tribal officials are encouraged to submit feedback before or after the consultation by email to deep.broadband@ct.gov, or by mail at the following address:

Department of Energy & Environmental Protection

Bureau of Energy and Technology Policy

10 Franklin Square New Britain, CT 06051

OFFICE OF THE GOVERNOR
STATE OF CONNECTICUT

Dear Honorable Chairman Rodney A. Butler:

As the State of Connecticut prepares to distribute federal funds to increase internet connectivity and advance digital equity, collaboration with all Nations and communities is integral to gathering the perspective and experience needed to build a comprehensive plan. To that end, the State of Connecticut invites you to an upcoming consultation to discuss the availability, reliability, and affordability of high-speed internet at a mutually agreeable date and time.

The consultation will include representatives from two state agencies implementing broadband programs under the Bipartisan Infrastructure Law, specifically the Department of Energy and Environmental Protection (DEEP) and Department of Administrative Services' (DAS) Connecticut Commission for Educational Technology. The Bipartisan Infrastructure Law allocated $42.45 billion to create the Broadband Equity, Access, and Deployment (BEAD) Program, as well as the Digital Equity Act of 2021, which provides $2.75 billion to further advance federal goals relating to digital equity and digital inclusion.

DEEP/DAS respectfully propose the consultation occur in person at an accessible location convenient to the Mashantucket Pequot Tribal Nation, but will facilitate a remote and/or hybrid consultation if that is preferable.

This discussion will provide opportunities for leaders from tribal nations and DEEP/DAS to open a dialogue to better identify and understand tribal priorities and needs with the goal of advancing Connecticut's support for and collaboration with tribal nations and to improve the internet connectivity of the Mashantucket Pequot Tribal Nation. DEEP/DAS will summarize the programs and cover the following topics during the consultation session:

- Connecticut Broadband Maps
- Program timelines and eligibility
- The development of a BEAD Five-Year Action Plan and Digital Equity Plan
- Opportunities to submit comments on, and plans for inclusion in, the State's proposals to the National Telecommunications and Information Administration (NTIA)

We value your input as we work to improve the State's programs and strengthen partnerships with tribes and Indigenous community organizations. DEEP and DAS remain committed to respecting tribal sovereignty while working together to leverage capacity, expertise, and resources to achieve the greatest impact on connectivity issues affecting the Mashantucket Pequot Tribal Nation.

For more information on the programs and digital equity initiatives, please visit www.broadband.ct.gov and www.internetforall.gov. If you have any questions regarding the programs or this consultation, please contact Kevin Pisacich, Director, Office of Telecommunications and Broadband, Bureau of Energy and Technology Policy, by phone at (860) 827-2638 or email at kevin.pisacich@ct.gov.

Tribal officials are encouraged to submit feedback before or after the consultation by email to deep.broadband@ct.gov, or by mail at the following address:

Department of Energy & Environmental Protection
Bureau of Energy and Technology Policy
10 Franklin Square
New Britain, CT 06051

We look forward to the consultation and hope the Mashantucket Pequot Tribal Nation has an interest in participating.

Sincerely,

Jonny Dach

Jonny Dach
Chief of Staff
Office of Governor Ned Lamont

Cc: Kevin Pisacich, DEEP/BETP/OTB

OFFICE OF THE GOVERNOR
STATE OF CONNECTICUT

Dear Honorable Chief Mutáwi Mutáhash Marilynn Malerba:

As the State of Connecticut prepares to distribute federal funds to increase internet connectivity and advance digital equity, collaboration with all Nations and communities is integral to gathering the perspective and experience needed to build a comprehensive plan. To that end, the State of Connecticut invites you to an upcoming consultation to discuss the availability, reliability, and affordability of high-speed internet at a mutually agreeable date and time.

The consultation will include representatives from two state agencies implementing broadband programs under the Bipartisan Infrastructure Law, specifically the Department of Energy and Environmental Protection (DEEP) and Department of Administrative Services' (DAS) Connecticut Commission for Educational Technology. The Bipartisan Infrastructure Law allocated $42.45 billion to create the Broadband Equity, Access, and Deployment (BEAD) Program, as well as the Digital Equity Act of 2021, which provides $2.75 billion to further advance federal goals relating to digital equity and digital inclusion.

DEEP/DAS respectfully propose the consultation occur in person at an accessible location convenient to the Mohegan Tribe but will facilitate a remote and/or hybrid consultation if that is preferable.

This discussion will provide opportunities for leaders from tribal nations and DEEP/DAS to open a dialogue to better identify and understand tribal priorities and needs with the goal of advancing Connecticut's support for and collaboration with tribal nations and to improve the internet connectivity of the Mohegan Tribe. DEEP/DAS will summarize the programs and cover the following topics during the consultation session:

DEEP/DAS will summarize the programs and cover the following topics during the consultation session:

- Connecticut Broadband Maps
- Program timelines and eligibility
- The development of a BEAD Five-Year Action Plan and Digital Equity Plan
- Opportunities to submit comments on, and plans for inclusion in, the State's proposals to the National Telecommunications and Information Administration (NTIA)

We value your input as we work to improve the State's programs and strengthen partnerships with tribes and Indigenous community organizations. DEEP and DAS remain committed to respecting tribal sovereignty while working together to leverage capacity, expertise, and resources to achieve the greatest impact on connectivity issues affecting the Mohegan Tribe.

For more information on the programs and digital equity initiatives, please visit www.broadband.ct.gov and www.internetforall.gov. If you have any questions regarding the programs or this consultation, please

contact Kevin Pisacich, Director, Office of Telecommunications and Broadband, by phone at (860) 827-2638 or email at kevin.pisacich@ct.gov.

Tribal officials are encouraged to submit feedback before or after the consultation by email to deep.broadband@ct.gov, or by mail at the following address:

Department of Energy & Environmental Protection
Bureau of Energy and Technology Policy
10 Franklin Square
New Britain, CT 06051

Sincerely,

Jonny Dach

Jonny Dach
Chief of Staff
Office of Governor Ned Lamont

Cc: Kevin Pisacich, DEEP/BETP/OTB

OFFICE OF THE GOVERNOR
STATE OF CONNECTICUT

Dear Chief of Staff:

Connecticut sent the attached letter to the Honorable Chief Mutáwi Mutáhash Marilynn Malerba on May 12, 2023, as an opportunity to open a discussion on broadband access and adoption on Tribal lands. In consideration of the estimated $185 million in grant funds that will soon be available and the potential opportunities to enhance internet service for the Mohegan Tribe, we wanted to bring this to your attention should you wish to engage. Please note there are certain data points the State of Connecticut would need in order to ensure the Tribe's eligibility once the funds become available.

For more information on the programs and digital equity initiatives, please visit www.broadband.ct.gov and www.internetforall.gov. If you are interested in setting up a consultation please contact Kevin Pisacich, Director, Office of Telecommunications and Broadband, by phone at (860) 827-2638 or email at kevin.pisacich@ct.gov.

Tribal officials are encouraged to submit feedback before or after the consultation by email to deep.broadband@ct.gov, or by mail at the following address:

Department of Energy & Environmental Protection
Bureau of Energy and Technology Policy
10 Franklin Square
New Britain, CT 06051

Sincerely,

Jonny Dach:

Jonny Dach
Chief of Staff
Office of Governor Ned Lamont

Cc: Kevin Pisacich, DEEP/BETP/OTB
Enclosure: Letter to the Tribal Chief

Appendix C: Summary of the Subgrantee Selection Process

The table in this Appendix (see following page) organizes the documents required from DEEP and from the subgrantee at different points in the subgrantee selection process (see Deployment Subgrantee Selection (Requirement 8)). The table is an organized visualization of the process, not a full accounting of the details of each required document.

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
Preparatory	Prequalification materials (Application, Program Guide, FAQ documents, model letter of credit, list of required licenses and certifications)		
	Template for detailing other public funding		
	Website information (also directing to third-party resources)		
	Online application workshop and workshop materials		
Prequalification submission window opens			
Prequalification	Dedicated email address for questions and technical assistance	Audited unqualified financial statements from the last year	5.3.1 5.12.3
	Continual updates to FAQ document as questions are received and answered	Statement signed by executive of company certifying financial qualifications	5.3.1 5.12.1
	Updates and reminders on milestones, deadlines, or technical resources as they come up	Resumes of management staff, CTO, contractor oversight team, and other key personnel; and description of their expected roles in a BEAD-funded project	5.3.1 5.12.5.1

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
		Certifications and licenses of the organization, the officer or director, management staff, contractor oversight team, and key technical personnel; and certification of processes and resources to employ continued skilled, credentialed workforce	5.3.1 5.12.6.1 5.12.6.2
		Description of planned contractors and consultants, and certification	5.3.1 5.12.5.3
		that any future contracted resources will have the relevant and necessary skills	
		Organizational chart and narrative description of applicants' processes and structure	5.3.1 5.12.5.2
		Narrative description of the entity's experience, resources, and readiness in managing and carrying out this broadband project, referencing key personnel	5.12.5.3 5.12.6.3
		Certification of history of providing telecommunications or electric service	5.3.1 5.12.8.1
		Certification of FCC Form 477s and Broadband DATA Act submissions OR Qualified operating or financial reports and certification that submission is accurate	5.3.1 5.12.8.2 5.12.8.3
		Evidence of support from Tribal Government's Tribal Council or other governing body.	5.9

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
		Legal opinion from legal counsel attesting to preparation for compliance to all applicable laws for BEAD-funded projects	5.3.1 5.12.7
		Narrative description of processes in place to conduct funding activities in compliance with federal and State law, including procurement practices	5.12.7
		Ownership information, including ownership structure, corporate entity type, and other information, referencing and corresponding to other information provided	5.3.1 5.12.9
		Certification of history of compliance and of intention to comply with environmental and historic preservation requirements and BABA, and description of plans to comply with BABA and preservation requirements	5.6 5.12.7
		Certifications: of cybersecurity risk management plan; that the plan reflects NIST framework and EO 14028; and that the plan will be updated periodically; and that the plan will be submitted to DEEP	5.3.1
		Certifications: of supply chain risk management plan; that supply chain plan reflects NISTIR 8276 and other guidance including NIST 800-161 and specifying the controls being implemented; and that the plan will be updated periodically; and that the plan will be submitted to DEEP	5.3.1

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
		List of present or planned applications to federal or State broadband funding, and of every broadband deployment project the applicant is undertaking or will undertake, with details on each project, using DEEP template	5.3.1 5.12.10
		Materials on Fair Labor Practices and compliance (including certification of compliance with labor and employment laws; yearly recertification of labor and employment practices; discussions of workforce plans, commitments, and development; compliance with workplace safety and processes to monitor and support future compliance)	5.3.1 5.12.7 8.1
		Documentation of communications with and outreach to workers and worker representative labor organizations	5.12.7
		Certification of worker-led health and safety committees	5.3.1 5.12.7
Prequalification submission window closes			
	Reasonable curing		
NTIA approval of Initial Proposal Volume II			
Completion of Challenge Process			
NTIA Challenge Process Validation			

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
Scoring	Grant and application materials (Application, Program Guide, FAQ documents, sample engineer certification)		
	Town Grant Areas and eligible locations for applications		
	Template for budget narrative, proposed budget, and business case analysis		
	Technical Specifications Template, Project Timeline Template		
	Website information (also directing to third-party resources)		
Scoring Phase submission window opens			
	Dedicated email address for questions and technical assistance	Detailed description of specific proposed project, including network design, descriptions of location and community, descriptions of technical specifications, timelines and milestones, and documentation of costs	5.12.6.5
	Continual updates to FAQ document as questions are received and answered	Budget narrative and proposed budget using DEEP templates, specifying expenses, team responsible for each expense, and relation to project objective	5.12.4
		Business case analysis using DEEP template, involving take rates, churn, revenue, cash flow, expenditures	5.12.4

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
		Descriptions of managerial capability connected to unique needs of specific proposed project	5.12.5
		List of job categories, titles, and descriptions to complete the specific project; certifications or licenses necessary for the specific project; demonstration of completion of requirements to be qualified for the project	5.12.6.4
		Certification of the project by independent professional engineer	5.12.6.6
		Project-specific certification by Officer or Director: that it has financial resources to complete the project with reimbursement model; that it has financial resources to provide pledged matching funding; that it has financial resources to support all costs of the project, even if it exceeds the grant award and matching funds	5.12.1
Scoring Phase submission window closes			
	Scoring, according to guidelines in 5.3.2 and 5.3.3		
	Curing, as necessary		
Negotiation	Counteroffers to negotiate pricing and proposal area boundaries, if needed		
	If necessary, second phase grant window for remaining needs		
Negotiation Phase closes			

Phase	DEEP Provides	Subgrantee Provides	
		Brief Description	Section
Finalization	Announcement of provisional determinations, subject to NTIA approval	Irrevocable standby letter of credit from financial institution or other alternative such as a performance bond	5.12.2
	Submission of Final Proposal to NTIA	Bankruptcy opinion letter from legal counsel confirming proceeds from letter of credit are not “property”	5.12.2

Appendix D: Proposed Scoring Rubric for Subgrantee Selection Process

The final expanded proposed scoring rubric was included in the version of this Initial Proposal that was submitted to NTIA. It fulfilled NTIA's full guidance and took the NTIA scoring rubric template as a model. See Section 5 for more details.