State of Maryland

Initial Proposal Volume II

Broadband Equity, Access, and Deployment (BEAD) Program

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Maryland
DEPARTMENT OF HOUSING
AND COMMUNITY DEVELOPMENT

CONNECT Maryland
High Speed Internet For A Better Future.

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1 Introduction

The Maryland Office of Statewide Broadband (OSB) hereby submits to the National Telecommunications and Information Administration of the U.S. Department of Commerce (NTIA) this Broadband Equity, Access, and Deployment (BEAD) Program Initial Proposal Volume II. OSB reserves the right to update this Initial Proposal pending revised or additional guidance from NTIA.

2 Objectives (Requirement 1)

2.1 Vision

Governor Wes Moore's administration and the Maryland General Assembly share a common vision in which Maryland leads the nation in connecting all residents to affordable, high-speed broadband. To that end, the State of Maryland will "ensure that every Marylander has access to broadband services, regardless of their ZIP code"[1] and that all residents are empowered to pursue "the acquisition of skills and knowledge necessary for digitally inclusive communities."[2]

Maryland's vision for broadband encompasses both access and equity:[3]

- Affordable, accessible, and reliable high-speed home internet service is available for all individuals
- Public online content is inclusive and accessible by all individuals
- Individuals have digital skills to support their ability to meaningfully use the internet in their daily lives
- Individuals can protect their data privacy and online security
- Individuals have access to a computer or tablet and technical support

The State legislature created OSB to lead Maryland's extensive broadband deployment and digital inclusion efforts—which will include effectively and efficiently deploying future federal funding to address the needs identified in the BEAD Five-Year Action Plan (Plan). Execution of the State's vision is being led by an experienced team at OSB who are well versed in forging the partnerships necessary to achieve both universal connectivity and digital inclusion.

OSB has taken direction from the General Assembly, which "recognizes the importance of the Internet as the most transformative technology of modern life, a key stimulus for socioeconomic opportunity and development, and a prerequisite for social and economic inclusion."[4]

To achieve this vision, OSB recognizes the legislature's commitment "to enabling the development of a statewide digital communications infrastructure by encouraging continued

[1] "Connect Maryland," OSB, https://dhcd.maryland.gov/Broadband/Pages/default.aspx.
[2] "Senate Bill 66, Chapter 74, Digital Connectivity Act of 2021," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_74_sb0066E.pdf, at Preamble.
[3] "Maryland Facilitated IIJA Workforce Development Session," DHCD, March 29, 2023, https://dhcd.maryland.gov/Broadband/Documents/MD-IIJA-Facilitated-Session-Workforce-Development.pdf, slide 5 (linked to from "Connect Maryland," DHCD, https://dhcd.maryland.gov/Broadband/Pages/default.aspx).
[4] "Senate Bill 66, Chapter 74: Digital Connectivity Act of 2021," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_74_sb0066E.pdf, at Preamble.

private investment and where necessary, through public investment, public-private partnerships, and cooperatives to meet the growing demand for reliable, high-speed, universal, and affordable broadband access in the key sectors of public safety, education, health care, and transportation for all Marylanders."[5]

This broadband vision builds on years of work by the State, often in partnership with local governments and through the State sub-grant-funded efforts of partners such as internet service providers, to build broadband infrastructure and foster broadband deployment. This history of cooperation between State agencies and among other key stakeholders will be a positive force for achieving the goals of this Plan.

The State of Maryland will build on its long history of successful broadband deployment with local partners, such as in creating the NTIA-funded One Maryland Broadband Network (OMBN), a 1,294-mile fiber optic middle-mile network that links 1,006 government facilities and anchor institutions while also traversing mountains, wetlands, and rural and urban communities to reach every county in the State.[6]

2.2 Goals and objectives

As established in the Digital Connectivity Act of 2021,[7] the State of Maryland's goal is to "ensure that every resident of the State has the ability to connect to universal, affordable, reliable broadband Internet that exceeds the Federal Communications Commission standard for upload and download speeds."[8]

The State of Maryland has the following primary objectives for broadband deployment, which are fully aligned with the requirements of the BEAD Program:

1. Serving 100 percent of unserved locations (i.e., below 25/3 Mbps) within five years—including public and non-profit owned multiple dwelling unit (MDU) locations that are determined to be unserved through the challenge process to ensure the availability of reliable and affordable high-speed broadband access in low-income and affordable public housing

[5] "Senate Bill 66, Chapter 74: Digital Connectivity Act of 2021," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_74_sb0066E.pdf, at Preamble.
[6] OMBN linked and extended three independent fiber networks: the rural nonprofit Maryland Broadband Cooperative network, the State-run Maryland network, and the 10-county consortium Inter-County Broadband Network. The project was completed in 2013. *See:* "One Maryland Broadband Network (OMBN)," NTIA, https://www2.ntia.doc.gov/grantee/maryland-department-of-information-technology.
[7] "Senate Bill 66," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_74_sb0066E.pdf.
[8] "Chapter 74, §6.5–104 (c)(1)(i)," Maryland General Assembly, https://mgaleg.maryland.gov/mgawebsite/Laws/StatuteText?article=ghs&section=6.5-104&enactments=False&archived=False.

2. Serving 100 percent of underserved locations (i.e., between 25/3 and 100/20) within five years
3. Delivering gigabit connections to community anchor institutions that do not have that level of service within five years

Should BEAD funds remain after the first three objectives are fulfilled, Maryland will then focus on:

4. Supporting digital equity and inclusion programs to help drive higher adoption among BEAD-defined covered populations

3 Local and regional broadband planning processes (Requirement 2)

OSB, housed in the Maryland Department of Housing and Community Development, was created in 2017 with the mission to ensure that every Marylander has access to broadband services. To achieve its goal, OSB has established a strong collaborative partnership with both private sector entities and local jurisdictions to fulfill the mission of working towards ensuring that all Maryland communities and residents are served affordable high-speed broadband internet.

For example, Maryland has established strong inter-agency coordination. Maryland's workforce development agencies, which are accustomed to working together as Maryland's Workforce System, comprise the Governor's Workforce Development Board,[9] Maryland's Division of Rehabilitation Service (DORS),[10] the Maryland Department of Labor,[11] the Maryland Department of Housing and Community Development,[12] the Maryland Workforce Association (comprising 12 local Workforce Directors),[13] and Maryland's Department of Human Services.[14]

OSB has pursued its mission by, in part, utilizing its existing relationships with private and public entities and organizations to develop and continuously update its stakeholder contact list—creating a foundation for research that encompasses a wide-ranging group of constituents. The stakeholder list was actively updated throughout the engagement process to both diversify and expand OSB's outreach efforts with the aim to create an inclusive, comprehensive engagement strategy that provided multiple opportunities to meaningfully participate in the development of the Five-Year Action Plan.

OSB utilized multiple modes of engagement to obtain vital feedback from stakeholders and the public—including in-person regional engagements, virtual listening sessions, social media outreach, and phone surveys.

OSB intentionally engaged representatives of covered populations (as defined by the BEAD Notification of Funding Opportunity) to facilitate critical feedback from communities that have

[9] "Governor's Workforce Investment Board," Maryland Manual On-Line, https://msa.maryland.gov/msa/mdmanual/25ind/html/80wo.html.
[10] "Division of Rehabilitation Services," Maryland State Department of Education, https://dors.maryland.gov/Pages/default.aspx.
[11] Maryland Department of Labor, https://www.dllr.state.md.us/.
[12] Maryland Department of Housing and Community Development, https://dhcd.maryland.gov/.
[13] Maryland Workforce Association, https://marylandworkforceassociation.org/. The Maryland Workforce Association includes the Anne Arundel Workforce Development Corporation, (Baltimore City) Mayor's Office of Employment Development, Baltimore County Department of Economic & Workforce Development, Frederick County Workforce Services, (Salisbury-based) Lower Shore Workforce Alliance, WorkSource Montgomery Inc., Employ Prince George's, (Hughesville-based) Tri-County Council for Southern Maryland, Susquehanna Workforce Network, Inc., Upper Shore Workforce Investment Board (serving the portions of the Eastern Shore located in Caroline, Dorchester, Kent, Queen Anne's, and Talbot Counties), and Western Maryland Consortium (with offices in Allegany County, Garrett County, and Washington County).
[14] Department of Human Services, https://dhs.maryland.gov/.

historically not been included in the public planning process. OSB intends to continue its comprehensive engagement of and outreach to stakeholders, the public, and covered populations to inform future planning efforts.

OSB initiated stakeholder engagement through four in-person regional community engagements across the State. The fourth engagement was held in partnership with the City of Baltimore. The engagements were designed to occur in geographically distinct areas to maximize access to organizational representation from urban, suburban, and rural communities.

Engagements were day-long events with multiple workshop panels convened. The workshops started with an introduction from Maryland State officials outlining the planned activities of the State of Maryland under the BEAD program. Next, an infrastructure panel comprising private and public representatives discussed details regarding broadband deployment. For the third panel, public representatives discussed digital equity programs and needs. Finally, a public panel featured representatives of nonprofits and faith-based organizations to discuss the specific needs of covered populations.

Attendees had numerous opportunities to participate in the discussions, ask questions, and provide invaluable feedback to inform the State's activities.

Additionally, OSB hosted four virtual meetings to address individual groups of stakeholders: State and regional agencies, internet service providers, community anchor institutions, covered populations, and workforce development organizations.

Participants were provided with a customized overview of broadband technology, broadband funding and programmatic opportunities, opportunities specific to their organizations and constituents, and avenues for engagement and input. After each virtual engagement, participants were given the opportunity to respond to surveys specific to their stakeholder group. All surveys were publicly available on the Maryland.gov website along with a speed test for residents to test their internet connection speed.

OSB additionally engaged the public through a statistically significant, residential phone survey to sample broadband availability, digital skills, and the broadband needs of adults in Maryland. The residential phone survey obtained randomized data from 1,932 adult residents in Maryland. To correct for potential bias based on household income, ethnicity, and the age of the respondent, responses were weighted based on region, household income, respondent age and ethnicity since respondents in lower income households, racial or ethnic minorities, and younger individuals were less likely to respond.

This planning process, utilizing multiple modes of engagement of the public and a diverse range of governmental and private stakeholders, demonstrates OSB's commitment to establishing an inclusive and effective Five-Year Action Plan in support of this Initial Proposal.

4 Local coordination (Requirement 4)

The Local Coordination Tracker Tool is attached as Appendix A.

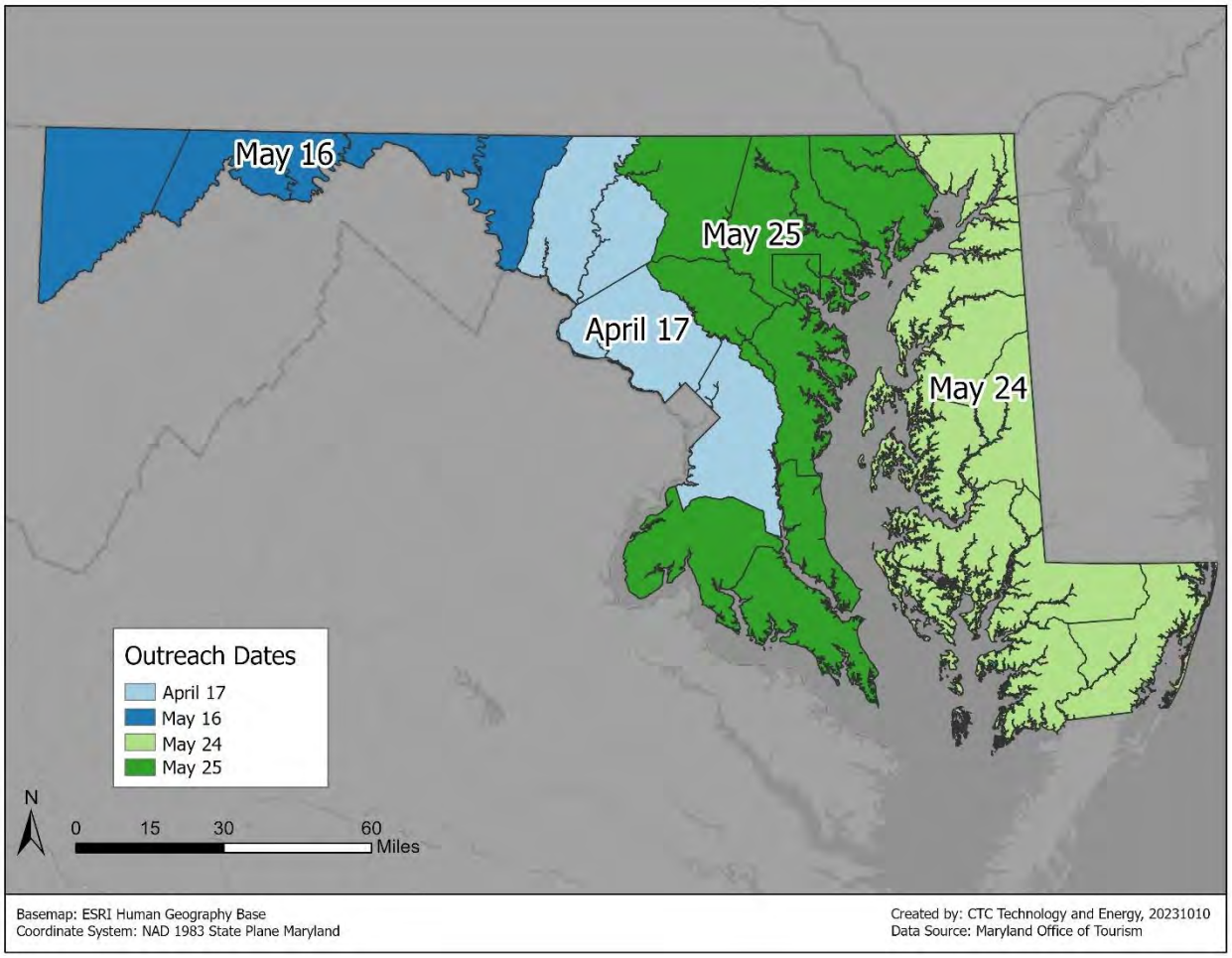
4.1 Full geographic coverage

To ensure the entire geographic range of the State of Maryland was engaged, OSB held engagements in western, central, and eastern Maryland and OSB partnered with the City of Baltimore to host a fourth engagement (central Maryland). These locations were selected to maximize the geographic range of these meetings and to engage underrepresented communities by hosting events at locations that are accessible, public, and provide and enable community support.

The engagements were held at the following locations (Figure 1) covering the regions depicted in Figure 2:

Figure 1: Community engagement events

Figure 2: Regions covered by community engagement events



The following figures represent examples of the outreach conducted to inform potential attendees about these sessions.

Figure 3: Broadband Conference 2023 announcement (1)

Figure 4: Broadband Conference 2023 announcement (2)

The University of Maryland, Eastern Shore, and Coppin State University are HBCU higher education institutions. Representatives from the hosting universities also served as panel members to share both the broadband needs of their students and the initiatives the universities are leading within adjacent communities to extend internet access and adoption.

Panel topics at each of the four forums were broken out into the following: BEAD processes and opportunities; understanding the infrastructure needs of Maryland organizations and the residents who they serve; digital equity opportunities and challenges; and avenues to participate in the future grant process. Attendees were given multiple opportunities to provide feedback throughout the forums.

Virtual stakeholder meetings were also held online. By hosting these meetings online, OSB was able to meaningfully engage with a geographically diverse range of stakeholders who may otherwise be unable to attend and provide valuable input.

Virtual stakeholder engagements were held on the following dates:

- Monday, March 13, 2023, State and Regional Agencies
- Wednesday, March 15, 2023, Internet Service Providers
- Wednesday, March 22, 2023, Anchor Institutions and Covered Populations
- Wednesday, March 29, 2023, Workforce Development

In addition to these engagements, OSB hosts quarterly meetings with State, county, and local agencies to address the entire geographic range of the State. Meetings are held with the Department of Information Technology, the State Department of Education, the State Department of Transportation, the Maryland State Library, the Department of Commerce, the Department of Agriculture, the Maryland Department of Health, the Department of Planning, units of local government, the Maryland Association of Counties, and the Maryland Municipal League. Meetings with County and State agencies are held separately.

4.2 Meaningful engagement and outreach to diverse stakeholder groups

At each engagement, whether online or in-person, OSB implemented several strategies to ensure that stakeholders were informed of Maryland's broadband goals and were able to provide meaningful feedback. OSB utilized accessible engagement locations, variable announcement modes, and multiple modes of engagement (in-person and online meetings) to maximize the diversity of attendees. OSB tailored each event to the audience, including the substantive overview of each program and broadband technologies as well as the opportunities for stakeholder engagement.

OSB advertised the regional engagements through several avenues, including a public announcement on the Maryland.gov website, Maryland Department of Housing & Community Development social media, direct emails to OSB partners and announcements by the hosting universities. Announcements were also advertised on the Maryland Economic Development Association and the Maryland Association of Counties websites. The range of announcements aimed to inform a diverse group of stakeholders to enable comprehensive feedback.

Participants at engagements in central Maryland provided feedback primarily on digital equity opportunities, including the need for digital navigators to assist residents with effectively adopting broadband through device and internet training.

Organizational representatives who attended the Baltimore City engagement were concerned about the accuracy of the FCC mapping. Specifically, multi-family housing structures may be designated as served although individual units are not. The building may, for example, be designated as a fiber drop location although the inside wiring is not sufficient to enable connectivity; or the building may appear to be served by fixed wireless even though some units may not have the line of sight to be served. Representatives expressed concern that unserved locations may actually be undercounted and could impact the receipt of BEAD resources.

Participants in western Maryland included representatives of several ISPs who asked questions about the BEAD grant process, such as participation in the challenge process and matching funds and insurance requirements.

Participants in the Eastern Shore of Maryland were concerned about the timeline for BEAD program implementation, noting that their need for broadband access is immediate.

4.3 Regular engagements

As mandated by Maryland State law,[15] OSB meets regularly with the appropriate units of State government to gather input and share plans related to broadband deployment and digital equity, including the Department of Information Technology, the State Department of Education, the State Department of Transportation, the Maryland State Library, the Department of Commerce, the Department of Agriculture, and the Maryland Department of Health.

OSB also meets with representatives of Maryland's counties and local government entities—including the Maryland Association of Counties (MACO), which consists of representatives from the State's 23 counties and Baltimore City, and the Maryland Municipal League (MML), which represents the 157 cities and towns in the State.

[15] "Senate Bill 66, Chapter 74: Digital Connectivity Act of 2021," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_74_sb0066E.pdf, at 6.5-104(D), p.10.

4.4 Multiple awareness and participation mechanisms

To pursue its goal of ensuring that every Marylander has access to broadband internet, OSB implemented multiple awareness mechanisms and opportunities to participate in the planning process. OSB drew on its existing relationship with public and private stakeholders to develop and actively update a diverse and inclusive stakeholder list. OSB used this stakeholder list to send invitations to the virtual stakeholder sessions and in-person regional community engagements across the State. In total, stakeholders numbered over 175 for BEAD engagement including organizations representing hundreds of contacts.

OSB additionally advertised the regional engagements through multiple methods, aiming to inform a diverse group of stakeholders. These included public announcements on the Maryland.gov website, Maryland Department of Housing & Community Development social media, direct emails to OSB's partners and announcements by the hosting Universities. Announcements were also advertised on the Maryland Economic Development Association and the Maryland Association of Counties websites.

Attendees at both the in-person and virtual engagements had numerous opportunities to provide feedback through discussion and questions. In addition to participating in meetings, surveys were available afterwards as well as posted publicly online on the OSB website to collect data on agency asset inventories, internet service providers, community anchor institutions, and workforce development.

OSB also engaged the public through a phone survey which collected 1,932 responses from adult Marylanders about broadband availability, digital skills, and the broadband needs.

4.5 Clear procedures to ensure transparency

OSB took significant steps to ensure compliance with all applicable laws and best practice procedures. Participants were able to attend meetings anonymously and closed-caption transcripts were available in real time to enable additional engagement for some participants with differing abilities. The surveys allowed respondents to choose which questions to answer, allowing individuals to control the level of personal detail provided.

Information was collected from meeting chats, Q&A sessions, and surveys. If contact information was provided, individuals were added to the stakeholder list. The intent to include the participants in future stakeholder outreach was clearly communicated during meetings.

After meetings, the slide deck was sent to all attendees that provided OSB their contact information along with all invited stakeholders for that topic (e.g., the Community Anchor Institutions meeting slide deck was sent to all health care facilities, libraries, schools, higher

education facilities, and other relevant organizations.) The slide deck and engagement surveys were also publicly available on OSB's website.

4.6 Outreach and engagement of unserved and underserved communities

OSB took a proactive approach in advance of all forums to engage representatives of and organizations that serve defined covered populations by ensuring the contact list used for outreach was both comprehensive and inclusive.

OSB additionally engaged with unserved and underserved communities by ensuring accessibility to materials, meetings, and information. The virtual stakeholder presentations were accompanied by closed captions and the slide decks were made publicly available online.

To maximize the engagement of historically underrepresented populations, two of the four public meetings were hosted at HBCUs. Representatives from these universities actively participated in the engagements as panel members.

OSB will continue to find opportunities to present to members of community organizations and meet constituents where they are. OSB will also host virtual town halls to give updates on the program and provide additional opportunities for the public to provide feedback on how OSB can best achieve its mission of serving all Marylanders with broadband internet.

5 Deployment subgrantee selection (Requirement 8)

This section of Volume II describes in detail how OSB proposes to structure, design, and implement its grant program to award BEAD funds to subgrantees to deploy broadband infrastructure in Maryland. This section includes extensive discussion of the structure of the program, the timeline, the scoring, and steps OSB will take to try to maximize the reach and impact of the BEAD funds throughout Maryland.

OSB 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 OSB 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, OSB 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. OSB therefore reserves the opportunity to revise this subgrantee selection process and to negotiate with applicants as needed, so long as the State meets the BEAD requirements.

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 Openness, Fairness, and Competition

OSB, the designated Eligible Entity for the State of Maryland, has a half-decade long track record of using available resources through fair, open, and competitive processes to deploy broadband to unserved and underserved Marylanders.

OSB intends to use the capabilities and structures it has developed for pre-BEAD programs to inform, to the greatest extent possible, the BEAD deployment subgrantee selection process in a way that is fair, open, and competitive. All elements of the BEAD program have been designed with these goals at the forefront.

Openness represents a core value and guiding principle for OSB 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, all of which have been foundational to OSB's grant making in the past:

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
3. Openness and transparency in the evaluation process, with feedback to unsuccessful applicants to build trust and encourage participation
4. Provision of adequate notice to subgrantees to enable participation by a wide variety of applicants

Fairness for 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, OSB anticipates the following, consistent with its grant making in the past:

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 and guidance for how to self-score applications based on the scoring criteria established by OSB
2. Ongoing and frequent communications through public means such as grant workshops and frequently updated FAQs, to enable maximum information sharing with potential applicants
3. Inclusive 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 scoring criteria that are applied consistently
5. Competitive process that encourages applicants to submit innovative proposals and cost-effective solutions
6. Fair review process that is impartial and free from conflicts of interest. To ensure against risks of bias, collusion, conflict of interest, and self-dealing, OSB will ensure that all reviewers are entirely financially independent of all applicants. Reviewers will be required to certify in writing that they have no employment, contractor, or other business relationship with any applicant or any affiliate or subsidiary of any applicant

Competition is at the heart of OSB's goals, methodology, and commitments. Creating a competitive environment for the BEAD grant program will be ensured through multiple means that OSB has used in its past grant making:

1. Broad eligibility and participation, including of municipalities, counties, electric utilities, and a full range of non-profit and for-profit private entities

2. A low-burden grant program that is designed, within the parameters NTIA requires for the BEAD program, to maximize the potential for all sizes of entities to compete without facing unreasonable costs or level of effort

3. Incentives for collaboration by applicants with other public, nonprofit, and for-profit entities, including for public-private partnerships among ISPs and local governments, enabling an additional form of competition through public involvement

5.1.2 Technical assistance and administrative support

To support openness, fairness, and competition in its BEAD grant efforts, OSB plans extensive communications, technical assistance, and administrative support for applicants throughout the process. OSB 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. OSB 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. OSB's outreach processes and technical assistance materials will provide guidance, templates, and information about each of the subgrantee selection process elements discussed below.

OSB has an extensive email list of stakeholders, including service providers, local governments, Community Anchor Institutions, State agencies, and nonprofit organizations. OSB also has a robust web and social media presence. OSB 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. OSB's partners will also be encouraged to further distribute information about the BEAD program through their own email lists and website postings. OSB will also use its website as a repository for potential applicants to access detailed application materials and technical assistance resources.

OSB expects to implement the following process for its BEAD grant funded outreach and communications:

- OSB will announce the dates of its Prequalification Phase at least 15 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, OSB will make BEAD application materials available on its website using a dedicated webpage. These materials will consist of a combined Application and Program Guide and Frequently Asked Questions (FAQ) documents. OSB 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.

- OSB plans to conduct an online application workshop on or around the first day of the Prequalification Phase window. 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 OSB website and the FAQ document will be updated to reflect questions and answers from the workshop.

- During the Prequalification Phase window, OSB 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, OSB will update its FAQ document on a regular basis with the questions and answers generated by the email inquiries and in-person meetings.

- OSB will notify Prequalification Phase participants if they are prequalified and eligible to submit a Scoring Phase Application within 30 days of the close of the Prequalification window.

- OSB will allow for "reasonable" curing to seek to ensure an optimal participation level of qualified ISPs

OSB expects to follow the same steps detailed above for its Scoring Phase. During the Scoring Phase, OSB will also provide detail regarding the Grant Areas and associated materials and information, as is detailed below. OSB will continue to use all available communication channels to update applicants on milestones, deadlines, updated FAQ material, and technical assistance resources as they are made available by OSB, NTIA, NIST, FCC or other relevant partners.

5.1.3 Overview of planned Subgrantee Selection Process

The following is OSB's planned Subgrantee Selection Process, which is part of OSB's larger plan for ensuring broadband for 100 percent of all Maryland locations that are currently unserved.

OSB anticipates a multi-step process for selecting subgrantee for its BEAD funds that will begin with prequalification of applicants (hereinafter referred to as the Prequalification Phase) and then proceed to receipt and scoring of grant applications (hereinafter referred to as the Scoring Phase).

Consistent with NTIA rules, OSB anticipates prioritizing fiber-to-the-premises for use of its BEAD funds, reflecting the State of Maryland's commitment to deploying best-in-class, future-proof broadband infrastructure wherever possible and to the greatest extent possible.

OSB's analysis is that, so long as an adequate competitive dynamic is created for the application process, the BEAD funds are likely to be sufficient to fund fiber-to-the-premises to the vast majority of unserved locations in Maryland based on the economics of fiber deployment and operations and the financial contributions that applicants are projected to commit, though match and other funds. Stated otherwise, OSB's data suggest that there exists a business case, with respect to almost all unserved locations, for applicants to request funding for fiber at a level that, when totaled, will be equal to the BEAD funds available. This analysis reflects OSB's calculation of how much applicants will commit, given likely financial returns, for each unserved location.

In addition, OSB will welcome applications for alternative technologies, including fixed wireless access and coaxial cable. Consistent with NTIA rules, OSB anticipates funding these alternative technologies only in the event that fiber applications for the given locations exceed the Extremely High Cost Per Location Threshold established through OSB's analysis of the applications and thus cannot be funded for fiber given the finite funding available.

Also consistent with NTIA rules, OSB will negotiate with applicants in order to seek to ensure there is an application for all unserved locations statewide as well as to secure the best pricing possible and to enable fiber deployment wherever possible.

In the event that OSB's application process and follow-up negotiations do not result in commitments to deploy fiber to all unserved locations, OSB may choose to undertake a subsequent application round to solicit additional grant applications. However, this is a step that OSB will undertake only if necessary and the Office's goal and intent is to award funds to all unserved locations in its first round of applications.

In the event that there exist excess funds following award of first-round applications to all unserved locations, OSB may choose to undertake a subsequent application round to solicit additional grant applications to underserved locations.

5.1.4 Phases

The BEAD funding effort will be comprised of the following two key phases:

1. **Prequalification phase**, to establish the qualifications of prospective applicants
2. **Scoring phase**, which will include:
    a. **Grant Area determinations**, to specify the geographic boundaries of the Grant Areas for which prospective subgrantees can apply
    b. **Receipt of fiber applications**, during which applicants will submit their proposed projects
    c. **Negotiations,** in which OSB will engage with applicants to reach final project boundaries and costs
    d. **Subsequent round of receipt of applications,** only if necessary

The following is detail on the two key phases OSB anticipates for the BEAD funding grant process. 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, OSB will accept prequalification materials from all prospective applicants, enabling applicants to establish their qualifications and OSB 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 OSB to maximize the limited time available for the Scoring Phase, extending the available time to this earlier phase to allow both prospective applicants and OSB'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 OSB'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 Maryland'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 OSB, 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.

Maryland'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 OSB to proceed to the Scoring Phase of the program and submit proposals.

The Prequalification Phase will launch in early 2024, during the time that NTIA is reviewing the Initial Proposal, thus enabling OSB 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.

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 Phase, OSB 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. These include the following three critical elements:

1. **Grant Area determination process**, to specify the geographic boundaries of the Grant Areas for which prospective subgrantees can apply
2. **Receipt of applications**, during which applicants will submit their proposed projects
3. **Scoring of applications**, during which OSB will review and score the received applications
4. **Negotiations,** in which OSB will engage with applicants to reach final project boundaries and costs

In addition, in the event that OSB's application process and follow-up negotiations do not result in commitments that address all unserved locations in Maryland, OSB may choose to undertake a subsequent application round to solicit additional grant applications. However, this is a step that OSB will undertake only if necessary and the Office's goal and intent is to award funds for deployment to all unserved locations in its first round of applications if possible.

Each of the three critical elements of the Scoring Phase is described in detail below.

5.1.4.2.1 Grant Area Determination Process

This part of the BEAD grant process is designed to specify the geographic boundaries of the Grant Areas for which prospective subgrantees can apply.

OSB anticipates undertaking the Grant Area Determination 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 Maryland's proposed Challenge Process. The Grant Area Determination Process will be conducted by OSB during the time period that NTIA is doing its Challenge Process Validation, and after the pre-qualification phase, prior to release of the BEAD grant materials.

The Grant Area Determination Process will be designed to establish the geographic boundaries of Grant Areas for perspective subgrantees to submit applications. OSB will, based on the results of its cost modeling[16] and other data, as well as the map of unserved locations that results from the Challenge Process, establish geographic boundaries that take into account a range of factors. Among these factors will be the following:

- **Potential for competition** among applicants to submit competitive and attractive applications to serve those areas. Ideally, Grant Area design will encourage competition among applicants and result in multiple applications.
- **Locations of unserved units**
- **Locations of underserved units and their proximity to unserved locations**. To the extent possible, Grant Areas will be designed to increase the chances that grant-funded deployment to unserved locations could result in awardees also serving underserved locations, even without funding explicitly for the underserved locations.
- **Economic and technical viability and efficiency**. Grant areas will reflect OSB's internal data, modeling, and engineering expertise regarding the most economically viable grouping of unserved locations into a single geographic unit for application.
- **Community needs**. OSB will endeavor where possible to ensure that boundaries reflect unique local circumstances.
- **Critical geographic parameters**. OSB will take into consideration parameters such as highways, rivers, and railway lines that naturally define broadband infrastructure architecture because traversing them is complex and costly.

[16] OSB modeled its grant-funded deployment options using a Python-based predictive grant funding analysis tool that leverages highly customizable modules for fiber infrastructure design, RF coverage modeling, cost estimation, and financial modeling powered by hyperscale cloud computers to generate outcomes for hundreds of technology mix iterations and cost structures.

5.1.4.2.2 Fiber application process

Once the Grant Areas have been defined and OSB has received full authorization from NTIA based on approval of the outcome of the Challenge Process and of the Initial Proposal Volume II, OSB will open the grant window, distribute grant materials, and accept applications for proposed projects.

At that time, OSB will undertake the following:

- OSB will make BEAD application materials available on its website using a dedicated webpage. These materials will consist of a combined Application and Program Guide, , and Frequently Asked Questions (FAQ) documents. OSB 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.

- OSB will conduct an online application workshop on or around the date of the release of the BEAD grant materials. 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 OSB website and the FAQ document will be updated frequently to reflect questions and answers from the workshop and questions received by email.

- During the time the grant application window is open, OSB 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, OSB will update its FAQ document on a regular basis with the questions and answers generated by the email inquiries and in-person meetings.

5.1.4.2.3 Scoring process

Scoring will be undertaken immediately following receipt of applications, in advance of any necessary negotiations. OSB's proposed scoring process and metrics are described in detail below.

5.1.4.2.4 Negotiation process

During this process, OSB will engage with applicants in negotiations designed to reach final agreement on two topics: project area boundaries and costs. This proposed negotiation process is consistent with how OSB has undertaken past grant making efforts.

Once the applications are received, OSB 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 OSB 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 Grant Areas. OSB intends to use the negotiation phase of the program for both purposes: first, to negotiate pricing with applicants to secure for the consumers of Maryland the best possible deal for the BEAD funds, and second, to negotiate coverage across Grant Areas where necessary.

First, OSB will negotiate proposal area boundaries. In the event that there exist defined Grant Areas that do not receive any application at all, OSB will negotiate with one or more applicants to determine whether and under what circumstances they would be willing to serve those Grant Areas. For purposes of negotiations with applicants regarding committing to including new Grant Areas, OSB 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.

Second, OSB will negotiate pricing, both with respect to Grant Areas that received no applications into which OSB would like to attract other applicants and with respect to Grant Areas that received applications but where it may be possible to secure lower pricing. While OSB will provide first opportunity to applicants that score highest in a given area, OSB 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 locations throughout Maryland.

Among the range of circumstances in which OSB may wish to negotiate pricing are the following:

- A Grant Area does not receive any applications and OSB negotiates for pricing to serve it. In the event that more than one applicant agrees to provide service to that Grant Area, OSB will select the winner by scoring the submissions of all applicants
- More than one applicant provides a proposal for a given Grant Area and OSB 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 Grant Areas and OSB negotiates lower pricing with the applicant based on the potential award of multiple aggregated Grant Areas

In sum, OSB 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, particularly given the need for OSB's efforts to develop a broadband solution for all eligible locations in Maryland.

5.1.4.2.5 Provisional award

Once OSB and the applicants have concluded successful negotiations, OSB will issue provisional awards under the agreed upon terms. These pending awards will be included in OSB'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, OSB will finalize the provisional awards through contract negotiation and execution with the applicants. Included in its formal contract with subgrantees, OSB 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 OSB 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—OSB 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 overall timeline for the BEAD grant process and is subject to change:

Process element	Initiation date	Concluding date
Challenge Process	February 1	May 31
Prequalification materials released	January 15	
Prequalification workshop/webinar	January 15	
Prequalification responses accepted by OSB	February 1	May 31
Review of prequalification materials, including curing as necessary	June 1	June 30
Announcement of prequalification determinations	June 30	
OSB develops Grant Areas through Grant Area Determination Process	June 1	June 30

Process element	Initiation date	Concluding date
BEAD grant application materials, including Grant Areas, released	30 days following approval by NTIA of Initial Proposal Volume II	
BEAD grant application workshop/webinar	On or around the date of release of BEAD grant materials	
BEAD grant applications accepted by OSB	45 days following release of BEAD grant materials	
Review of BEAD grant application materials, including curing as necessary	Immediately following receipt of BEAD grant materials	60 to 90 days following receipt of BEAD grant materials
Negotiation process and/or second phase grant window	Immediately following receipt of BEAD grant materials	60 to 90 days following receipt of BEAD grant materials
Announcement of provisional BEAD determinations, subject to NTIA approval of the Final Proposal	60 to 90 days following receipt of BEAD grant materials	
Submission to NTIA of the Final Proposal	30 days following public comment period on Final Proposal	

5.3 Scoring methodology

5.3.1 Prequalification Phase

Maryland'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.

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 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, OSB 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 OSB to proceed to the Scoring Phase of the program and submit proposals.

In the Prequalification Phase, OSB 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 last three years
- Statement signed by an executive with the authority to bind the company that certifies the financial qualifications
- Five-year pro-forma financial statements.

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 or network engineer and contractor oversight team with the relevant certifications (both management and non-management) for deployment projects as mandated by State and federal law
- Certification that if the applicant chooses to contract resources, all contracted resources will have the relevant and necessary skills

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 and their total number of broadband subscribers

- If the applicant has provided a voice and/or broadband service, certification that the application 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 reports, that it has filed with the relevant financial institution for the relevant time period. A certification that the submission is a true and accurate copy of the reports that were provided to the relevant financial institution must also be provided. Legal compliance
- A legal opinion from the applicant's legal counsel attesting to compliance and detailing any violations or pending court proceedings that would materially impact the applicant's ability to enter into an agreement with the State or its ability to complete the project
- Certification that the applicant will permit workers on BEAD deployment projects to create worker-led health and safety committees that management will meet with upon reasonable request
- 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 OSB following execution of grant agreements, and if the applicant makes any substantive changes to the plan, a new version will be submitted to OSB 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 OSB 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

In addition, as part of the prequalification process, consistent with NTIA's requirements, OSB will require the following materials regarding **Fair Labor Practices**, which will be part of both prequalification and later grant application scoring:

1. Certification from an Officer/Director-level employee, or an equivalent, of consistent past compliance with federal labor and employment laws on broadband deployment projects in the last three years, including:

    - Certification that the prospective subgrantee, as well as its contractors and subcontractors, have not been found to have violated laws such as the

Occupational Safety and Health Act, the Fair Labor Standards Act, or any other applicable labor and employment laws for the preceding three years, or

- Disclosure of any findings of such violations

2. Certification that the potential subgrantee, and its proposed contractors and subcontractors, have existing labor and employment practices in place and that the subgrantee will recertify this annually for the duration of the BEAD implementation period, including:
    - Applicable wage scales and wage and overtime payment practices for each class of employees expected to be involved directly in the physical construction of the network
    - Certification that the potential subgrantee will ensure the implementation of workplace safety committees that are authorized to raise health and safety concerns in connection with the delivery of deployment projects and that the applicant will recertify this annually for the duration of the BEAD implementation period
3. Discussion of the potential subgrantee's workforce plan, including information on training and safety, job quality, local hire and targeted hire, accountability and subcontracting practices, and ongoing operational workforce
4. Discussion of current and planned future practices regarding using a directly employed workforce, robust in-house training, wages and benefits, and a locally based workforce
5. Current and planned future practice regarding public disclosure of workforce plans and labor commitments on a website or online portal
6. Discussion of job quality considerations as part of the applicant's workforce development strategies
7. Discussion of track record and commitment to maintaining high standards of workplace safety practices, training certification or licensure for all relevant workers, and compliance with State and federal workplace protections
8. Certification of compliance with relevant workplace protections including the Occupational Safety and Health Act, the Fair Labor Standards Act, Title VII of the Civil Rights Act of 1964, and Maryland labor and employment laws
9. Discussion of whether the construction workforce will be directly employed or contracted, 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

5.3.2 Scoring Phase

OSB'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 Maryland's own public policy priorities.

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

Following a determination of completeness, OSB 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).[17] 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.

5.3.2.1 Primary criteria

Minimal BEAD program outlay: up to 30 points

OSB will score applications based on the grant amount proposed relative to the number of unserved and underserved locations in the Grant Area.

Affordability: up to 15 points

For Priority Broadband Projects: Applications will be scored based on applicants' commitments to offer a symmetrical 1 Gbps service to BEAD-funded locations that does not exceed the cost of the same service in any other location in Maryland 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.

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 does not exceed the cost of the same service in any other location in Maryland or surrounding states in which the

[17] NTIA's guidance documents provide detail regarding NTIA's scoring requirements for these two types of projects. BEAD Initial Proposal Guidance - Volumes I and II (doc.gov)

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 30 points

Applicants will be scored based on (1) a demonstrated history of compliance with federal labor laws and (2) demonstrated commitments to future compliance with federal fair labor practices as described by NTIA.

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. The grant agreement between the awardee and OSB will create the enforceable commitment with respect to the applicant's committed timing.

Speed of Network and Other Technical Capabilities: up to 5 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, OSB will award up to 5 points to Other Last-Mile Broadband Deployment Projects that can demonstrate the following:

- **Speed of Network and Sufficient Capacity**: 2 points will be awarded to applications that demonstrate that the proposed project can reliably deliver 100/20 broadband services to at least 80 percent of unserved locations in the proposed service area. 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 requirements can

be met. Applicants that do not make this demonstration will be awarded zero points for Speed of Network and Sufficient Capacity.

- **Scalability**: 2 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, 500/100, 1000/1000). Applications that do not make this demonstration will be awarded zero points for Scalability.

- **Cost-effective future upgrade and capital investment path**: 1 point 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.

Community support: up to 10 points (*for Priority Broadband Projects*) or up to 5 points (*for Other Last-Mile Broadband Deployment Projects*)

OSB will award points to applicants for demonstrations of support from local governments, and other community institutions and stakeholders. Points will be awarded based on both the volume of documents of support and on the clarity and extent of support demonstrated in the documentation. Documents can include such items as letters, board or council resolutions, commitments of funding, and commitments to purchase services if the project is funded.

Climate and hazard mitigation: up to 5 points

OSB will award up to 5 points to applicants for the completeness and relevance of plans to address climate and related hazards through network design and maintenance plans.

Low-income affordability demonstration: up to 5 points

OSB will award up to 5 points for demonstration of plans to ensure the affordability of broadband products and services for low-income Maryland households.

Middle class affordability demonstration: up to 4 points

OSB will award up to 4 points to applicants for demonstration of plans to ensure the affordability of broadband products and services for middle class Maryland households.

5.3.3 Scoring rubric

When this Initial Proposal is submitted to NTIA, it will include a complete and expanded scoring rubric which will be attached in Appendix B: Proposed scoring rubric. An outline of OSB's proposed scoring rubric is provided below, first for Priority Broadband Projects and then for Other Last-Mile Broadband Deployment Projects:

Scoring Criteria for Priority Broadband Projects (fiber)

Primary scoring criterion (all are mandatory under NTIA rules)	Points available
Total outlay of funds – Cost per unserved location served	30
Lowest price gigabit service commitment	15
Compliance w/ federal fair labor laws	30
Primary Criteria subtotal	75
Secondary Scoring Criteria	
Speed to deployment (mandatory under NTIA rules)	1
Community/local government support	10
Climate and hazard mitigation plans	5
Low-income affordability demonstration	5
Middle class affordability demonstration	4
Secondary Criteria subtotal	25
Total of all Primary and Secondary Criteria	100

Scoring Criteria for Other Last-Mile Broadband Deployment Projects (non-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	15
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)	5
Community/local government support	5
Climate and hazard mitigation plans	5
Low-income affordability demonstration	5
Middle class affordability demonstration	4
Secondary Criteria subtotal	25
Total	100

5.4 Prioritization of unserved BSLs, underserved BSLs, and eligible CAIs

OSB recognizes the prioritization in the Bipartisan Infrastructure Law that created BEAD for unserved locations as first priority, underserved locations as second priority, Community Anchor Institutions as third priority, and other priorities following the first three. This prioritization is mandated by the statute and aligns with the State of Maryland's plans for how to utilize the BEAD funds. Maryland's internal modeling suggests that the funds available can provide for fiber-to-the-premises to the vast majority of unserved locations in Maryland and potentially to most of the underserved locations. However, OSB does not know, given current inflationary pressures and projected demand for broadband construction labor and materials during the BEAD deployment process, that Maryland will have sufficient funds to address the needs of all unserved and underserved locations as well as Community Anchor Institutions.

Given this analysis and the data that have been analyzed by OSB, OSB proposes to focus the BEAD funding on unserved and underserved locations. In the event that all unserved and underserved locations can be served with fiber-to-the-premises based on the results of the BEAD application process described above, OSB reserves the right and opportunity to undertake an additional application round with remaining BEAD funds for service to Community Anchor Institutions.

Furthermore, OSB plans that, if the funds are insufficient to deliver fiber to all underserved locations, applications to serve high-poverty areas will be prioritized.

5.5 Prioritization of non-deployment projects

Not applicable.

5.6 Environmental and historic preservation and Build America, Buy America Act compliance

The State of Maryland is deeply committed to the public policy purposes of environmental and historic preservation as well as BABA. OSB 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.

OSB 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, OSB intends that it will actively use its subgrantee monitoring program post-award to verify that applicants are indeed compliant with these requirements.

5.7 Project area definition

As is described above, OSB plans to define project areas through a Grant Area Determination Process in which it specifies the geographic boundaries of the Grant Areas for which prospective subgrantees can apply.

OSB anticipates undertaking the Grant Area Determination 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 Maryland's proposed Challenge Process. The Grant Area Determination Process will be conducted by OSB during the period when NTIA is conducting its Challenge Process Validation and immediately in advance of release of the BEAD grant materials.

The Grant Area Determination Process will be designed to establish the geographic boundaries of Grant Areas for perspective subgrantees to submit applications. OSB will, based on the results of its cost modeling and other data, as well as the map of unserved locations that results from the Challenge Process, establish geographic boundaries that take into account a range of factors. Among these factors will be the following:

- **Potential for competition** among applicants to submit competitive and attractive applications to serve those areas. Ideally, Grant Area design will encourage competition among applicants and result in multiple applications.
- **Locations of unserved and underserved units**
- **Economic and technical viability and efficiency**. Application areas will reflect OSB's internal data, modeling, and engineering expertise regarding the most economically viable grouping of unserved locations into a single geographic unit for application.
- **Community needs**. OSB will endeavor where possible to ensure that boundaries reflect unique local circumstances.

5.8 Approach to subsequent funding rounds if no proposals are received

As is described above, in the event no proposal (or no viable proposal) is received for any given Grant Area, OSB plans to undertake one or both of the following processes, depending on the circumstances.

1. First, OSB anticipates undertaking negotiations with one or more applicants that have applied 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 OSB. OSB may choose to negotiate with one or more applicants to maximize the chances of determining a solution for those locations.

2. Second, OSB anticipates that, depending on circumstances, it may choose to undertake a second (and possibly third) competitive process to formally attract applications for those locations.

OSB reserves for itself the flexibility to undertake one or both of these processes following receipt of the applications. OSB believes that the flexibility to undertake these processes based on circumstances will increase the competitive pressure on applicants and support the goal of achieving a solution for all eligible locations; for those reasons, OSB declines to limit its options in this regard.

5.9 Projects on Tribal lands

Not applicable.

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

OSB plans to identify the Extremely High Cost Per Location Threshold (EHCPLT) so as to determine where it is possible, under NTIA's rules, to fund technologies other than fiber.

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

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

Most significantly, OSB will develop the EHCPLT using the pricing and associated data provided by applicants through the application process, including feedback and outcomes from the negotiations.

Based on all these inputs, OSB will develop the EHCPLT in order to determine at what cost per unit (if any), fiber-to-the-premises is too costly to achieve the critical BEAD goal of achieving 100 percent broadband coverage with the funds provided in the BEAD allocation.

5.11 Utilizing the EHCPLT

Given OSB's goals of achieving 100 percent broadband statewide, while maximizing fiber-to-the-premises, OSB proposes the following approach to determining whether to fund fiber applications that exceed the EHCPLT where a lower cost non-Priority Broadband Project has been proposed and meets the minimum standards:

First, after reviewing all proposals and available funding, OSB will negotiate with the applicant that submitted the fiber proposal the opportunity to revise its proposal so that it does not exceed the EHCPLT.

Second, if the applicant is unable to reduce its cost per location sufficiently, OSB will then consider whether other applicants that have provided fiber proposals for nearby areas could potentially serve the applicable area. If such potential exists, OSB will negotiate with one or more of those applicants to determine if they will amend their application to include the subject areas at a cost that is below the EHCPLT.

Third, if the other applicants are unable to offer a cost per location that is sufficiently low, OSB will then evaluate applications that propose an alternative, non-fiber technology that meets the BEAD program's requirements for Reliable Broadband Service and where the proposed cost is below the EHCPLT. For example, these applications could include those for coaxial cable or licensed fixed wireless service.

Fourth, if OSB receives for that area only an application that proposes an alternative, non-fiber technology that meets the BEAD program's requirements for Reliable Broadband Service and for which the proposed cost is above the EHCPLT, OSB will provide the applicant the opportunity to revise its proposal so that it does not exceed the EHCPLT.

Fifth, if the applicant is unable to reduce its cost per location sufficiently, OSB will then consider whether other applicants that have provided alternative, non-fiber proposals for Reliable Broadband Service in nearby areas could potentially serve the applicable area. If such potential exists, OSB will negotiate with one or more of those applicants to determine if they will amend their application to include the subject areas at a cost that is below the EHCPLT.

Finally, if the other applicants are unable to offer a cost per location that is below the EHCPLT, OSB will 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 Extremely High Cost Per Location Threshold at the given locations.

5.12 Requiring prospective subgrantees to certify their qualifications

OSB 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 OSB's standard grant application process 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.

OSB's Prequalification Phase and its Scoring Phase application will require potential subgrantees to provide narrative responses, certifications, and documentation to demonstrate financial resources and 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, OSB 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 be operational prior to receiving grant award funding as reimbursement for eligible expenses.

Additionally, during the Scoring Phase, OSB 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 OSB with necessary assurances of the applicant's financial qualifications and capabilities.

5.12.2 Letter of credit

***Update**: A few hours before OSB released this draft document on November 1, 2023, NTIA provided new guidance and waived its own rules regarding the letter of credit requirement. NTIA's new guidance is located at the link below and OSB seeks input and feedback from Maryland*

stakeholders regarding how to address the waiver and new requirements. The language below was developed based on NTIA's original guidance, which is no longer current as of November 1.

BEAD Letter of Credit Waiver | BroadbandUSA (ntia.gov)

BEAD program rules require subgrantees to obtain an irrevocable standby letter of credit from a qualified financial institution 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 Notice of Funding Opportunity (Section (IV.D.2.a.ii), OSB will implement a letter of credit process using the framework adopted by the Federal Communications Commission for its Rural Digital Opportunities Fund program (47 C.F.R. §54.804(c).

OSB will have a model letter of credit posted on its website as part of the BEAD application materials and will discuss the requirements for a letter of credit during its Prequalification and Scoring Phase application workshop and additional technical assistance outreach.

OSB's letter of credit process will require program participants to satisfy three steps.

As part of the Prequalification Phase, OSB will require participants to certify that they are aware of and understand the letter of credit obligations and processes for the BEAD program. 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 no less than 25 percent of the subaward amount, per NTIA's requirements.

During the Scoring Phase, applicants will be required to present a letter of commitment from a qualified financial institution. OSB 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)). 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 using the categories in 47 C.F.R. §54.804(c)(2). 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.

Upon completion of the Scoring Phase, successful subgrantees with awarded projects will be required to obtain an irrevocable standby letter of credit from the previously committed financial institution.

Submission of this letter of credit will be a condition of a final award agreement. A copy of the letter of credit for each funded project must be submitted directly from the issuing financial institution within 60 days of the notification of the award and prior to the finalization of the final award agreement. OSB will ensure that funding will only be committed or distributed upon submission of a proper letter of credit.

As an additional condition of the final award agreement, subgrantees 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, OSB will require potential subgrantees to submit documentation of their financial capabilities. During the Prequalification Phase, participants will be required to submit three years of audited financial statements. 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 for any of the three years, 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 have three years of audited financial statements in the ordinary course of business, it must describe the circumstances and reasons for the lack of audited financials and provide financial statements that contain substantially the same level of detail and information for any unaudited year. A Prequalification Phase participant without audited financial statements must also commit to providing three years of audited financials within 3 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 OSB 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, OSB 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, OSB 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, OSB will require applicants to complete and submit a budget narrative, proposed budget, and pro forma business case analysis. Applicants will be required to use OSB provided templates for these submissions.

Applicants will be allowed to provide 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. The justification explanation will include a break-down of the grant and match share of each proposed cost.

OSB 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. OSB 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 indicating their financial projections to demonstrate sustainability. These templates ask for information and assumptions regarding current subscribers, tiers and costs, take rates, churn, revenue-per-user, operating expenses, cash flow, and capital expenditures over the course of the construction and operations for a 5-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, OSB can review the financial sustainability of each project in a more consistent, fair, and transparent manner.

OSB 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. OSB 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, OSB will also accept additional documentation that gives applicants additional opportunity to present supplementary demonstration of financial sustainability tailored to the proposed project.

OSB 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

OSB will require potential subgrantees to demonstrate managerial capability to successfully complete and support a BEAD funded broadband network. OSB 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. OSB 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.

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.

OSB 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.

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.

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.

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. OSB 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 OSB 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 Maryland 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.

OSB 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 Maryland. 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 OSB 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. OSB discusses these programs in Section 9 of this document.

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, OSB 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 OSB 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 as part of the application materials.

- 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 as part of the application materials.

- In addition to the budget narrative and pro forma analysis provided as part of the showing of financial sustainability (including current subscribers, tiers and costs, 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.

OSB 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.

OSB 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, OSB 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 OSB'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 or qualified in-house engineer during the Scoring Phase. OSB will require that the certifying engineer holds all required professional licenses from the State of Maryland.

OSB 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 provide 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

OSB's Prequalification Phase will require participants to provide a legal opinion by an attorney licensed in Maryland 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, OSB 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 OSB or NTIA may develop. OSB will also consult with other State and federal agencies to incorporate

additional laws and regulations applicable to BEAD program projects. In the event of a conflict between federal, State, or local regulations, OSB will require compliance with the most stringent obligations and requirements to the extent those obligations are not preempted by applicable federal law.

OSB 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.

OSB 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 Health and Safety Act and related State and federal regulations.

As part of this showing, OSB 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. 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, OSB 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, video, 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, broadband or video 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 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 will 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 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, OSB 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). OSB 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.

For participants that report to the FCC, OSB 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.

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

This requirement is critical for OSB, and NTIA, to uphold their commitments to fairness and transparency under the BEAD program. Ownership information for each prospective subgrantee will allow OSB 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 OSB's efforts to substantiate an applicant's overall expertise and competence to successfully complete a BEAD funded project, during the Prequalification Phase OSB will require participants to submit information about their participation in other State or federal publicly funded grant programs.

OSB 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 OSB'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, OSB will provide a template, 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, OSB 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 OSB may support using BEAD Program funds.

OSB does not anticipate having non-deployment subgrantees. The State's estimate to provide universal service exceeds its BEAD allocation, so OSB does not anticipate having additional funds for other broadband activities from workforce to digital equity.

If, however, the State has additional funds after provisionally issuing the broadband grants, it will plan to support non-deployment activities with its remaining funding. Consistent with the BEAD Notice of Funding Opportunity, OSB will consider supporting additional nondeployment activities related to the following:

1. User training with respect to cybersecurity, privacy, workforce development and other digital safety matters
2. Digital literacy/upskilling (from beginner level to advanced).
3. Implementation of digital equity plans in the State (to supplement, but not to duplicate or supplant, planning grant funds received by the Eligible Entity in connection with the Digital Equity Act of 2021).
4. Broadband sign-up assistance and programs that provide technology support.
5. Multi-lingual outreach to support adoption and digital literacy.
6. Prisoner education to promote pre-release digital literacy, job skills, online job acquisition skills, etc.
7. 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.

OSB has a limited window to run the State challenge process and select deployment grants in order to prepare its Final Proposal for public comment and review before submitting it to NTIA. NTIA has provided 365 days to complete all this work. Given these time constraints, the State anticipates that it may need to use a faster process to support any workforce or digital equity-related non-deployment activities that will use any remaining funds This means that the State may need to engage in any non-deployment activities directly through the OSB, its contractors. or other State offices.

As OSB runs its subgrant selection process, it will monitor remaining BEAD funds closely. If OSB determines that it may have unused deployment funds, it will inform NTIA of these changes. At

the same time, OSB will begin preparing a fulsome non-deployment activity plan to submit as part of its Final Proposal.

7 Eligible Entity implementation activities (Requirement 10)

This section describes initiatives that OSB, as the Eligible Entity, proposes to implement as the recipient without making a subgrant. As noted above, in Section 6, Non-deployment subgrantee selection (Requirement 9), the State's estimated cost to provide universal service exceeds its BEAD allocation.

However, if Maryland has funds remaining after funding all unserved, underserved, and CAI locations, the State may consider implementing non-deployment priorities itself through existing State programs. OSB 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 BEAD activities without issuing a subgrant. These activities include:

- 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

As noted in NTIA's Guidance, "an Eligible Entity may justify implementing pre-existing activities as a recipient if the Eligible Entity is already running them, such as mapping or data collection." Maryland has been a leader in broadband deployment, mapping, and related activities, led by an engaged Governor and Legislature (as noted in our Five-Year Action Plan). OSB welcomes the opportunity to utilize BEAD funds to align its existing activities with the BEAD program, for example by producing BEAD-related analyses of data already gathered.

8 Labor standards and protection (Requirement 11)

This section explains how OSB 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

In the application, and as part of the prequalification process, OSB will require the following from all applicants:

1. Certification from an Officer/Director-level employee, or an equivalent, of consistent past compliance with federal labor and employment laws on broadband deployment projects in the last three years, including:
    - Certification that the prospective subgrantee, as well as its contractors and subcontractors, have not been found to have violated laws such as the Occupational Safety and Health Act, the Fair Labor Standards Act, or any other applicable labor and employment laws for the preceding three years, or
    - Disclosure of any findings of such violations
2. Certification that the potential subgrantee, and its proposed contractors and subcontractors, have existing labor and employment practices in place and that the subgrantee will recertify this annually for the duration of the BEAD implementation period, including:
    - Applicable wage scales and wage and overtime payment practices for each class of employees expected to be involved directly in the physical construction of the network
    - Certification that the potential subgrantee will ensure the implementation of workplace safety committees that are authorized to raise health and safety concerns in connection with the delivery of deployment projects and that the applicant will recertify this annually for the duration of the BEAD implementation period
3. Discussion of the potential subgrantee's workforce plan, including information on training and safety, job quality, local hire and targeted hire, accountability and subcontracting practices, and ongoing operational workforce

4. Discussion of current and planned future practices regarding using a directly employed workforce, robust in-house training, wages and benefits, and a locally based workforce

5. Current and planned future practice regarding public disclosure of workforce plans and labor commitments on a website or online portal

6. Discussion of job quality considerations as part of the applicant's workforce development strategies

7. Discussion of track record and commitment to maintaining high standards of workplace safety practices, training certification or licensure for all relevant workers, and compliance with State and federal workplace protections

8. Certification of compliance with relevant workplace protections including the Occupational Safety and Health Act, the Fair Labor Standards Act, Title VII of the Civil Rights Act of 1964, and Maryland State labor and employment laws

9. Discussion of whether the construction workforce will be directly employed or subcontracted, 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

With respect to all materials and information provided, OSB will review and evaluate the applicant based on the following:

1. Completeness. Are the materials complete and fully responsive to the request?

2. Sufficiency. Do the materials demonstrate the appropriate level of compliance and adherence to the standards and statutes?

3. Concerns. Are there any omissions or other indications that should raise concerns about the potential subgrantees', or its contractors' and subcontractors', track record and commitment to the standards or statutes?

Based on OSB'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, points will be awarded pursuant to the scoring rubric; (2) for those applications that raise concerns based on omissions or other indications, OSB will provide clarifying questions to the applicant in writing while affording seven calendar days for the applicant to respond and, upon receipt of the responses, then award points pursuant to the scoring rubric.

8.2 Binding legal commitments in subgrants related to labor standards and protection

Following an award, successful Applicants will be required to submit ongoing workforce reports which shall be incorporated as material conditions of their subgrant from OSB. 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.

In the event that successful applicants fail to meet the Program Requirements or Workforce Plan Data requirements, or otherwise falsify information regarding such requirements, OSB shall investigate the failure and issue an appropriate action allowable by law.

To encourage public confidence in the program, Applicants' disclosures responding to the workforce criteria will be publicly available on OSB's website.

Subgrantees shall be required to provide in regular reports the below information. This information may be anonymized and aggregated to protect individual privacy:

- Whether the workforce will be directly employed by the subgrantee/ISP or whether work will be performed by a subcontracted workforce;
- The entities that the subgrantee 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;
- Any in-house training program, including whether the training program is tied to titles, uniform wage scales, and skill codes recognized in the industry; Safety training, certification, and/or licensure requirements, including whether employees are required to have completed OSHA safety training or any training required by law.

9 Workforce readiness (Requirement 12)

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

This section explains how OSB will ensure an available, diverse, and highly skilled workforce. It outlines the workforce needs that will be created by the spending on broadband construction under the BEAD program, outlines the State's approach to helping foster a robust, diverse workforce, documents how the Office of Statewide Broadband intends to meet the labor and workforce requirements in the BEAD NOFO, and describes how BEAD deployments will benefit and work in concert with the State's long-term economic development goals.

9.1 Establishing a baseline for the broadband construction sector in Maryland

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[18]

The following table generated using data from the economic and labor market modeling tool Lightcast, [19] outlines the performance of these subsectors that are directly employed in telecommunications in Maryland 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

[18] 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).

[19] Lightcast, https://www.economicmodeling.com/.

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

Table 1: Performance of Maryland's broadband deployment sector (2018 - 2022)

NAICS	Industry	2018 jobs	2022 jobs	2018 - 2022 change	2018 - 2022 % change	Avg earnings per job - Maryland	Avg earnings per job - national
237130	Power and Communication Line and Related Structures Construction	3,743	3,237	-506	-14%	$105,921	$108,440
335921	Fiber Optic Cable Manufacturing	57	31	-26	-46%	$222,404	$109,335
335999	All Other Electrical Equipment and Component Manufacturing	245	186	-59	-24%	$96,545	$122,081
516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	2,155	1,799	-356	-17%	$167,503	$239,987
517111	Wired Telecommunications Carriers	9,695	7,975	-1,720	-18%	$134,851	$126,979
517112	Wireless Telecommunications Carriers (except Satellite)	2,614	1,857	-757	-29%	$136,990	$126,584
	Total	**18,509**	**15,086**	**-3,423**	**-18%**	**$132,505**	**$147,794**

Source: Lightcast Datarun 2023.3

There has been significant contraction within Maryland's broadband deployment sector in the past 5 years, across every single industry category that plays a large role in deployment. The State saw a reduction of more than 3,000 jobs in industries related to broadband deployment during this timeframe. Maryland's 18 percent reduction in the broadband deployment workforce also is significant when compared to the national decline in broadband deployment workforce of 4 percent over the same timeframe. Marylanders in the broadband deployment sector make less than national averages in some roles, such as Power and Communication Line Construction and Electrical Equipment and Component Manufacturing but are highly competitive with salaries in other categories.[20]

[20] Lightcast Datarun 2023.3.

9.2 Estimating the impact of BEAD on broadband construction jobs

This analysis estimates that the construction spending due to the BEAD program will be approximately $321 million,[21] reflective of the entire BEAD allocation for Maryland plus the required 25 percent match. Because the construction is happening with significant overlap, this analysis also includes an analysis that adds to BEAD the anticipated spending in the State from ARPA Capital Projects Fund dollars directed to broadband—projected to be $170 million including match. (The ultimate amount spent on construction may be higher or lower depending on how much match can be catalyzed for each deployment—with some projects including 25 percent match or more, and some high-cost areas potentially necessitating much lower match; however, $490 million total in construction spending is proportionally accurate for the analysis at this time.)

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.[22,23]

Table 2: 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.

[21] This amount reflects approximately 95 percent of the BEAD allocation plus an average match of about 25 percent, given Maryland's limited high-cost allocation.

[22] 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, from June 2021, which is based on the work of Pollin et al. (2020).

[23] 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.

9.2.1 Broadband construction spending will require Maryland to grow their broadband construction workforce by hundreds of 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 $435 million investment in broadband construction, and the proportional increase in workforce needed for each occupation.

Table 3: Estimated workforce requirements for broadband deployment occupations

Occupation	Currently employed in Maryland	$321 million BEAD investment		$435 million BEAD + CPF investment	
		New workers needed	% increase	New workers needed	% increase
Project Management Specialists	29,692	29	0.10%	39	0.13%
Business Operations Specialists, All Other	36,840	12	0.03%	15	0.04%
Software Developers	27,960	13	0.05%	18	0.06%
Software Quality Assurance Analysts and Testers	9,052	4	0.04%	7	0.08%
Electronics Engineers, Except Computer	3,707	4	0.11%	7	0.19%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	26,416	31	0.12%	40	0.15%
Customer Service Representatives	46,662	28	0.06%	39	0.08%
Construction Laborers	19,863	72	0.36%	97	0.49%
First-Line Supervisors of Mechanics, Installers, and Repairers	9,838	23	0.23%	30	0.30%
Telecommunications Equipment Installers and Repairers, Except Line Installers	2,845	21	0.74%	28	0.98%
Electrical Power-Line Installers and Repairers	1,796	26	1.45%	36	2.00%
Telecommunications Line Installers and Repairers	2,457	48	1.95%	65	2.65%

Source: Lightcast Datarun 2023.3

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 significantly more current employees noted for each job category than in the previous chart, which only included workers employed at broadband deployment-related businesses. For example, a significant number of lineworkers may be working for electric utilities rather than telecommunications

companies. However, this chart gives perspective as to the greater 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.

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 a national baseline in a particular area. When there are notable 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, and more resilience when an influx of these occupations are 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 4: Occupations needed for broadband deployment (by percentage increase required)

Occupation	% occupational increase required	Location quotient
Telecommunications Line Installers and Repairers	2.65%	1.28
Electrical Power-Line Installers and Repairers	2.00%	0.83
Telecommunications Equipment Installers and Repairers, Except Line Installers	0.98%	0.96
Construction Laborers	0.49%	1.12
First-Line Supervisors of Mechanics, Installers, and Repairers	0.30%	1.00
Electronics Engineers, Except Computer	0.19%	1.91
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	0.15%	1.37
Project Management Specialists	0.13%	1.97
Software Quality Assurance Analysts and Testers	0.08%	2.57
Customer Service Representatives	0.08%	0.92
Software Developers	0.06%	1.02
Business Operations Specialists, All Other	0.04%	1.88

Source: Lightcast Datarun 2023.3

While some of these impacted occupations are at or above national levels of concentration, such as *Telecommunications Line Installers and Repairers, Electronics Engineers, Construction*

Laborers, and others, and there are several that are well below, indicating those roles may also be especially hard to fill as more broadband deployment demand is generated across the country. Of particular concern are *Electrical Power-Line Installers and Repairers (LQ of 0.83)* and *Telecommunications Equipment Installers and Repairers (LQ of 0.96)*. This reinforces the need for increased workforce development for those areas.

9.2.2 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 retirements—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 5: Characteristics of key occupations impacted by broadband investment

Occupation	Currently employed in Maryland	2018 - 2022 % change	Median annual earnings	Annual turnover rate
Project Management Specialists	29,692	104%	$98,030	49%
Business Operations Specialists, All Other	36,840	152%	$94,661	50%
Software Developers	27,960	39%	$129,813	37%
Software Quality Assurance Analysts and Testers	9,052	8%	$109,138	44%
Electronics Engineers, Except Computer	3,707	-15%	$135,762	28%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, Travel	26,416	1%	$64,854	71%
Customer Service Representatives	46,662	-3%	$38,875	93%
Construction Laborers	19,863	0%	$42,619	66%
First-Line Supervisors of Mechanics, Installers, and Repairers	9,838	0%	$73,424	48%
Telecommunications Equipment Installers and Repairers, Except Line Installers	2,845	-23%	$62,691	51%
Electrical Power-Line Installers and Repairers	1,796	-20%	$89,731	32%
Telecommunications Line Installers and Repairers	2,457	-46%	$81,203	48%

Source: Lightcast Datarun 2023.3

While some of these occupations have seen growth from 2018 to 2022, several occupations have contracted in numbers, particularly *Telecommunications Line Installers and Repairers*, *Electrical*

Power-Line Installers and Repairers, and Electronics Engineers. 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.

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.

9.2.3 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 6: 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

Occupation	Typical entry-level education	Work experience required	On-the-job training required
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 equivalent	None	Long-term

Source: Lightcast Datarun 2023.3

9.2.4 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 Maryland by major occupation category, the share of all unemployed people in Maryland represented by that category, and the comparable percentage of all unemployed people in that category for the nation.

Table 7: Unemployment for occupations impacted by broadband investment

Occupation	Unemployed in Maryland (April 2023)	% of State unemployment	% of national unemployment
Business and Financial Operations Occupations Project Management Specialists Business Operations Specialists, All Other	3,803	6%	6%
Computer and Mathematical Occupations Software Developers Software Quality Assurance Analysts and Testers	3,101	5%	3%
Architecture and Engineering Occupations Electronics Engineers, Except Computer	700	1%	1%
Sales and Related Occupations Sales Representatives of Services	4,336	7%	8%
Office and Administrative Support Occupations Customer Service Representatives	10,238	17%	13%
Construction and Extraction Occupations Construction Laborers	4,949	8%	13%
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	1,893	3%	4%

Source: Lightcast Datarun 2023.3

While 8 percent of unemployed people in Maryland are from the *Construction and Extraction* occupations, 13 percent of people nationally who are unemployed are from that category, showing a proportionally smaller availability of those workers in Maryland compared to the nation. Occupations in *Installation, Maintenance, and Repair*, which includes much of the telecommunications and construction roles that will be needed for BEAD deployments, have a very low rate of unemployment across the State—and a comparably low rate of unemployment in the country, further indicating that these roles will be hard 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 8: 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	468	1,235
Business Operations Specialists, All Other	123	1,844
Software Developers	2,125	1,153
Software Quality Assurance Analysts and Testers	240	350
Electronics Engineers, Except Computer	109	98
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	153	1,625
Customer Service Representatives	1,085	3,602
Construction Laborers	166	1,220
First-Line Supervisors of Mechanics, Installers, and Repairers	265	472
Telecommunications Equipment Installers and Repairers, Except Line Installers	44	137
Electrical Power-Line Installers and Repairers	12	57
Telecommunications Line Installers and Repairers	30	100

Source: Lightcast Datarun 2023.3

One challenge to 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.

9.2.5 Current training programs at public institutions in Maryland

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, and Bossier Parish Community College Fiber Technician Boot Camp in Bossier Camp, Louisiana; however, robust training programs at public institutions are also present in Maryland already.

The following is a list of institutions and relevant graduates generated by accessing the Integrated Postsecondary Education Data System (IPEDS).[24]

Table 9: Broadband workforce training programs at public higher education institutions

Institution	Degrees	Associated occupations	County	Degrees granted in 2022
Anne Arundel Community College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Anne Arundel County	4
Anne Arundel Community College	Retailing and Retail Operations	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	Anne Arundel County	8
Baltimore City Community College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore City	3
Capitol Technology University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Prince George's County	14
Capitol Technology University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Prince George's County	1
Carroll Community College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Carroll County	4
Cecil College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Cecil County	0

[24] Because the IPEDs data are 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.

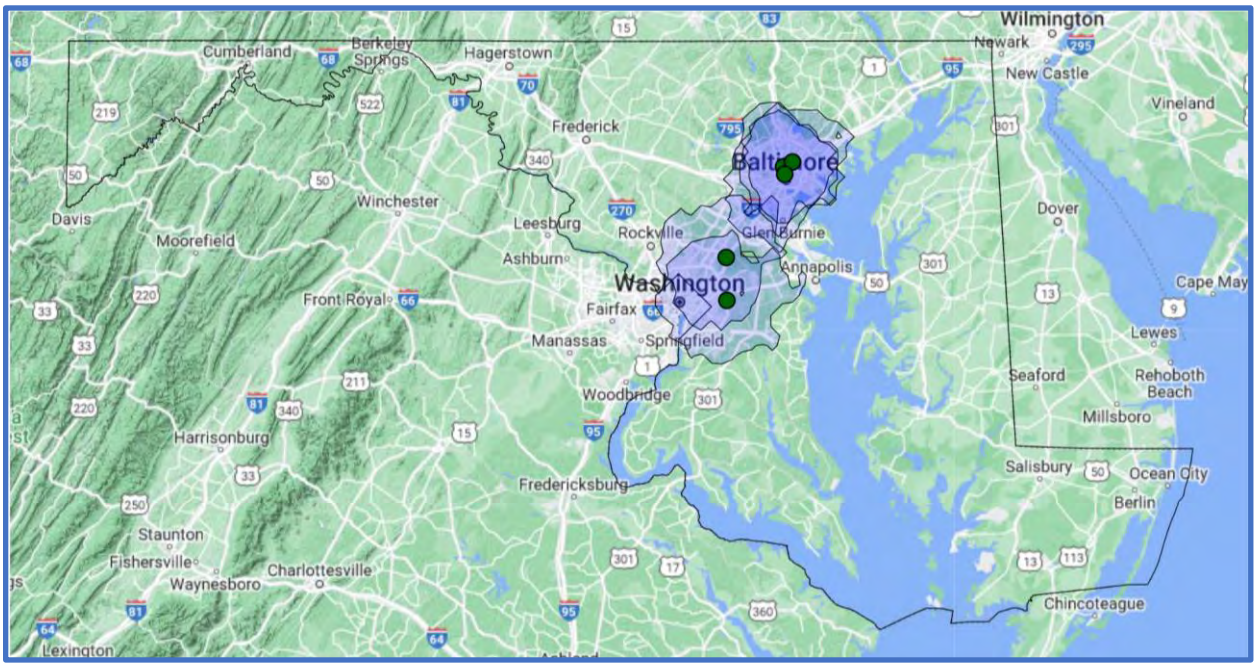
Institution	Degrees	Associated occupations	County	Degrees granted in 2022
College of Southern Maryland	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Charles County	14
Community College of Baltimore County	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore County	0
Garrett College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Garrett County	1
Howard Community College	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Howard County	3
Johns Hopkins University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore City	198
Johns Hopkins University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Baltimore City	12
Loyola University Maryland	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore City	0
Morgan State University	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore City	75
Morgan State University	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Baltimore City	14
Stevenson University	Selling Skills and Sales Operations	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	Baltimore County	0
United States Naval Academy	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Anne Arundel County	17

Institution	Degrees	Associated occupations	County	Degrees granted in 2022
University of Baltimore	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Baltimore City	0
University of Maryland Global Campus	Operations Management and Supervision	First-Line Supervisors of Mechanics, Installers, and Repairers	Prince George's County	38
University of Maryland-Baltimore County	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Baltimore County	12
University of Maryland-College Park	Electrical and Electronics Engineering	Electronics Engineers, Except Computer	Prince George's County	187
University of Maryland-College Park	Telecommunications Engineering	Electronics Engineers, Except Computer	Prince George's County	14

Though these data do 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, they do 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 following map shows a 30-minute drive-time around public institutions that are producing trainees that may be needed for field work.

Figure 5: 30-minute drive time around Maryland institutions training roles relevant to field-work during broadband construction



9.3 Continuing to support workforce development in Maryland

As indicated by the data analysis above, Maryland may need to grow its workforce to adequately meet broadband deployment demands in the coming years. While Maryland's community college network is producing good numbers of trained and qualified graduates, the State intends to continue working to recruit, train, and retain workers in the industry by continuing its history of strong inter-agency cooperation, levering American Jobs Centers, and promoting skills training via the Fiber Optic Association and other partners to ensure statewide coverage of a skilled and diverse workforce.

OSB has had continued discussions with Maryland ISPs that are confident that they can handle the demands from BEAD and beyond. To that end, the State affirms a few strategies employed in the industry, best practices demonstrated by the training providers locally and nationally noted above. These best practices have 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), 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:** OSB recognizes ISPs' 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. OSB 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 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, OSB may advise programs and employers to set recruitment targets at double or even triple the number of people needed.

Lastly, perhaps the most important workforce role for Maryland 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 Maryland intends to stay in close coordination with broadband construction stakeholders is in the next section.

10 Minority Business Enterprises (MBE) / Women's Business Enterprises (WBE) / labor surplus area firms inclusion (Requirement 13)

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

Maryland State has a long history of supporting Minority and Women-Owned Business Enterprises (MBEs/WBE) programs. The Governor's Office of Small Minority & Women's Business Affairs (GOSBA) offers a MBE/WBE Certification Process, which provides opportunities for State contracting and subcontracting, as well as purchasing opportunities for MBEs/WBEs. A highlight of GOSBA is having an MBE Liaison, the liaison is well-versed on the MBE Program's best practices and understands the procurement process. Liaisons provide direction and guidance to buyers in their agency. They also advocate for MBEs and help solve any problems that may arise during the term of the contract. Certified MBEs/WBEs in Maryland are eligible for direct assistance to help grow their business and short terms loans, business mentorships.[25]

Maryland also offers resources to help MBEs/WBE pursue State business opportunities. 1,162 MBEs/WBE was awarded over $1.1 billion in State contracts in FY 2021.[26] The State has a 17.2 percent MWBE utilization in FY 2021 which is a progress from 14.1 percent in the previous fiscal year. Maryland's (MBEs/WBE) Program was established in 1978.[27] It is an economic development tool intended to increase procurement opportunities for minority and women-owned firms within the State contracting arena. This race- and gender-conscious procurement program applies to 70 agencies and departments and has a statewide aspirational goal of 29 percent.[28]

Certification for the MBEs/WBE Program is managed by the Office of Minority Business Enterprise, a division of the Maryland Department of Transportation. Vendors complete a certification process based on established eligibility standards to determine social and economic disadvantage. Once certified, firms must renew annually to remain in the program. There is no cost to obtain MBE certification.

The U.S. Secretary of Labor is required to annually designate Labor Surplus Areas (LSA) and disseminate this information for the use of all federal agencies in directing procurement activities

[25] "Small, Minority & Women-Owned Business," Maryland Business Express, https://businessexpress.maryland.gov/grow/minority-and-women-owned.
[26] "Annual Report, Fiscal Year 2021, Governor's Office of Small, Minority & Women Business Affairs, https://gomdsmallbiz.maryland.gov/Reports/GOSBA_Annual%20Report_FY2021.pdf.
[27] "Annual Report, Fiscal Year 2021, Governor's Office of Small, Minority & Women Business Affairs.
[28] "Minority Business Enterprise (MBE) Program," Governor's Office of Small, Minority & Women Business Affairs, https://gomdsmallbiz.maryland.gov/Pages/mbe-Program.aspx.

and in locating new plants or facilities. States may direct federal funding to designated LSAs where there is high unemployment. That means that employers located in those areas can be given preference in bidding on federal procurement contracts.[29]

An area must have an unemployment rate at least 20 percent above the national rate (including Puerto Rico) during the previous two calendar years in order to qualify as an LSA. The US department of Labor 2024 update includes Worcester County as a qualified county for LSA.[30] The State will work with subgrantees during the award period to maximize their use of MBEs/WBEs and LSAFs. OSB will work closely with GOSBA to ensure all prospective and future subgrantees are aware of qualified MBEs/WBEs and LSAFs certified by the State.

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

10.1.1 Place qualified small and minority businesses and women's business enterprises on solicitations lists

OSB share information with stakeholders about GOSBA regional MWBE business development events and outreach, including training sessions, webinars, mentorship opportunities, and programs aimed at connecting MWBEs with Maryland State agencies, authorities, and local contracting opportunities.

10.1.2 Assure that small and minority businesses and women's business enterprises are solicited whenever they are potential sources

OSB will work closely with GOSBA to ensure information about grant and contracting opportunities is made available to MWBEs.

GOSBA's primary functions are: (1) to encourage and assist State agencies that are engaged in contracting activities to award a fair share of State contracts to MWBEs; (2) to review applications by businesses seeking certification as a MWBE and to maintain a directory of certified MWBEs; and (3) to promote the business development of MWBEs through education and outreach to agencies and MWBEs.

[29] See Executive Order 12073, https://www.archives.gov/federal-register/codification/executive-order/12073.html; and Executive Order 10582, https://www.archives.gov/federal-register/codification/executive-order/10582.html.

[30] See "Labor Surplus Area," U.S. Department of Labor, https://www.dol.gov/agencies/eta/lsa; see also, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.dol.gov%2Fsites%2Fdolgov%2Ffiles%2FETA%2Flsa%2Fpdfs%2F2024-FINAL-LSA.xlsx&wdOrigin=BROWSELINK, includes Worcester County.

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

OSB will leverage the strength of Maryland State procurement policies 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.

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, OSB will establish delivery schedules to encourage participation by small and minority businesses, and women's business enterprises. OSB will 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

OSB will also work with and make available information about the services and assistance, as appropriate, of organizations such as the Small Business Administration (SBA) and the Minority Business Development Agency (MBDA), the Eligible Entity may describe its plans to consult with SBA's Small Business Development Centers and MBDA's State-Based Business Centers for more information on multiple SMA contracting assistance programs, including:

Small businesses make up 99 percent of Maryland State businesses and employ 49 percent of Maryland's private sector workforce.[31] Maryland State Small Business Division supports the development and expansion of businesses with under 100 employees—directing an array of programs and initiatives supporting small business growth and helping entrepreneurs maximize opportunities for success.

- Small Disadvantaged Business
- Women-Owned Small Business Federal Contract program

10.1.6 Require each subgrantee to take these affirmative steps as they relate to its subcontractors

OSB will work with subgrantees to ensure that they take steps to include qualified MBE/WBEs and LSAFs whenever possible.-OSB may take steps that include, but are not limited to:

[31] "2021 Small Business Profile: Maryland," U.S. Small Business Administration, Office of Advocacy, https://advocacy.sba.gov/wp-content/uploads/2021/08/Small-Business-Economic-Profile-MD.pdf.

- Providing subgrantees with training and 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

The State certifies that it will:

☑ Place qualified small and minority businesses and women's business enterprises on solicitation lists

☑ Assure that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources

☑ 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

☑ Establish delivery schedules, where the requirements permits, which encourage participation by small and minority businesses, and women's business enterprises

☑ 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

☑ Require each subgrantee to take these affirmative steps as they relate to its subcontractors

11 Cost and barrier reduction (Requirement 14)

This section documents the steps OSB will take to reduce costs and barriers to deployment through promoting the use of existing infrastructure and promoting and adopting dig-once policies, streamlined permitting processes, and cost-effective access to poles, conduits, easements, and rights of way, including the imposition of reasonable access requirements.

This section also includes steps to reduce costs associated with construction, labor, overhead, and materials that OSB has identified as additional barriers in the State.

As discussed below, the State has already taken proactive steps to facilitate broadband deployment through the enactment of a statewide dig-once policy (see Section 0), an interagency effort to streamline State permitting processes (see Section 0), and a long-standing resource sharing process for the installation of communications infrastructure (see Section 11.1.1).

Through an extensive review of sources of increased deployment costs and barriers for deployment, OSB has identified the following strategies for mitigating cost and barrier risks.

11.1 Promote the use of existing infrastructure

11.1.1 Leverage Maryland's resource sharing program for access to State rights-of-way and relevant assets

Maryland has been proactive in establishing policies and processes to facilitate broadband infrastructure deployment by streamlining access to conduits, rights-of-way, and other assets on State roads. After the Maryland Department of Transportation (MDOT) State Highway Administration (SHA) piloted a resource sharing agreement to support intelligent transportation system (ITS) initiatives in 1994, the 1996 Maryland Telecommunications Act amended Maryland Code to enable resource sharing; in 1998, MDOT SHA updated its utility accommodation policy to allow longitudinal installation to be performed on controlled-access highway rights-of-way.[32]

Through the Resource Sharing Agreement (RSA) program managed by the Maryland Department of Information Technology (DoIT), MDOT offers non-exclusive use of State rights-of-way, communications infrastructure, and real estate "for communications systems installed, operated and maintained by the offeror(s) in exchange for communications equipment, services, or cash."[33] MDOT's permitting process incorporates the requirements of the RSA program, and

[32] "Successful Practices of Broadband Deployment in Highway Rights of Way: Summary Paper," U.S. Federal Highway Administration Office of Policy and Governmental Affairs, May 2013, https://www.fhwa.dot.gov/policy/otps/successprac.cfm.

[33] "Resource Sharing Process," MDOT, https://mdot.maryland.gov/tso/pages/index.aspx?pageid=71. The 1996 Maryland Telecommunications Act and State Finance and Procurement Code § 3A-301 – 313 defined "resource sharing" and established a process for oversight by DoIT. Applicable law and policy include MD SF&P Code Ann. Sections 3A-301, 3A-303, 3A-307; and Maryland Transportation Article (TA) § 8-654, Maryland Public Utilities

providers enter into an RSA agreement with DoIT to access rights-of-way. The State has set a standard pricing schedule (effective July 2019) for companies installing their own fiber or conduit using State property or utilizing State-owned dark fiber.[34]

Nonprofit telecommunications providers installing broadband infrastructure in underserved and rural areas of the State are not charged for their use of the right-of-way or easement, per § 8-654 of the Transportation Article of the Maryland Code.[35] DoIT also offers a waiver of RSA fees to for-profit companies delivering last-mile services to unserved rural communities (i.e., rural areas in which no facilities-based broadband provider offers services at a minimum of 25/3 Mbps).[36]

OSB collaborates with DoIT on the RSA program, including its fee waiver program, and anticipates potentially leveraging the process to facilitate deployment by BEAD Program subgrantees.

Utility pole attachments in Maryland are regulated by the FCC. A Public Service Commission of Maryland workgroup convened at the direction of House Bill 541 (2015) to study the process found that "the pole attachment market in Maryland results in rates, terms and conditions for pole attachments that are adequate," based on Staff analysis and comments from interested parties.[37]

11.1.2 Encourage local communities to leverage their poles and conduits

OSB will encourage municipalities that own poles or conduits to make them available. These localities can indicate availability of such streamlined access and OSB will publish this information for eligible areas so grant participants can take it into consideration for their cost proposals.

Article (PU) § 5-410 & 8-103, and Local Government Article (L"), § 1-708 (c). See, https://doit.maryland.gov/policies/Pages/20-13-RSA-Programs.aspx.

[34] "State of Maryland Information Technology Assets Fiber Optics Resource Sharing Standard Pricing Schedule," MDOT State Highway Administration, effective July 18, 2019, https://roads.maryland.gov/OOC/Fiber-Resource-Sharing-Standard-Pricing-Schedule.pdf.

[35] Secretary of DoIT, "Nonprofit Proposals to Install Broadband Communications in State Right-of-Way," Memorandum, October 3, 2019, https://mdot.maryland.gov/ResourceSharing/RSA-PGM-2019-02_Nonprofit_Rural_Broadband_Signed.pdf. Established by House Bill 961 (2018); https://mgaleg.maryland.gov/2018RS/Chapters_noln/CH_176_hb0961e.pdf.

[36] Secretary of DoIT, "DoIT RSA Rural and Unserved Broadband Fee Waiver," Memorandum, October 9, 2019, https://mdot.maryland.gov/ResourceSharing/RSA-PGM-2019-03_Rural_Broadband_Fee_Waive_%20signed.pdf.

[37] "A Report on Utility Pole Attachments in Maryland," on behalf of the Staff of the Public Service Commission of Maryland, January 15, 2016, https://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/021000/021867/unrestricted/20160117e.pdf.

11.1.3 Allow access to limited access rights-of-way for last-mile broadband providers providing service to unserved locations

While Maryland typically does not permit longitudinal installations along fully controlled access roadways, MDOT makes an exception for telecommunications "in direct response to federal broadband initiatives," per an MDOT representative.[38] These projects are subject to resource sharing, and the representative reports that MDOT is considering resource sharing opportunities for limited or full control access roads other than interstates.

The State will explore ways it can facilitate subgrantees gaining access to limited access rights-of-way through streamlined public interest construction and resource sharing arrangements. As discussed in Section 11.1.1, DoIT currently waives RSA fees for for-profit providers delivering broadband service to unserved rural locations, and nonprofit providers deploying broadband infrastructure in underserved rural areas are not charged a fee to use State rights-of-way.

11.1.4 Create online State-hosted middle-mile database and conduct RFI

The State's commitment to asset sharing does not end with physical assets; OSB will also build a robust and comprehensive database containing information (geospatial and otherwise) on known public assets and will be made available upon request.

This asset and information database will be made available to all prospective BEAD participants, allowing for early planning and budgeting before applications are filed. Access to such information allows some competitors to submit more cost effective, accurate, and informed project applications.

11.2 Promote dig-once policies by providing best practice guide for localities

The State encourages sharing of open trenches and available conduit via the promotion and adoption 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.

The Building Out Broadband Act of 2021[39] requires MDOT and units of local government[40] to "allow joint trenching by broadband providers on a nonexclusive and nondiscriminatory basis," with certain exceptions,[41] to install fiber or conduit in highway right-of-way. Per the legislation,

[38] Valuation and Compensation Approaches in Utility Accommodation: A Guide," Appendices A-E, National Academies of Sciences, Engineering, and Medicine, The National Academies Press, 2023, https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_1053Appendices.pdf.

[39] HB 1328, enacted under Article II, Section 17(c) of the Maryland Constitution - Chapter 632 on May 30, 2021 and taking effect July 1, 2021; https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_632_hb1328T.pdf.

[40] Does not apply to a county or municipal corporation within the Washington Suburban Sanitary District.

[41] MDOT or a local government may deny joint trenching if "(i) joint trenching will hinder or obstruct highway safety or the construction, maintenance, operations, or related regulation of highway facilities; or (ii) joint

MDOT and local governments may charge providers that participate in joint trenching a fee "on reasonable financial terms" and nonprofit broadband providers must be exempted from this fee.

The revenues collected by MDOT will be "evenly distributed across funds designed for investment in broadband infrastructure,"

and a local government must use any revenue collected "to improve broadband access and adoption within that jurisdiction."

The Maryland Association of Counties, a nonprofit organization composed of representatives and elected officials from Maryland's 23 counties and Baltimore City,[42] testified before the House Economic Matters Committee in support of the Act.[43]

Prior to the Act, industry reports had already identified Maryland as one of a minority of states nationwide with a dig-once policy in place on the basis of MDOT's communications resource sharing program; [44] and, separately, on the basis of coordination with telecom providers and utilities by MDOT and the Task Force on Rural Internet, Broadband, Wireless, and Cellular Service (established by the Connecting Rural Maryland Act of 2017[45]) in addition to HB 961's (2018) right-of-way and easement use and fee exemption policy for nonprofit providers (see Section 11.1.1).[46]

The State will encourage dig-once policies and model local codes. This will minimize the number of times rights-of-way will be dug into, allowing even the smallest funded projects to leverage economies of scale to reduce costs.

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

trenching is not feasible because it will delay the repair or construction of a county's water, wastewater, electricity, or gas lines."

[42] Maryland Association of Counties, http://www.mdcounties.org/.

[43] Devin Neil, "MACo to State: Help Close the Digital Divide, Dig Once is Common Sense," Conduit Street, March 4, 2021, https://conduitstreet.mdcounties.org/2021/03/04/maco-to-state-help-close-the-digital-divide-dig-once-is-common-sense/.

[44] "Dig Once Policy: 16 State Models," Fiber Optic Sensing Association, July 2020, https://downloads.regulations.gov/FHWA-2019-0037-0011/attachment_3.pdf.

[45] Senate Bill 717 (2017); https://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_621_sb0717t.pdf.

[46] "Dig Once Model Legislation," Dura-Line, May 15, 2020, https://www.duraline.com/contentassets/fc2c3f0fa41946e8b6441930585d1fe0/dig-once-model-legislation.pdf?v=49b544.

local level as permits to install or work on existing facilities are often requested from cities and counties.[47]

11.3 Streamline permitting processes

11.3.1 Optimize local permitting processes

11.3.1.1 Establish best practices for county and local permitting

The State will leverage its organizational and coordinating power to streamline permitting processes for the many anticipated awardees that will deploy network infrastructure on or in assets owned by counties and localities.

In addition to enacting a dig-once policy for the State and local governments, the Building Out Broadband Act of 2021[48]—which was supported by the Maryland Association of Counties—states that "a county or municipal corporation may adopt, by ordinance or resolution, locally appropriate policies to advance progress of infrastructure, equipment, and systems needed to extend broadband access to underserved areas, including:

1. expedited consideration of locally imposed permits or approvals customarily applied to comparable projects;
2. the waiver or reduction of fees or charges customarily associated with comparable projects;
3. using project-based or region-based authority for public-private partnerships of related projects;
4. measures consistent with other county laws, implemented to accelerate deployment of infrastructure and equipment necessary or desirable to promote broadband deployment into underserved areas."

OSB will encourage these best practices in broadband permitting policies for counties and localities. These best practices will make recommendations on how localities can best optimize their permitting for broadband deployment, develop and share relevant information regarding their permitting policies, create conditions that make private investment more attractive, develop strategies to increase staffing and administrative support, and publish information on known assets of interest.

[47] "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.
[48] HB 1328, enacted under Article II, Section 17(c) of the Maryland Constitution - Chapter 632 on May 30, 2021 and taking effect July 1, 2021; https://mgaleg.maryland.gov/2021RS/chapters_noln/Ch_632_hb1328T.pdf.

11.3.1.2 Facilitate collaboration with key Department of Transportation and environmental and historic preservation agencies

OSB will encourage State agencies to incorporate best practices, as NTIA outlines or makes them available, for consultation with environmental and historic preservation agencies into its educational outreach to counties and localities.

These agencies will receive permit requests and material within a condensed period of time. As discussed further in Section 0, relevant State agencies have taken steps to streamline environmental review for broadband projects and issued guidance on navigating the process. [49] . While OSB will include federal agencies in its discussions, it highly encourages NTIA as the primary federal agency in charge of BEAD funds to enter into programmatic agreements with such agencies.

11.3.2 Streamline State permitting processes and pre-approved construction methods

In order to increase the feasibility of awarded projects under the BEAD program that intend to cross State-protected lands, the State will continue to discuss efforts to streamline permitting processes with the relevant land-controlling State agencies.

11.3.3 [Optional:] Shrink federal permitting timelines by partnering with NTIA to discuss a streamlined "shot clock" permit process

To benefit potential awardees that intend to cross federal lands, the State will attempt to shrink permitting timelines for access to federal lands by partnering with NTIA to discuss process reforms that might be implemented with key federal land-controlling agencies and exceptions that might be granted to BEAD awardees. As the lead federal agency, NTIA can also develop programmatic agreements with agencies to facilitate such permitting. One approach could include a "shot clock" permitting process on certain federal land use permits that would incentivize federal agencies to process BEAD permitting applications within a predetermined, finite, and reasonable amount of time.

11.4 Reduce 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. OSB will encourage providers to enter into resource sharing agreements as a way to reduce costs and risks.

[49] MDNR et al., "Navigating Maryland's Resource Access and Permitting Process for Broadband Projects: A User's Guide to Streamlining Protective Environmental Permitting & Securing Resource Access," MDNR, October 2018, https://dnr.maryland.gov/Documents/Navigating-Broadband-Permitting-Process.pdf.

11.5 Reduce drop costs

Drop costs, especially in rural areas where houses are often set back far from the public road, can be very high. Since subgrantees 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.

11.5.1 Map pole site locations and overlashing possibilities

OSB will consult with pole owners to determine if they are amenable to making pole locations available to ISPs for design and cost estimation purposes. If pole owners agree in certain areas, OSB will offer to disseminate this information to registrants in a prequalification round.

The State will convene with ILECs and CLECs to assess the feasibility of using existing copper telephone wires on utility poles to overlash drop fiber cables. The State will also convene with electric utilities to assess the feasibility of using existing messenger wires that support low-voltage power to lash drop fiber cables.

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 technology (i.e., fiber) 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.

Accordingly, the State will require certifications appropriate to specific risks and roles, rather than overly broad professional requirements that would require specialized labor for low-skill tasks. OSB will apply standards consistent with previous broadband initiatives and best practices provided by industry organizations.

11.6.2 Increase supply of labor through workforce development initiatives

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

11.7 Reduce overhead costs

11.7.1 Adopt reasonable, compliance-focused regulatory and reporting requirements

The State will attempt to reduce the overhead costs of construction and network operation by striking an appropriate balance in its regulatory and reporting policies. The State 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, RDOF, or ReConnect where appropriate.

11.8 Reduce materials costs

11.8.1 Identify approved vendors compliant with Buy America and negotiate discount rates

The State will act as a coordinating body to reduce the cost of materials for BEAD awardees by identifying vendors that are compliant with Build America, Buy America policies.

11.8.2 Encourage awardees to form joint purchase coalitions and joint purchase agreements

Additionally, the State will encourage subgrantees to create joint purchasing coalitions and joint purchasing agreements in order to negotiate lower materials costs.

11.9 Reduce the initial capital cost burden on smaller ISPs

11.9.1 Connect local and community banks with service areas overlapping eligible locations to local grant participants

OSB will reach out to the Federal Reserve Bank of Richmond to obtain a list of credit unions and community banks in Maryland that it can share with ISPs, so they can find banks with unserved locations in their service areas. In addition, it will encourage the Federal Reserve to share information about partnership models and options with Maryland banks to work with community development organizations and private partners to underwrite loan guarantees for local banks to provide letters of credit.

12 Climate assessment (Requirement 15)

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

Maryland has a west-to-east contrast in temperature. Larger seasonal variations occur in the highland west in the Appalachian Mountains, while temperatures in the east are moderated by the Chesapeake Bay and the Atlantic Ocean, according to the State Climate Summary for Maryland and Washington, D.C.[50] published by the National Oceanographic and Atmospheric Administration (NOAA) and the Cooperative Institute for Satellite Earth System Studies (CISESS). Temperatures and humidity are expected to increase, increasing the risk of flooding, according to the Climate Summary. The Chesapeake Bay area is the third most vulnerable area of the United States to sea level rise, behind only Louisiana and South Florida.

As noted in Maryland's Five-Year Action Plan, one location that could present a unique challenge for the State is Smith Island. This community is accessible exclusively by boat and has three villages: Ewell, Tylerton, and Rhodes Point.[51] At 4.3 square miles and with a population of 238 residents,[52] Smith Island presents itself as a potential extremely high-cost location for broadband service; and while traditionally it has been losing population, those trends are recently changing. The island's low elevation also puts it at risk due to climate change.

Overall, construction methods need to consider mountainous terrain with its snow, ice, and wind potential in the western portion of the State and ongoing maintenance and survivability in terms of flooding and other natural disasters in the east and other locations. However, given that this is a known concern, both the State and private deployers have a demonstrated history of successfully mitigating these issues.

In accordance with the Disaster Mitigation Act of 2000, the State of Maryland has routinely published a statewide Hazard Mitigation Plan (SHMP). The Hazard Mitigation Branch of the Maryland Department of Emergency Management (MDEM) is responsible for developing the SHMP.[53] The most recent SHMP was published in 2021,[54] building on the SHMP of 2016. MDEM

[50] "Maryland and the District of Columbia," NOAA and CISESS, https://statesummaries.ncics.org/chapter/md/.
[51] "Smith Island," Maryland Office of Tourism, https://www.visitmaryland.org/listing/scenic-points-landmarks/smith-island.
[52] "Smith Island," Census Reporter, https://censusreporter.org/profiles/16000US2472887-smith-island-md/.
[53] "Hazard Mitigation," MDEM, https://mdem.maryland.gov/community/Pages/Mitigation.aspx.
[54] "2021 State Hazard Mitigation Plan," MDEM, https://mdem.maryland.gov/community/Documents/2021_MEMA%20HazMitPlanFINAL_CLEAN%20with%20Appendices.pdf (note: this file is 511 megabytes (MB) in size and 2,172 pages long).

also maintains a map of county and local plans (Hazard Mitigation Plans and Nuisance Flood Plans), with links to the plans.[55]

12.1 Identifying geographic areas subject to initial hazard screening

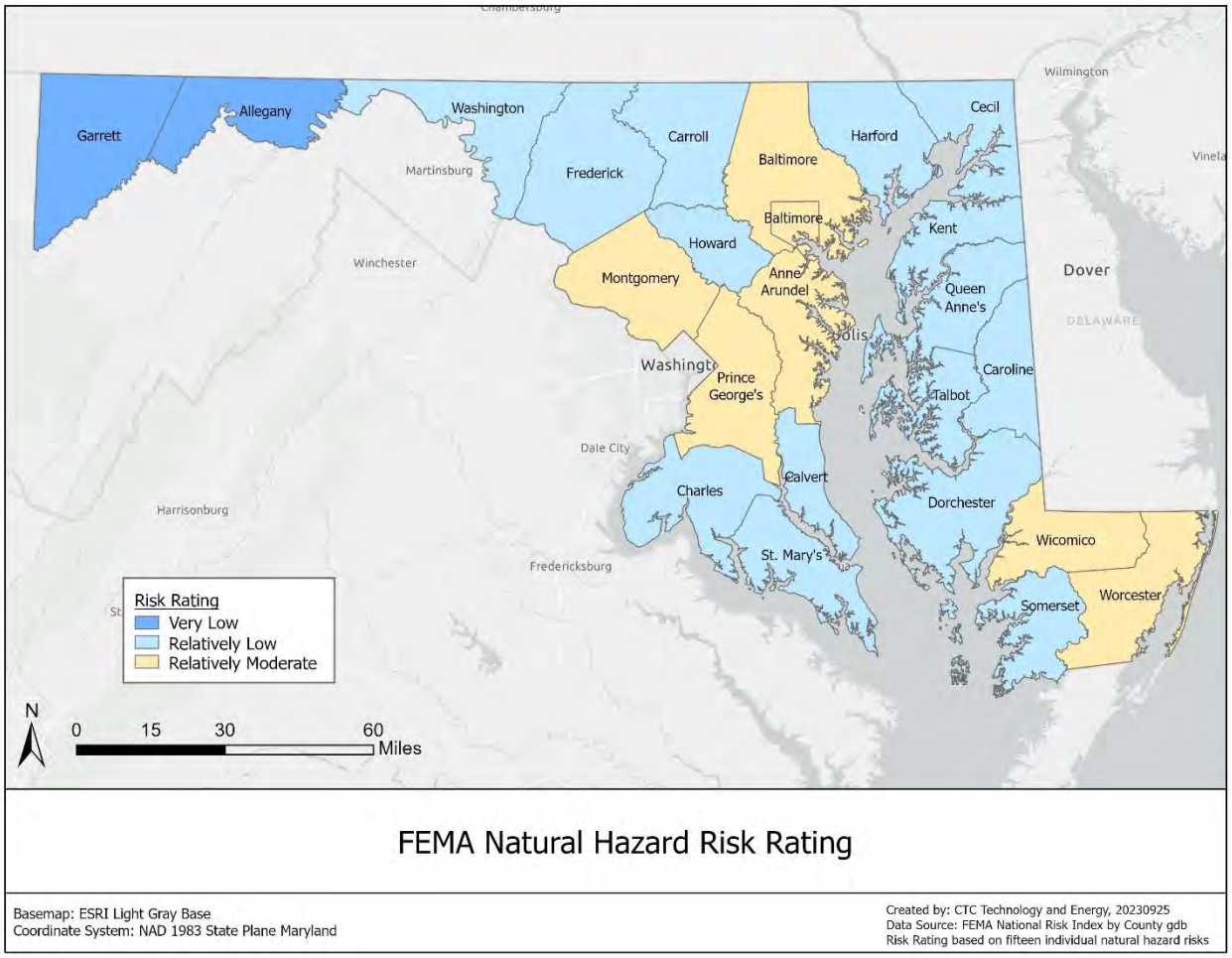
The SHMP will serve as the main source of information for evaluating and locating high risk areas. Local plans may provide additional information. This analysis will also use the work conducted by FEMA's National Risk Index (NRI) team to identify the hazards likely to impact residents of Maryland. It will employ the FEMA classification scheme, assessing each county's risks relative to other counties around the nation, and ranking each county's risks from Very Low (0-20th percentile), Relatively Low (20th-40th percentile), Relatively Moderate (40th-60th percentile), Relatively High (60th-80th percentile), to Very High (80th-100th percentile).

In addition to statewide planning, many permitting requirements and construction standards will govern the construction of BEAD-funded networks. These requirements will be subject to local ordinances. The State has taken steps to ensure local policy makers are taking the latest climate projection data into account as they set their standards and requirements. To this end, the State has prepared numerous resources to support local policy makers to help increase the resilience and adaptability of their jurisdictions, including publishing helpful documents and resources for localities to prepare their own community sustainability plans and climate change vulnerability assessment and action plans.

Relative to other states, Maryland as a whole does not face greater risk from natural hazards or disasters. According to FEMA's overall risk index, no counties are identified as being at Very High or Relatively High risk from natural disaster and weather hazards. Some counties are classified as having Relatively Moderate risk while other counties are classified as facing lower levels of risk.

[55] "Local plans," MDEM, https://maryland.maps.arcgis.com/apps/Embed/index.html?appid=61ca4db7f7b3437ab0537d12ce18ac87.

Figure 6: Composite risk scores for Maryland's counties



12.2 Characterizing which weather and climate hazards may be most important to account for and respond to these in areas and over time horizon

The SHMP screened out hazards that were deemed unlikely to occur, defined as likely to occur less than every 30 years.

The remaining hazards were classified as likely, meaning likely to occur less than every five years, but more often than once every 30 years; and highly likely, defined as likely to occur more than once every five years. This Initial Proposal does not cover human-caused hazards such as terrorism and public health emergencies such as disease, both of which are classified in the SHMP as likely but are not directly related to climate.

The highly likely hazards are (in alphabetical order):[56]

- Coastal hazards (including coastal flooding and hurricanes)
- Flood (including riverine flooding)
- Thunderstorms (including hail and lightning)
- Winter weather (including ice storms)
- Wind

The likely hazards are:

- Dam failures[57]
- Drought
- Extreme temperatures (including heat waves and winter weather)
- Soil movement (including landslides)
- Tornado
- Wildfire

To identify where hazards were responsible for driving the composite riskiness of the areas identified above, the State analyzed the estimated annual losses to buildings[58] for individual hazards across the State in order to understand the risk to BEAD assets associated with individual hazards. The contextualizing narratives are adapted from the SHMP. Hazards are presented below in the order in which they appear in the SHMP.

12.2.1 Coastal hazards (including coastal flooding and hurricanes)

The SHMP characterizes coastal hazards as highly likely in Maryland. Coastal hazards can take many forms. Often, coastal hazards are interconnected and include various other individual hazards. Coastal hazards include both tropical and non-tropical cyclones, which cause coastal inundation (including storm surge), freshwater flooding, destructive winds, tornadoes, debris flows, rip currents, and high surf, all of which may exacerbate shoreline erosion and longer-term hazards such as sea level rise.

[56] In the list, the hazard names are from the SHMP and the hazard names in parenthesis are FEMA's hazard names. The SHMP also includes a table of each county's self-assessment of risk, not reproduced here. "Table 3-61: Local Hazard Rankings 2020 – Self-Assessment," MDEM, https://mdem.maryland.gov/community/Documents/2021_MEMA%20HazMitPlanFINAL_CLEAN%20with%20Appendices.pdf.

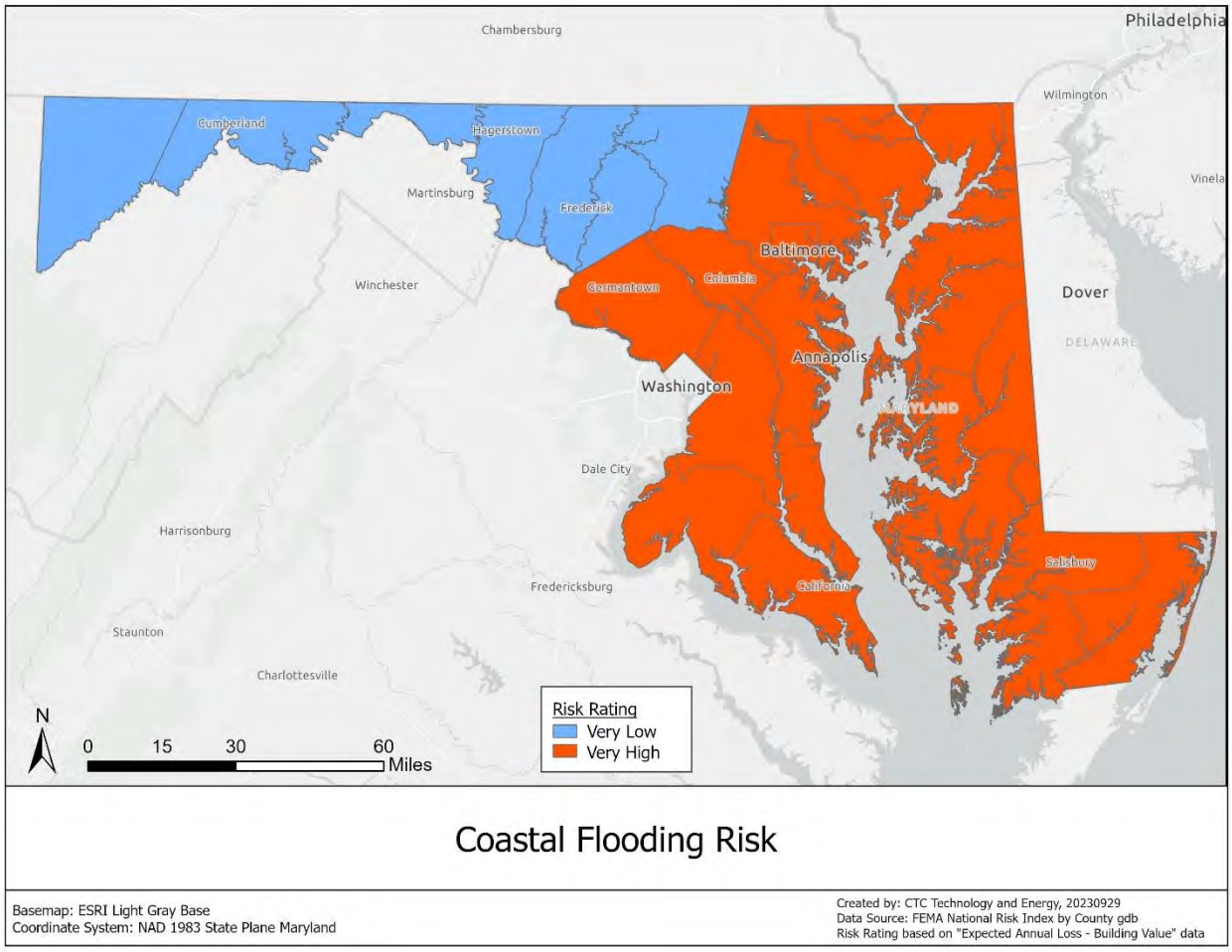
[57] This initial proposal addresses dam failures in the section on flooding.

[58] "Expected Annual Loss," FEMA, https://hazards.fema.gov/nri/expected-annual-loss.

Nuisance flooding is impacting Maryland with growing frequency. Nuisance flooding is defined in §3-1001 of the Natural Resource Article of the Maryland Annotated Code[59] as "high-tide flooding that causes public inconvenience." This is similar to how NOAA defines nuisance flooding or high tide flooding: "Flooding that leads to public inconveniences such as road closures."[60] As noted above, many local governments have developed Nuisance Flood Plans and MDEM publishes a map with links to the local plans.[61]

With its extensive shoreline, Maryland's coastline experiences flooding and erosion caused by coastal hazards and exacerbated by sea level rise. As shown in the map below, Maryland's coastal counties are at Very High risk for coastal flooding.

Figure 7: Risk of coastal flooding in Maryland

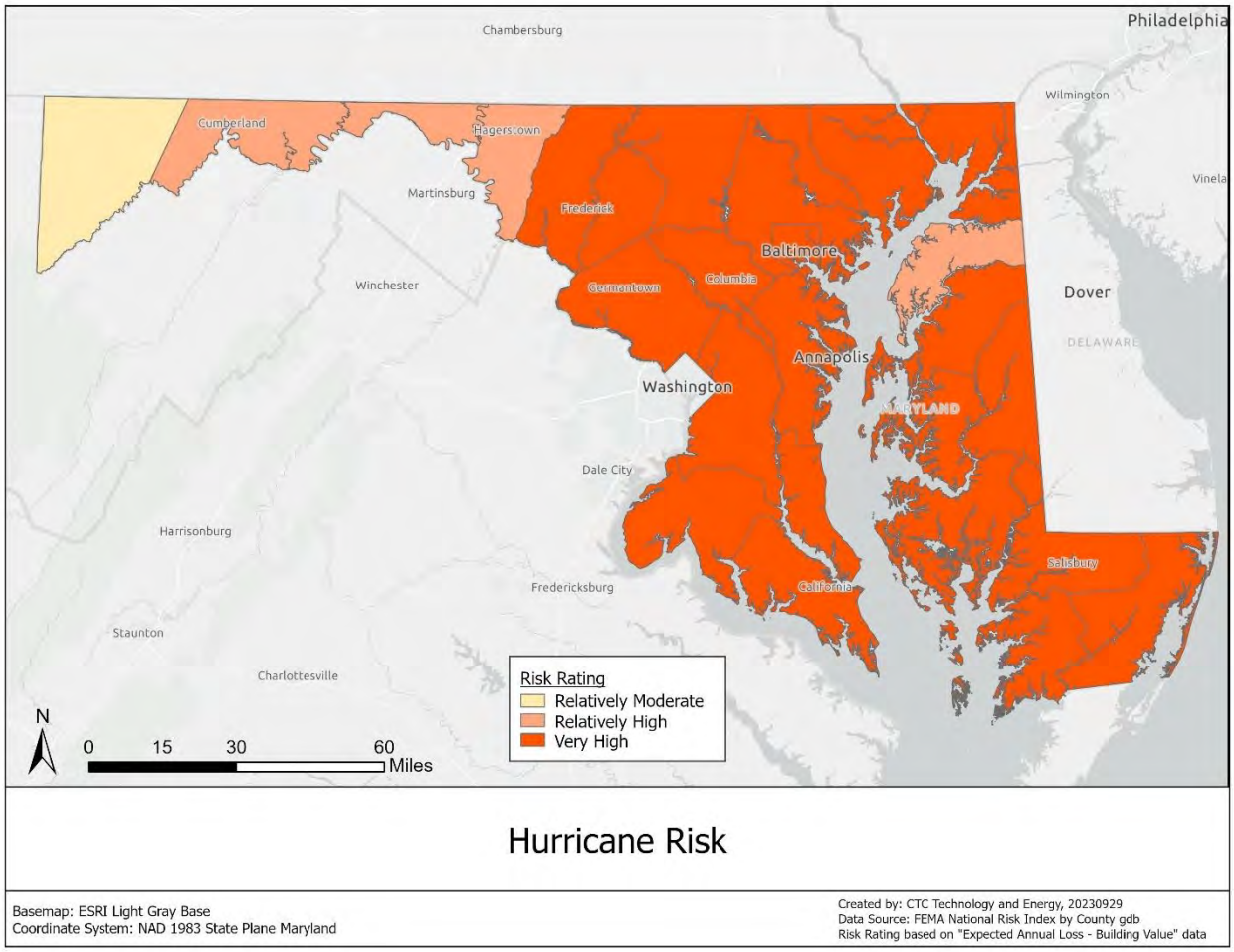


[59] "Article – Natural Resources," Maryland General Assembly, https://mgaleg.maryland.gov/2021RS/Statute_Web/gnr/gnr.pdf, p. 136.
[60] "NOAA Sea Level Rise Portal," NOAA, https://oceanservice.noaa.gov/hazards/sealevelrise/.
[61] Local plans, MDEM, https://maryland.maps.arcgis.com/apps/Embed/index.html?appid=61ca4db7f7b3437ab0537d12ce18ac87.

Hurricanes are measured on the Saffir-Simpson Hurricane Wind Scale, which categorizes a hurricane on a scale of 1 to 5 based on its sustained wind speed. Sustained wind speeds provide an estimate for potential damage to property and infrastructure. In addition to wind damage, hurricanes produce storm surge, measured in feet.

As shown in the map below, most counties in Maryland are at Very High risk from hurricanes, with the rest at Relatively High risk, except for Maryland's westernmost county, Garrett.

Figure 8: Risk of hurricanes in Maryland



Climate change will impact coastal hazards, increasing the frequency and intensity of hurricanes. Nuisance flooding will increase as sea levels rise, making nuisance flooding a significant stressor on infrastructure and emergency services. For each risk, including coastal hazards, the SHMP includes a list of assets at risk by county. For coastal hazards, the SHMP adds a detailed discussion of the potential effects on each county of sea level rise.

12.2.2 Drought

A drought is a protracted period of deficient precipitation. Drought is a likely hazard, according to the SHMP. The U.S. Drought Monitor, a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture and the National Oceanic and Atmospheric Administration, regularly updates drought maps of the United States.[62] The Maryland map shows that two Maryland counties are experiencing drought conditions over part of their land area.[63] Drought does not directly impact broadband infrastructure but its secondary affects, such as an increased probability of wildfires, would directly affect infrastructure.

12.2.3 Extreme temperatures (including heat waves and winter weather)

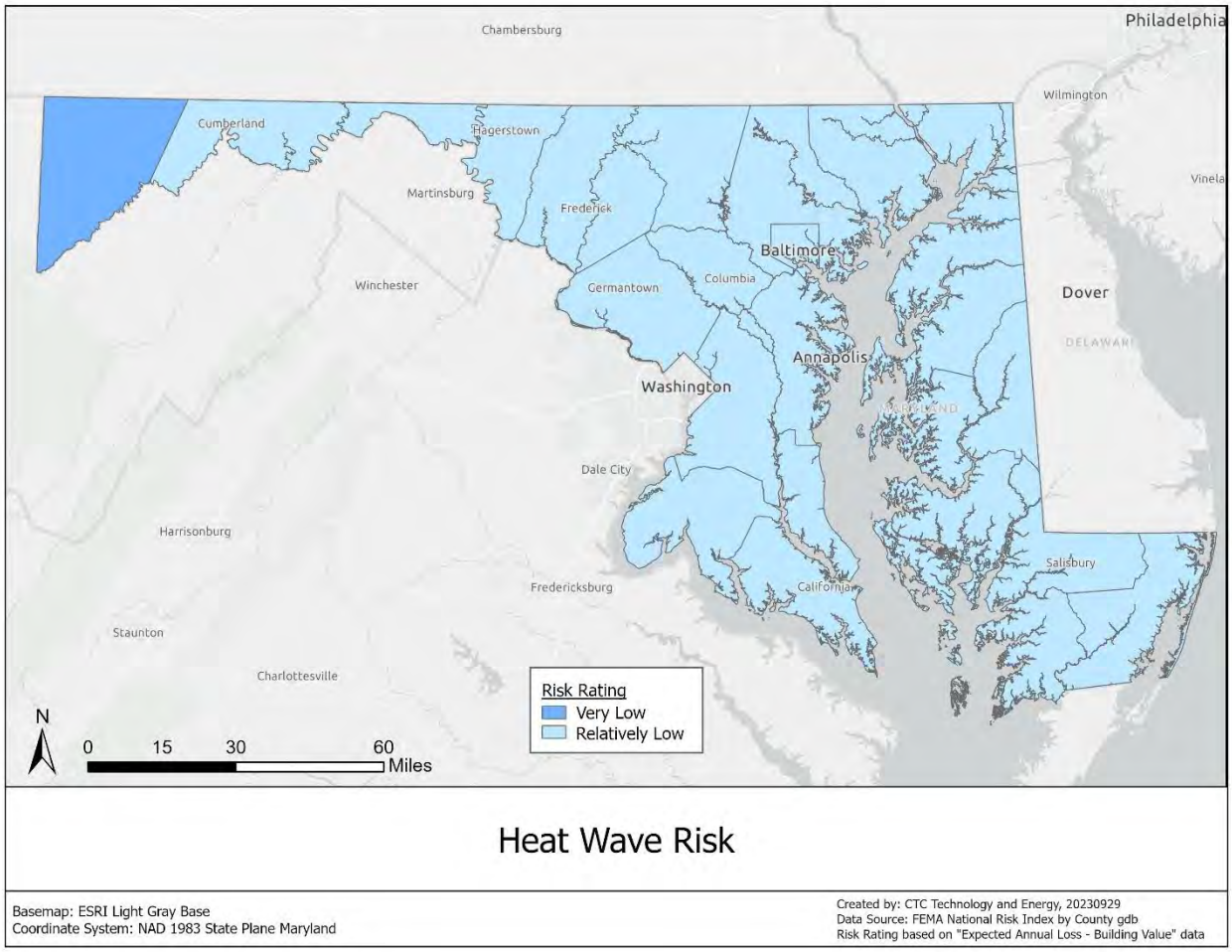
Extreme temperatures are a likely hazard, according to the SHMP. The Centers for Disease Control and Prevention (CDC) estimates that an average of 600 heat-related deaths happen per year, with seniors and children at highest risk.[64]

The impacts of excessive heat specifically are typically more pronounced in dense areas, where the built environment can increase temperatures through a phenomenon known as the urban heat island effect. Extreme temperatures can affect broadband infrastructure and service by causing power outages. In urban areas, extreme heat can cause increased use of air conditioning, placing increased stress on the power grid. Humid areas tend to have both more significant temperature differences and more severe impacts.

Since the 2016 Plan, no federally declared extreme temperature events have occurred in Maryland. As noted on the map below, Maryland is at a lower risk of heat waves than the national average.

[62] U.S. Drought Monitor, https://droughtmonitor.unl.edu/.
[63] "Maryland," U.S. Drought Monitor, https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?MD.
[64] "Extreme Heat," CDC, https://www.cdc.gov/disasters/extremeheat/heat_guide.html.

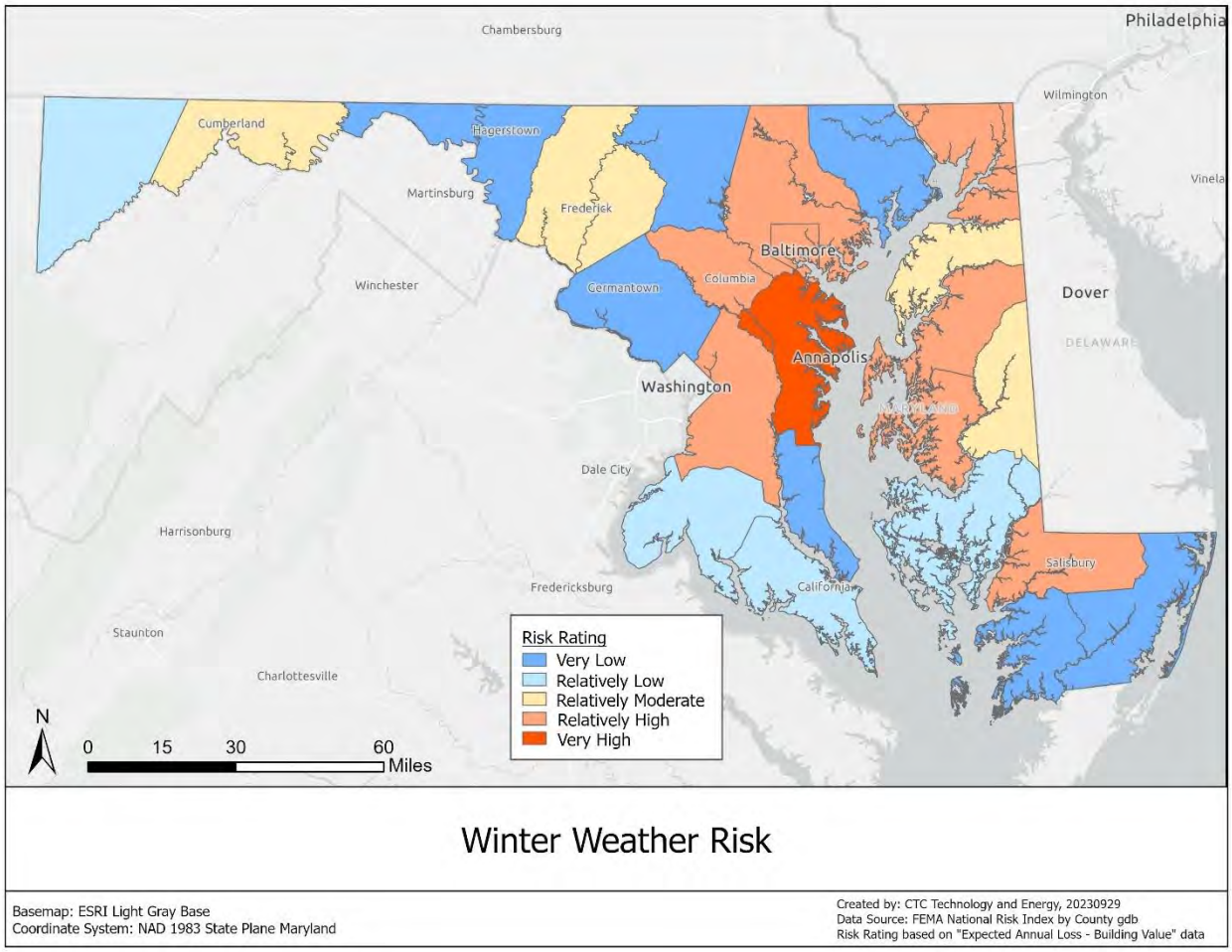
Figure 9: Risk of heat waves in Maryland



In the same way that humidity impacts how hot it feels, wind chill exacerbates cold temperatures, which can have devastating consequences for human health. As shown in the map below, several counties in Maryland are at Very High or Relative High risk of those cold events described by FEMA as winter weather, which are winter storms "in which the main types of precipitation are snow, sleet, or freezing rain."[65]

[65] "Winter Weather," FEMA, https://hazards.fema.gov/nri/winter-weather.

Figure 10: Risk of winter weather in Maryland



12.2.4 Flooding (including riverine flooding and dam failures)

The SHMP categorizes dam failures as highly likely, a category in themselves. A dam is a structure built for the purpose of storing or diverting water. Every dam creates an inherent risk of downstream flooding.

Every county in Maryland has dams, and the average age of Maryland's dams is over 60 years. Consequences of dam failures include the loss of infrastructure. Depending on the use of the dam, a dam failure or incident could also impact the water supply. A flash flood caused by a dam failure could cause significant damage to telecommunications and power infrastructure.

The SHMP categorizes flooding (separately from dam failures) as highly likely. Flooding hazards include normal flooding, which is the inundation of a normally dry area caused by an increased water level. A flash flood is a life-threatening, rapid rise of water into a normally dry area. Heavy rain can also cause flood damage. In Maryland, flood hazard risk assessments indicate that the

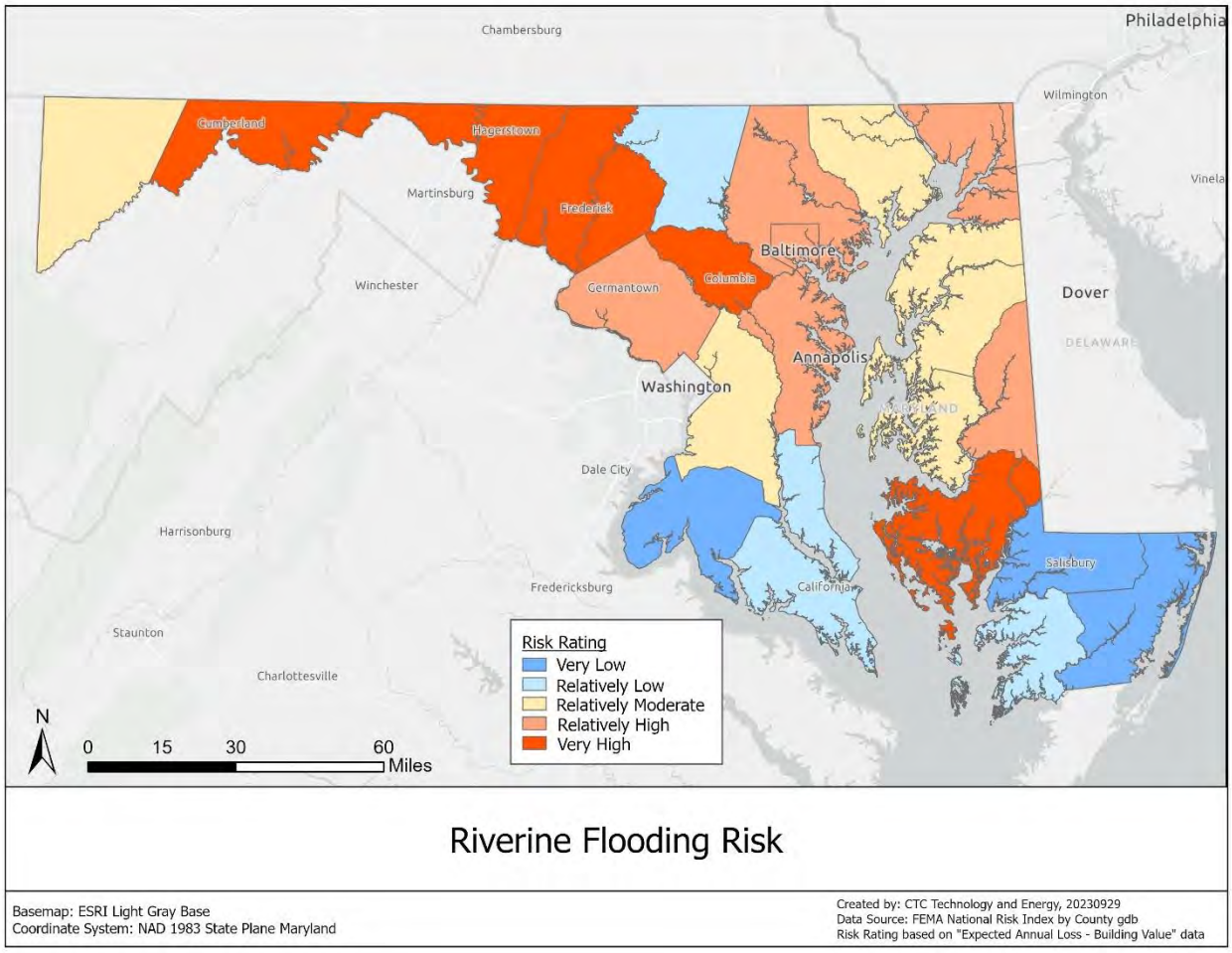
local jurisdictions with the highest flooding risk include Anne Arundel, Baltimore, Frederick, Howard, Prince George's, Harford, and Somerset counties, and the City of Baltimore.

Floods can harm energy and telecommunications infrastructure, but these hazards will likely be anticipated by best practices in broadband construction.

Vulnerability to flood events depends on local topography and elevation, development and extent of impervious surfaces, and precipitation movement and patterns. Rising sea levels will result in more low-lying areas of flooding throughout Maryland.

As shown in the map below, several counties in Maryland are at Very High risk of riverine flooding, according to FEMA. Additionally, several counties and Baltimore are at Relatively High risk of riverine flooding.

Figure 11: Risk of riverine flooding in Maryland



Climate change is expected to cause continued increases in the frequency and intensity of heavy precipitation in many regions of the United States, including the northeast, potentially increasing the severity and frequency of flooding events.

12.2.5 Soil movement (including landslides)

The SHMP characterizes soil movement as a likely hazard. Under the SHMP, soil movement includes coastal erosion, sinkholes, and landslides.

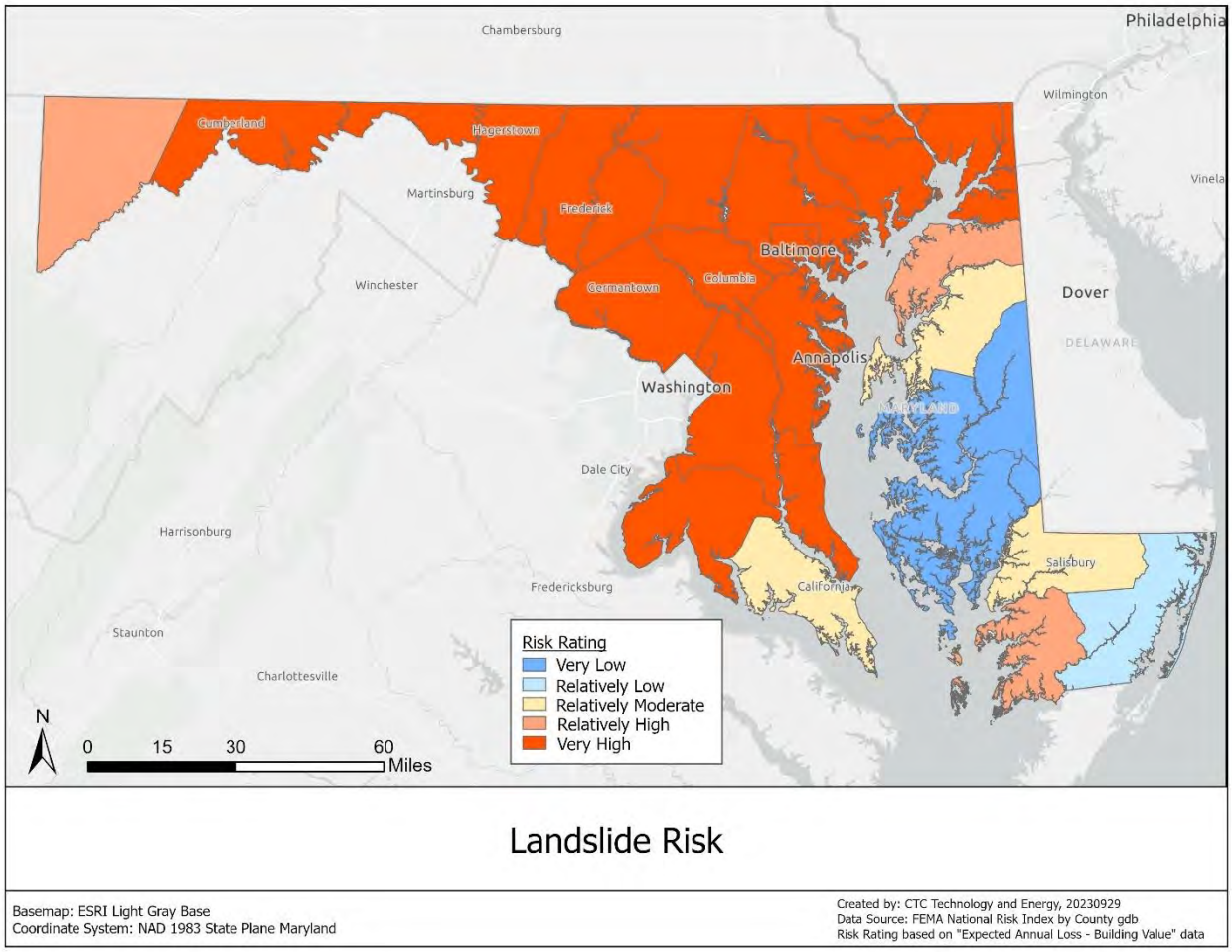
Coastal erosion is the process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along a coastline. All coastlines affected by storms, tidal action, and other natural events are susceptible to erosion. The extent and severity of the problem is worsening with global sea level rise.

A sinkhole is an area of ground that has no natural external surface drainage; when it rains, water stays inside the sinkhole and typically drains into the subsurface. Sinkholes are dramatic because the ground's surface usually stays intact while the subsurface layer dissolves. Once there is not enough support for the land above the dissolved space, a sudden collapse of the land surface can occur. These collapses can be small and go unnoticed, or they can be large, destroying structures, including buildings and roadways.

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Every landslide, or slope movement, is different and unpredictable. However, they are typically associated with other hazards, such as heavy rain.

As shown in the map below, most counties in Maryland are at Very High risk from landslides.

Figure 12: Risk from landslides in Maryland



According to the SHMP, although Maryland has experienced landslides, most occurrences were not extremely damaging. Most events occur in the western part of the State where there is more area with drastic slope changes. However, an increase in the number and intensity of severe storms will likely result in more frequent heavy rains and flooding. And since heavy rains and flooding can trigger landslides, these events may occur more often in suburban and urban areas.

12.2.6 Thunderstorms (including hail and lightning)

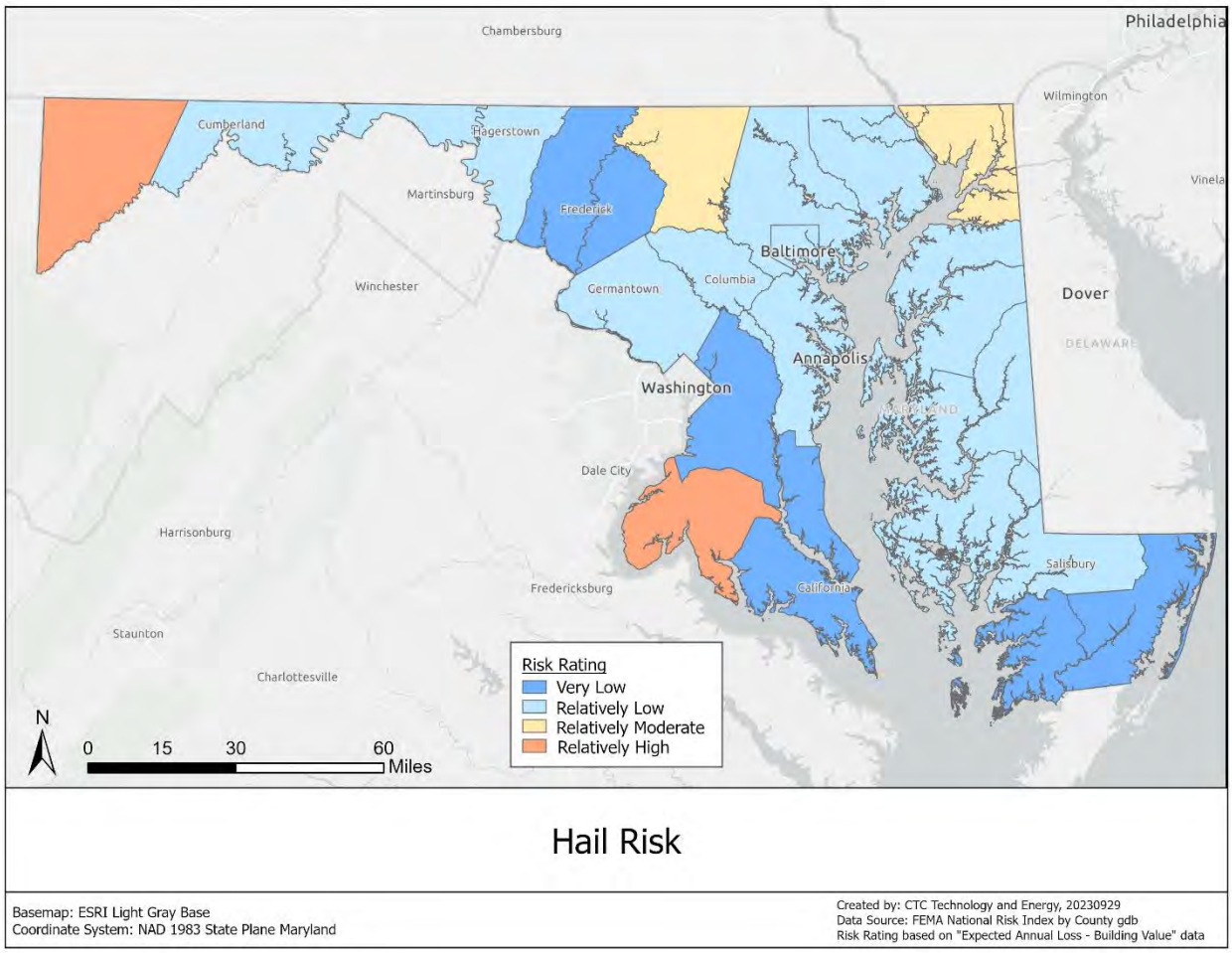
The SHMP characterizes thunderstorms as a likely hazard. These events can cause local or regional power failures, and disruptions to communications infrastructure due to lightning.

Thunderstorms impact the entirety of Maryland, and while they are more frequent in the summertime, events can occur year-round. Therefore, unlike some hazards, all areas of Maryland are vulnerable to thunderstorms. Maryland has consistent thunderstorms throughout the year, peaking in the summer, with one event on average every five days.

Thunderstorms are classified as severe when an event has hail one inch or greater in diameter, creates wind gusts exceeding 50 knots, and/or produces a tornado.[66]

Hail is frozen precipitation in the form of balls or irregular lumps of ice. As shown in the map below, Garrett and Charles counties are at Relatively High risk of hail, according to FEMA.

Figure 13: Hail risk in Maryland

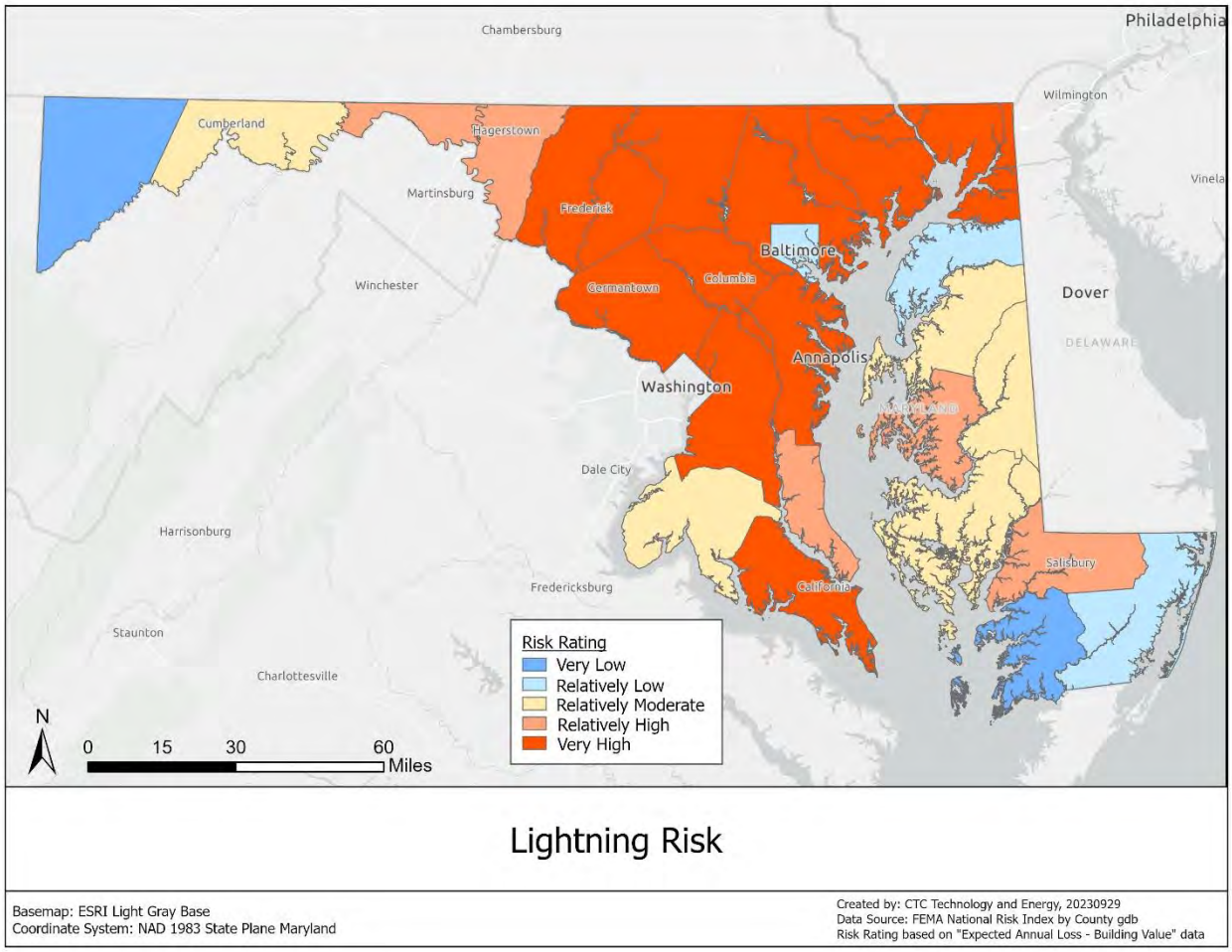


Lightning is a sudden electrical discharge from a thunderstorm, typically resulting in a fatality, injury, and/or damage. Lightning is especially damaging to electrical infrastructure, including power and most telecommunications hardware, but it is a well-known hazard and proper implementation of best practices will mitigate lightning damage.

As shown in the map below, many Maryland counties are at Very High risk of lightning, according to FEMA.

[66] The next subsection of this Initial Proposal addresses tornadoes.

Figure 14: Lightning risk in Maryland



The effect of climate change on the frequency of thunderstorms is unclear, but their frequency and intensity may increase. Best practices to address hail and lightning will need to be incorporated into many BEAD deployments.

12.2.7 Tornadoes

NOAA data show Maryland averages 10 tornado events annually and therefore the probability of a tornado event each year is highly likely. A tornado is a violently rotating column of air extending from a cumuliform cloud or underneath a cumuliform cloud, to the ground, and often (but not always) visible as a condensation funnel. Literally, in order for a vortex to be classified as a tornado, it must be in contact with the ground and extend to/from the cloud base. On a local scale, it is the most destructive of all atmospheric phenomena.

There are two related phenomena of note. A waterspout is a violently rotating column of air usually pendant to a cumulus/cumulonimbus, over a body of water, with its circulation reaching

the water. A funnel cloud is a rotating visible extension of cloud pendant to a cumulus/cumulonimbus with circulation not reaching the ground or water.

Tornado events can occur throughout Maryland with little to no warning, causing severe damage to relatively small areas. Therefore, unlike some hazards, all areas of Maryland face nearly uniform susceptibility to tornado events. Urban areas, such as Baltimore County, are typically more vulnerable to tornado impacts because of their higher population densities and the number of critical facilities needed to support large population centers.

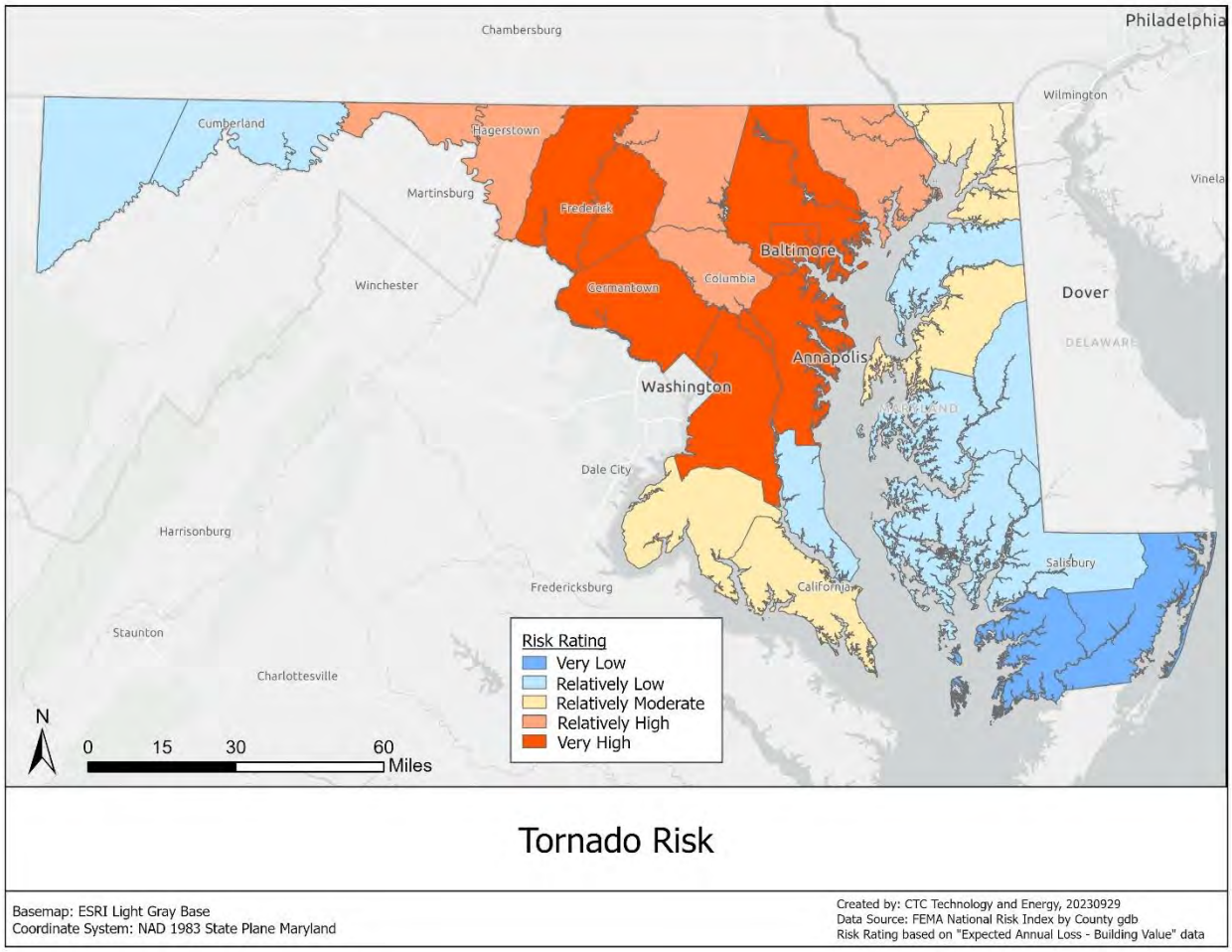
Generally, Maryland is impacted by several tornado events each year, with most occurring between the months of April and November, between 3:00 p.m. and 9:00 p.m. Tornado events are considered low frequency, high-intensity events capable of creating minimal to catastrophic damage.

Tornadoes can cause impacts in the form of blowing debris, and interruptions to above ground power and communication systems. BEAD deployments will need to take best practices into account including the incorporation of backup power.

There are no clear data on the effect of climate change on tornadoes, in part due to a relative lack of reliable historical data tracking tornadoes and a need for further research. While some hazard events, such as hurricanes, are expected to become more frequent and intense, the future probability of tornadoes is unclear.

The map below reflects that, as noted above, although tornadoes can occur anywhere in Maryland, they are likely to cause more damage in urban areas.

Figure 15: Risk of tornadoes in Maryland



12.2.8 Wildfire

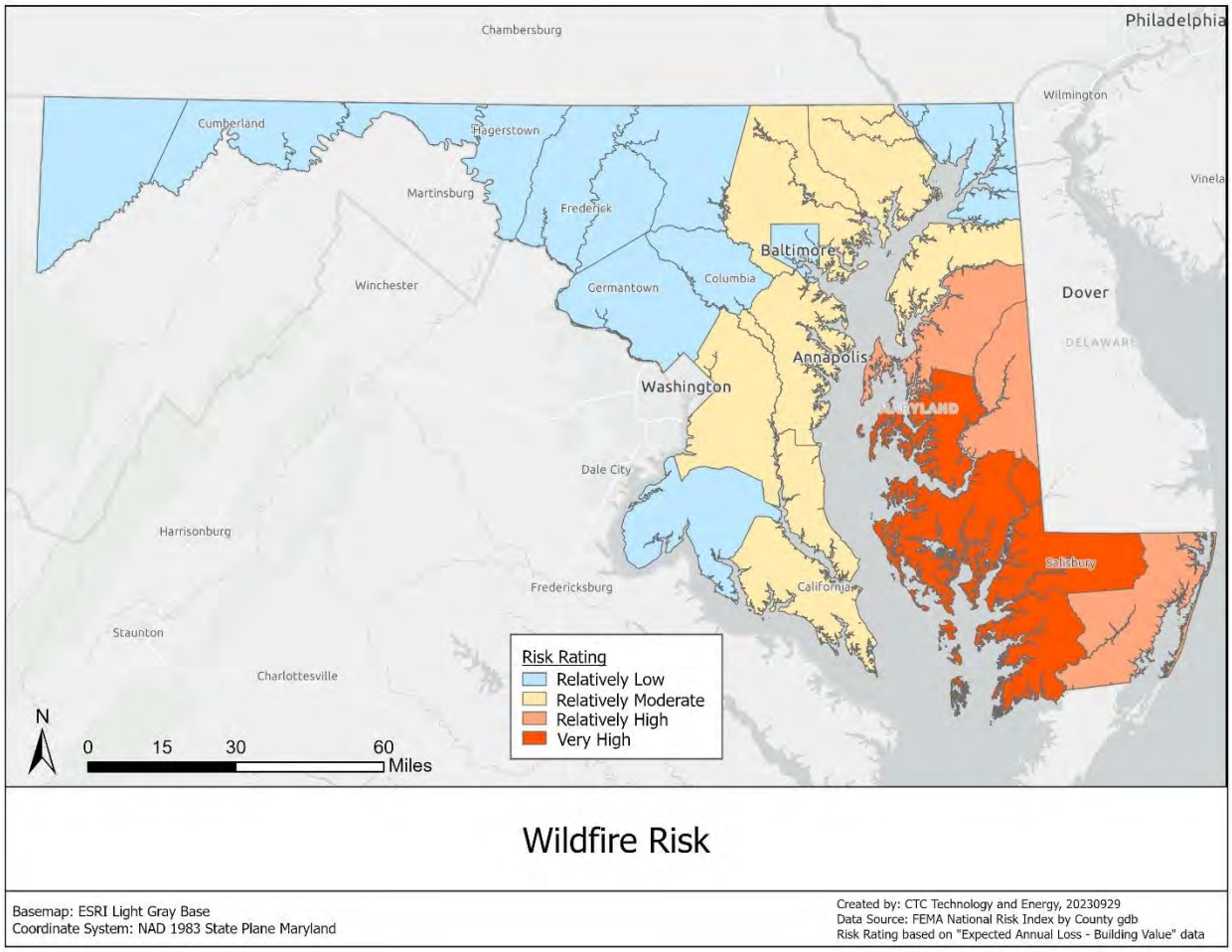
The SHMP ranks the probability of a wildfire as likely. A wildfire is any significant forest fire, grassland fire, rangeland fire, or wildland-urban interface (WUI) fire that consumes natural fuels and spreads in response to its environment.

Wildfires occur year-round, peaking in the Spring. The primary cause of wildfire in both Maryland and the U.S. is human activity, accounting for 96 percent of the State's wildfires. In Maryland, the two leading human causes are improper outdoor burning (28 percent) and arson (23 percent), contributing to over half of annual events. Additional sources include smoking, campfires, and downed power lines. The most common natural cause of wildfires is lightning; however, this accounts for only four percent of Maryland's ignition sources.

Wildfires can cause interruptions to above ground power and communication systems. Projects awarded BEAD funding will need to consider mitigation strategies, which include limiting natural fuels near telecommunications infrastructure, where possible.

As shown in the map below, most counties on Maryland's Eastern Shore are at Very High risk or Relatively High risk of wildfires.

Figure 16: Risk of wildfire events in Maryland



Future increases in global temperatures will contribute to a predicted rise in future wildfire events and an expansion of the wildfire season.

12.2.9 Wind

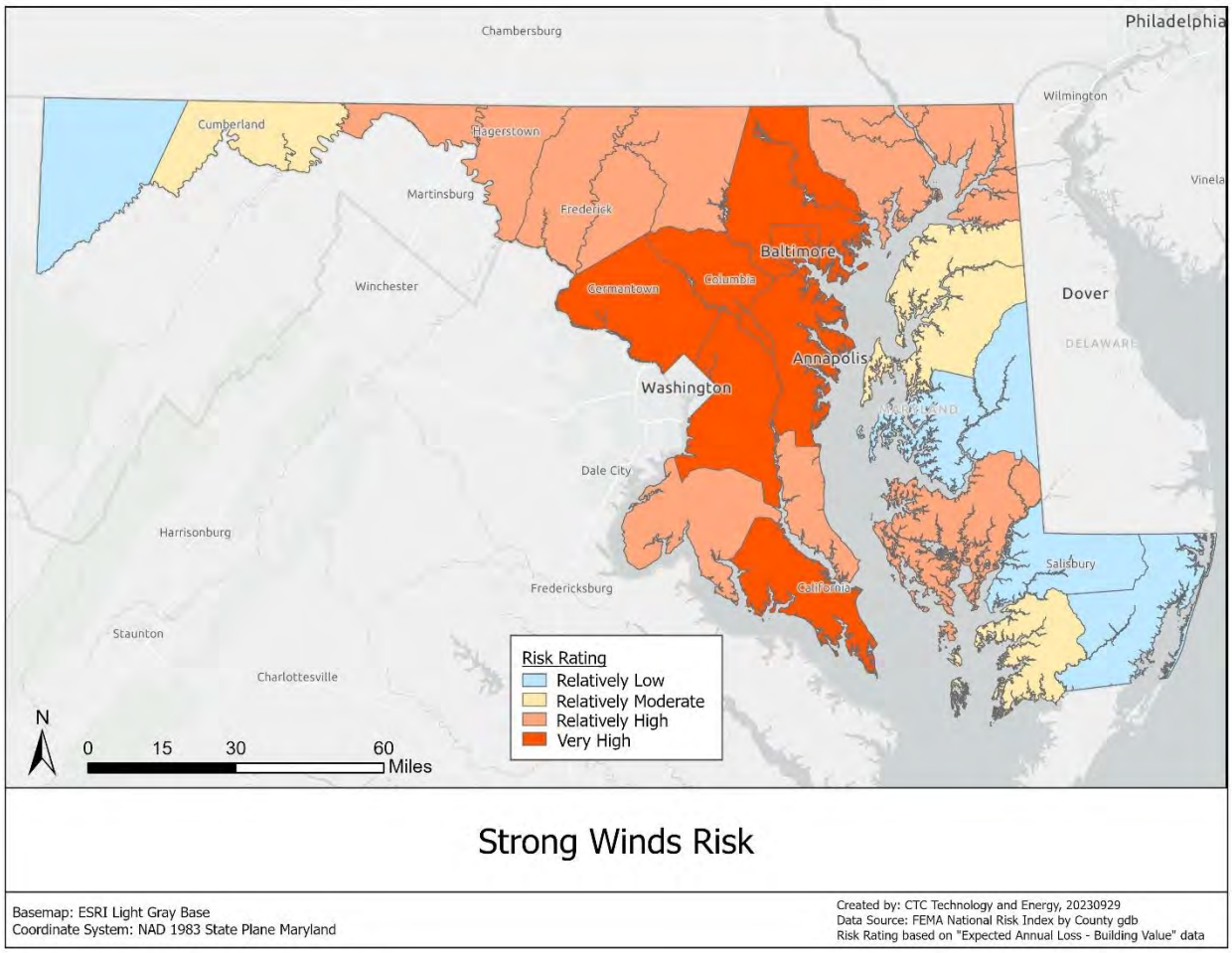
Under the SHMP, the probability of a wind event is highly likely. Wind events happen frequently, occur year-round, and stem from multiple hazard types.

Wind is the motion of air past a given point caused by a difference in pressure from one place to another. Maryland is vulnerable to two basic types of damaging winds (other than tropical systems): synoptic-scale winds and thunderstorm winds. Synoptic-scale winds are typically caused by a cold front or nor'easter, while thunderstorm winds are caused by downbursts during storms. Wind affects the entirety of Maryland and may result in dangerous debris, fallen trees, and disruptions to over-head electric and communications infrastructure.

Therefore, BEAD deployments, especially those contemplating the use of poles or towers, should take into account the risk of wind events.

As noted in the map below, most counties in Maryland are at Very High risk or Relatively High risk of strong winds.

Figure 17: Risk of strong winds in Maryland



While climate change is expected to increase the frequency of hurricanes, as noted in a previous section, the effect of climate change on wind events is unclear, reflecting, in part, a need for further research and lack of historical data.

12.2.10 Winter weather (including ice storms)

The SHMP categorizes winter storms, including ice storms, as a highly likely hazard. Winter weather can take many forms either as independent events (such as snow, freezing rain, and cold temperature events) or in combination. Some of the most significant winter storms that affect Maryland are known as “nor’easters” because they have strong northeast winds; these storms are also typically accompanied by heavy rain or snowfall and may cause coastal flooding and

erosion. Winter weather is typically measured by metrics such as depth of snowfall, temperature, or wind speed.

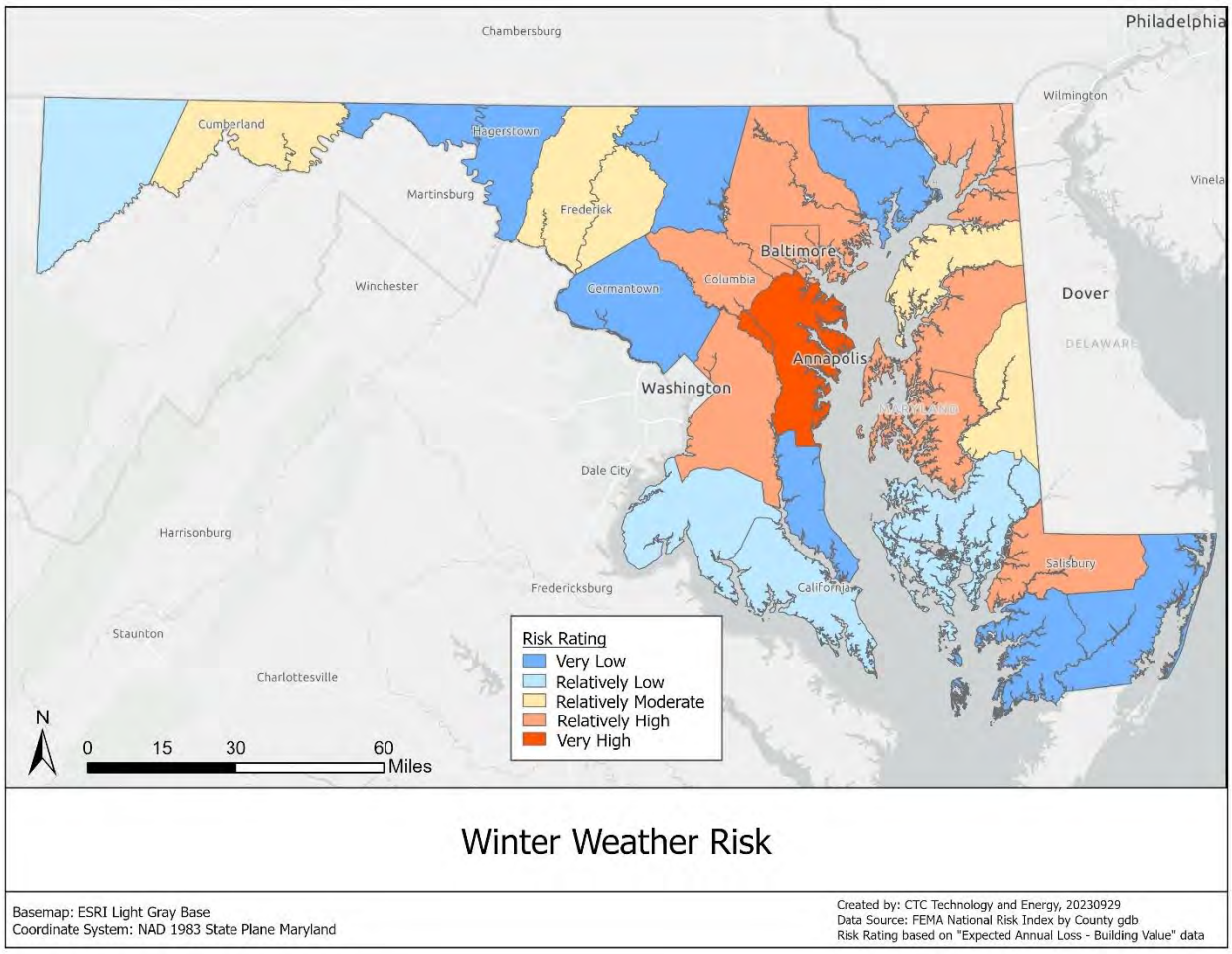
Winter weather is most likely to impact the State between November and March, although the State has experienced occasional events in October and April. Average seasonal snowfall is around 20 inches, with snowfall averages ranging from 10 inches in the southeast part of the State to over 100 inches in the westernmost part of the State. Garrett County, the State's westernmost county, has the highest snowfall record for the winter of 2009-2010, when 262.5 inches accumulated in a single season.

FEMA defines winter weather as, "winter storm events in which the main types of precipitation are snow, sleet, or freezing rain."[67] Maryland's SHMP notes that winter weather hazards present in Maryland include blizzards, cold and wind chill, freezing fog, frost and ice, heavy snow, and winter storms.

As shown in the map below, Anne Arundel is at Very High risk of winter weather and several other counties in Maryland are at Relatively High risk of winter weather. BEAD deployments should take winter weather into account in these areas.

[67] "Winter Weather," FEMA, https://hazards.fema.gov/nri/winter-weather.

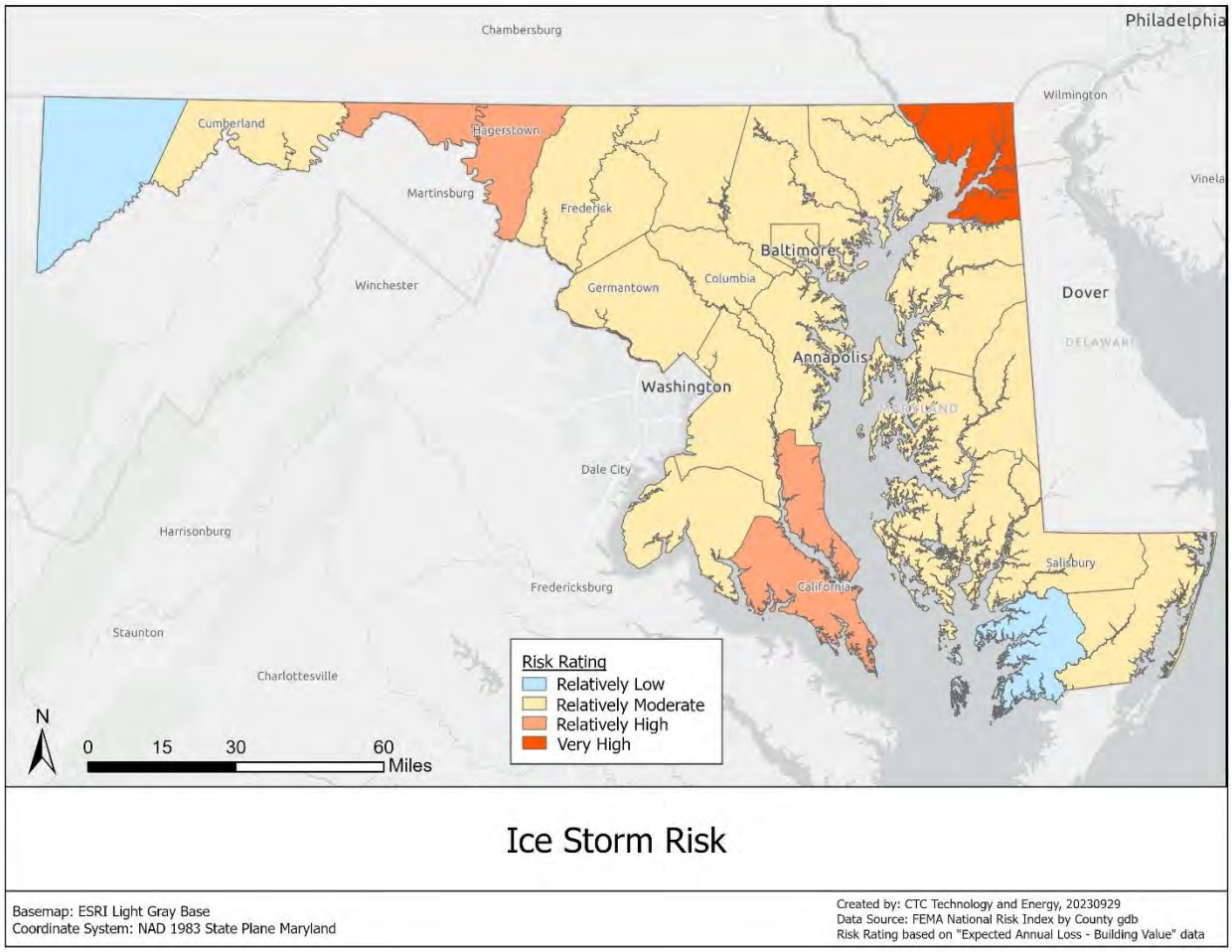
Figure 18: Risk of winter weather in Maryland



An ice storm is defined as, "Ice accretion meeting or exceeding locally/regionally defined warning criteria (typical value is 1/4 or 1/2 inch or more)." Ice storms can damage above-ground power and communications systems.

As shown in the map below, FEMA ranks Cecil County as at Very High risk of ice storms, and St. Mary's and Washington counties as at Relatively High risk of ice storms.

Figure 19: Risk of ice storms in Maryland



Climate change may cause a shorter snow season, fewer days below freezing, and more winter precipitation falling as rain rather than snow. Despite these trends, the future probability of winter weather events remains highly likely.

12.3 Characterizing weather and climate risks to new infrastructure deployed using BEAD program fund for next 20 years

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

Table 10: 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) are 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 mitigating climate risks

Network infrastructure deployment—especially wireline—generally builds in principles of resilient and reliable networks, which mitigate risks against natural hazards. Since BEAD awardees will be familiar with these practices and incentivized by their profit motive to deploy resilient network technology, the State will focus on providing guidance in areas where additional risk mitigation techniques should be considered. The following subsections discuss both hazard mitigation best practices that the anticipated BEAD funded projects in Maryland are likely to include, and how the State will adopt processes to ensure climate resiliency.

The SHMP includes a detailed mitigation plan that has 10 goals, the first of which is, "Protect life, property, the economy, and the environment from hazard events to the greatest extent possible." This section of this Initial Proposal focuses on the protection of BEAD infrastructure. In the five years leading up to the publication of the SHMP, a total of $94,775,125.24 was allocated to hazard mitigation projects or was under review.[68]

12.4.1 Hazard mitigation for anticipated BEAD-funded projects in Maryland

Maryland's plan for BEAD is focused on fiber optic deployments but alternative technologies such as fixed wireless will play a role. Fiber optic cable is one of the most resilient media for broadband: it is well encased and protected and does not require power except for a limited amount of network equipment huts and locations with active electronics.

[68] SHMP Table 5-2, https://mdem.maryland.gov/community/Documents/2021_MEMA%20HazMitPlanFINAL_CLEAN%20with%20Appendices.pdf.

Mitigating all of the climate events discussed in this section are typically incorporated into the best practices of any ISP, which has a vested interest in ensuring business continuity to manage customer satisfaction and operational costs. Burying fiber is the best mitigation to natural hazards, but even buried fiber should be supplemented with standard best practices optimizing network resilience, such as backup power, and equipment and path diversity.

For current and planned aerial fiber, wireline broadband providers generally depend on utility pole owner mitigation actions. Fiber optic cables do not need power and continue to provide signal transport even when the cable is down as long as it is not broken.

Preventing poles from failing is an area where critical infrastructure protection is continuously evolving. Poles that are older and/or have experienced previous strains are weakened and more likely to fail in future events. Mitigation of such risks involves estimating pole risks based on watershed proximity, previous events, and existing drainage. Adding drainage and replacing old and weak poles are chief mitigation strategies. Relevant data, where available, such as data regarding existing drainage assets, will speed and improve mitigation.

For aerial fiber, long-term risk mitigation follows the mitigation strategies targeted at power lines. In general, changes in the severity and frequency of natural hazards have a longer time horizon and allow for gradually implemented hardening efforts. When risks and outages become too frequent, power utilities will convert aerial to buried in vulnerable segments and wireline broadband providers can follow their lead and cadence. For communications providers risk mitigations can therefore include any of the following on a gradual implementation basis:

- Aligning with power utilities burying aerial power lines
- Adding more redundant network paths
- Increasing backup power capabilities at ISP network equipment sites and at customer end

For fixed wireless deployment, tower owners typically make sure the tower is resilient against natural hazards and load studies are conducted frequently on such vertical assets. Owners of vertical assets therefore typically make reinforcements as needed against different types of hazards.

For all of the hazards described in this section, one key mitigation measure is redundant connectivity. Maryland's ongoing middle mile network construction and its past middle mile network construction should give most ISPs options for redundant connectivity in a State whose geographic shape and topography makes redundancy challenging in many locations.

12.4.2 Adopted risk mitigation processes

The State will ask all subgrantee applicants to have a business continuity plan which includes their natural hazard risk strategy and ask applicants whose project area includes identified high-risk

areas to specify how they will incorporate mitigation measures into their deployment planning. Additionally, the State will outline the following among the possible strategies that grant participants can use to address natural hazard risks:

1. Favoring buried fiber compared to aerial in order to largely mitigate the risks described above
2. Retrofitting and hardening existing network assets that are deemed critical to BEAD expansion projects
3. Favoring redundancy in network designs to reduce single points of failure
4. Considering average down time and emergency response time in applicant selection
5. Encouraging the use of back up, generator power systems where applicable

12.5 Processes to ensure that evolving risks are continuously understood, characterized, and addressed

The development of a new plan begins with the MDEM establishing a State Hazard Mitigation Team. Traditional outreach and coordination initiatives were also performed continuously throughout the development process for the 2021 SHMP, although for the most recent plan, developed during the Covid-19 pandemic, they also occurred via virtual methods such as Microsoft Teams or Webex.

The process is led by the State Hazard Mitigation Officer (SHMO) or their designee, who convenes an annual meeting of the Hazard Mitigation Plan Steering Committee to review the SHMP and, if necessary, update it. Under circumstances specified in the SHMP, the SHMO may initiate ad-hoc reviews of the Plan.

For the 2021 SHMP, MDEM coordinated its plan update work with State and federal agencies and stakeholders including, but not limited to:

- Federal Emergency Management Agency (FEMA), Region 3[69]
- Maryland Association of Floodplain and Stormwater Managers (MAFSM)[70]
- Maryland CoastSmart Council[71]
- Maryland Commission on Climate Change[72]

[69] "Region 3," FEMA, https://www.fema.gov/about/organization/region-3.
[70] MAFSM, https://www.mafsm.org/.
[71] "Maryland CoastSmart Council," Maryland Department of Natural Resources, https://dnr.maryland.gov/climateresilience/Pages/cs_Council.aspx.
[72] "Maryland Commission on Climate Change," Maryland Department of the Environment, https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Pages/index.aspx.

- Maryland Silver Jackets[73]
- Maryland Department of the Environment (MDE)[74]
- Maryland Department of Commerce[75]
- Maryland Resiliency Partnership
- National Emergency Management Association[76]

The steering committee contributed to Maryland's mitigation program and integrated planning process through a variety of means, including their defined capabilities, ownership of critical facilities, provision of data and information for the risk assessment, participation in the planning process, and their ongoing review and comment on plan drafts throughout the update. Members were:

- Department of Commerce
- Department of Labor, Licensing & Regulation
- Department of Human Services
- Department of Natural Resources
- Department of Planning
- Maryland Historic Trust
- Department of the Environment
- Department of Transportation
- Department of General Services
- Maryland Insurance Administration
- Department of Housing and Community Development
- Department of Disabilities
- Maryland Emergency Management Agency

The Mitigation Advisory Committee (MAC) serves as the leadership group for the Mitigation Mission Area at the State level. The State departments and agencies engaged in mitigation operate according to their statutory authorities in a roundtable, group approach to making

[73] "Maryland Silver Jackets," U.S. Army Corps of Engineers, https://www.iwr.usace.army.mil/Silver-Jackets/State-Teams/Maryland/.
[74] MDE, https://mde.maryland.gov/Pages/index.aspx.
[75] Maryland Department of Commerce, https://commerce.maryland.gov/.
[76] National Emergency Management Association, https://www.nemaweb.org/.

decisions. The MAC met periodically throughout the 2021 State Hazard Mitigation Plan update process and participated in stakeholder engagement events. For the 2021 SHMP, MAC was staffed from, but not limited to:

- Maryland Emergency Management Agency (MEMA)
- Department of Commerce
- Department of Labor, Licensing & Regulation
- Department of Housing and Community Development (DHCD)
- Department of Human Services (DHS)
- Department of Natural Resources (DNR)
- Department of Planning (MDP)
- Department of the Environment (MDE)
- Department of Transportation (MDOT)
- Department of General Services (DGS)
- Maryland Insurance Administration (MIA)

Planning for the next SHMP will start with a kickoff meeting of the Steering Committee to discuss high-level strategy for each phase of the planning process, delving into methodology and data needs.

13 Low-cost broadband service option (Requirement 16)

According to the American Community Survey, 94.1 percent of Maryland residents have a home internet subscription of some kind which—while outperforming the national rate by 3.8 percentage points [77] —still indicates that a sizable number of Maryland households are disconnected from the internet at home. Among Maryland households that do not subscribe to internet service of any kind, 12 percent reported that the primary reason they do not subscribe is inability to afford service.[78] In Maryland, low-income individuals are 18.2 percentage points less likely than higher-income individuals to have a home internet subscription[79]—highlighting the connection between affordability and internet adoption. Furthermore, though there are numerous barriers to internet adoption, affordability of service is a particularly relevant consideration in the State of Maryland.

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 Maryland, only about 28 percent of eligible households have enrolled in the ACP—compared to the already relatively low national rate of 36 percent.[80]

Utilizing $45 million in funding from the American Rescue Plan Act (ARPA), the State of Maryland launched the Maryland Emergency Broadband Benefit (MEBB) Program—a program that gives participants a $15 State subsidy in addition to the ACP subsidy. As of July 2023, about 33 percent of ACP-eligible Maryland households are enrolled in the MEBB.[81] Participation in MEBB may be lower due to the $30 ACP subsidy covering the full cost of the internet service.

[77] U.S. Census Bureau, American Community Survey Public Use Microdata, 2021. Accessed August 29, 2023.
[78] U.S. Census Bureau, Current Population Survey Public Use Microdata, November 2021. Accessed August 29, 2023.
[79] U.S. Census Bureau, American Community Survey Public Use Microdata, 2021. Accessed August 29, 2023.
[80] Enrollment counts from USAC's ACP Enrollment and Claims Tracker, accurate as of August 28, 2023. https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/. Accessed August 29, 2023. Estimates of eligible households based on proprietary model that uses American Community Survey Public Use Microdata to estimate number of households qualifying for ACP via several of its eligibility criteria.
[81] See ACP Connectivity Tracker at ACP Enrollment and Claims Tracker - Universal Service Administrative Company (usac.org) (last accessed July 31, 2023). See also "Bipartisan Infrastructure Law State Fact Sheet: Maryland," the White House, March 2023, https://www.whitehouse.gov/wp-content/uploads/2023/03/Maryland-Fact-Sheet-March-Edition.pdf.

Additionally, in July of 2023, Governor Moore announced an initiative called Maryland ActNow, in which the State will partner with EducationSuperHighway to spread awareness about and increase participation in the ACP and MEBB programs.[82]

Maryland 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, via the Maryland Public Service Commission, makes information about this federal program readily available on its website.[83]

In addition, Governor Moore announced two grant programs in October 2023 utilizing $69 million through the ARPA Capital Projects Fund to support affordable, high-speed internet access for unserved residents.[84] While neither program is designed to provide a direct subsidy to residents for the cost of internet subscriptions, the Home Stretch for Public Housing program (allocated $45 million) will provide grant funding for localities to address affordability, access, and adoption in public housing units, and the Home Stretch for Difficult to Serve Properties program will support delivering service to remote properties that are geographically challenging for ISPs to serve.

The State of Maryland 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 Maryland and nationwide) and represents a sensible benchmark cost for a low-cost service option to be offered by subgrantees.

OSB's intention is to aid as many Maryland 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 Maryland locations—is not overly burdensome to grant applicants. The eligibility requirement for the Lifeline subsidy program is approximately equal to household income at or below 130 percent of the federal poverty line, suggesting a precedent for that benchmark as well

[82] "Governor Moore Launches Maryland ActNow Campaign to Close the Digital Divide in Maryland," Office of Governor Wes Moore, News Release, July 18, 2023, https://governor.maryland.gov/news/press/pages/governor-moore-launches-maryland-actnow-campaign-to-close-the-digital-divide-in-maryland.aspx.
[83] "Lifeline Availability in Maryland," Maryland Public Service Commission, https://www.psc.state.md.us/telecommunications/lifeline-availability-maryland/.
[84] "Governor Moore Announces $69 Million in Federal Funds to Support High-Speed, Affordable Internet Access for Unserved Marylanders," Office of the Governor news release, October 16, 2023, https://governor.maryland.gov/news/press/pages/governor-moore-announces-69-million-in-federal-funds-to-support-highspeed-affordable-internet-access-for-unserved-marylande.aspx.

as the potential to utilize the Lifeline National Verifier as a useful, low-cost means of verifying eligibility that does not impose additional burden on either the consumer or the ISP.

OSB thus proposes to require all subgrantees to offer 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 Lifeline program
- Cost of $30 per month or less ($75 per month or less on Tribal lands), exclusive of all government taxes and fees, with application of an annual inflation factor based on the Producer Price Index for the State of Maryland)
- Available to households with income equal to or below 200 percent of the federal poverty line
- Allows the end user to apply the ACP subsidy to the service price and requires ISPs to ensure that prospective customers are aware of their participation in the ACP
- Meets performance requirements as established by the BEAD program, with download speeds of at least 100 Mbps and upload speeds of at least 20 Mbps
- Delivers typical latency of no more than 50 milliseconds
- 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
- Allows subscribers to upgrade at no cost in the event the provider later offers a low-cost plan with higher speeds (downstream or upstream)

The State certifies that all subgrantees will be required to participate in the Affordable Connectivity Program or any successor program.[85]

[85] The Affordable Connectivity Program was established in the Infrastructure Act as the successor to a previous program that has since been discontinued. The Commission in 2022 issued the Affordable Connectivity Program Report and Order, which sets out details regarding the ACP's operation. See Affordable Connectivity Program, Report and Order and Further Notice of Proposed Rulemaking, FCC 22-2, (rel. Jan. 21, 2022).

14 Middle-class affordability plans

This section describes OSB's middle-class affordability plan designed to ensure that a BEAD-funded network's service area provides high-quality broadband service to all middle-class households at reasonable prices.

OSB will continue to monitor the affordability of available service options within the State and encourage providers to offer a range of options that support broadband adoption by residents regardless of income level and reduce the burden on lower-income subscribers.

Based on the work of digital equity researchers and advocates over the past decades, an affordable broadband service can be defined as one whose cost does not exceed 2 percent of household income.[86] Since 2016, the FCC has used the benchmark of 2 percent of a household's disposable income to measure the affordability of voice and broadband service expenditures in its Universal Service Monitoring Report.[87]

This definition has precedent in established thresholds for the affordability of other essential utilities, which have traditionally been set as a percentage of household income based on measures of housing affordability by the Department of Housing and Urban Development (HUD). HUD includes essential utilities (defined as electricity, gas, heating fuel, water, and sewerage services) within its definition of housing cost. Since 1981, public policy has conventionally set the threshold for an affordable housing cost at 30 percent of a household's income; [88] the affordability of individual utility bills is then understood as a subset of that cost.

As noted by the National Academy of Public Administration,[89] the United States Conference of Mayors,[90] and the American Water Works Association,[91] however, considering affordability as a simple percentage of income can disregard differential burdens placed on low-income households. In measuring affordability, OSB will work to monitor the impact of broadband costs on communities at the highest risk of disconnection.

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[86] See, for example; "The affordability of ICT services 2022," International Telecommunciation Union, https://www.itu.int/en/ITU-D/Statistics/Documents/publications/prices2022/ITU_Price_Brief_2022.pdf.

[87] See, https://docs.fcc.gov/public/attachments/FCC-16-38A1.pdf.

[88] The Brooke Amendment (1969) to the 1968 Housing and Urban Development Act established a rent threshold for public housing of 25 percent of family income, which was raised to 30 percent by 1981. This percentage remains the rent standard for most rental housing programs and has been applied as a "rule of thumb" to owner-occupied housing. Schwartz, Mary and Wilson, Ellen, "Who Can Afford To Live in a Home?: A look at data from the 2006 American Community Survey," U.S. Census Bureau, https://cdn2.hubspot.net/hubfs/4408380/PDF/General-Housing-Homelessness/who-can-afford.pdf.

[89] See, https://napawash.org/uploads/Academy_Studies/NAPA_EPA_FINAL_REPORT_110117.pdf.

[90] See, https://www.awwa.org/Portals/0/AWWA/ETS/Resources/AffordabilityAssessmentTool.pdf.

[91] See, https://www.awwa.org/Portals/0/AWWA/Government/ImprovingtheEvaluationofHouseholdLevelAffordabilityinSDWARulemakingNewApproaches.pdf.

Addressing middle-class affordability also requires a definition of middle class. Multiple frameworks exist within established research[92] to accommodate the complexity of the concept, which contains the overlap of factors including income, education, occupation, and geographic location.

Maryland classifies low-income households according to the federal poverty guidelines published by the U.S. Department of Health and Human Services,[93] but does not have an official definition of middle class. Median household income can serve as a useful benchmark for the State in line with the approach to affordability discussed above: according to data from the U.S. Census Bureau, the median household income in Maryland was $91,431 in 2021.[94]

Affordability is more than merely the concern of whether residents can afford service. Rather, affordability in the context of middle-income homes is also inclusive of residents who can afford service, in theory, but nonetheless struggle with the financial burden. According to the Current U.S. Population Survey, conducted in the 2021 Census, approximately 2 percent of Maryland residents that do not subscribe to internet service at home reported that the primary reason is that internet service is "not worth the cost."[95] This figure, while not high, highlights the still notable number of Maryland residents that are held back by financial concerns beyond simply being able to afford the service at face value. As such, the broader notion of affordability fundamentally demonstrates the manner in which middle-income households are frequently disincentivized from participating in the digital economy.

A statistically valid survey of residents conducted for the State's Digital Equity Plan shows the range of prices subscribers in Maryland at various income levels currently pay for their internet plan (**Error! Reference source not found.**), and the amount they are willing to pay for high-speed, reliable service (**Error! Reference source not found.**).

[92] See, for example, the Pew Charitable Trust Index; https://www.pewtrusts.org/en/research-and-analysis/articles/2023/08/30/is-broadband-affordable-for-middle-class-families.

[93] These guidelines determine eligibility for a variety of federal and state assistance programs, including Medicaid, the Supplemental Nutrition Assistance Program (SNAP), and the Low Income Home Energy Assistance Program (LIHEAP). See: "HHS Poverty Guidelines for 2023," https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines.

[94] "QuickFacts: Maryland," U.S. Census Bureau, https://www.census.gov/quickfacts/fact/table/MD,US/INC910221#INC910221.

[95] U.S. Census Bureau, Current Population Survey Public Use Microdata, November 2021. Accessed August 29, 2023.

Figure 20: Monthly cost of home internet service by household income

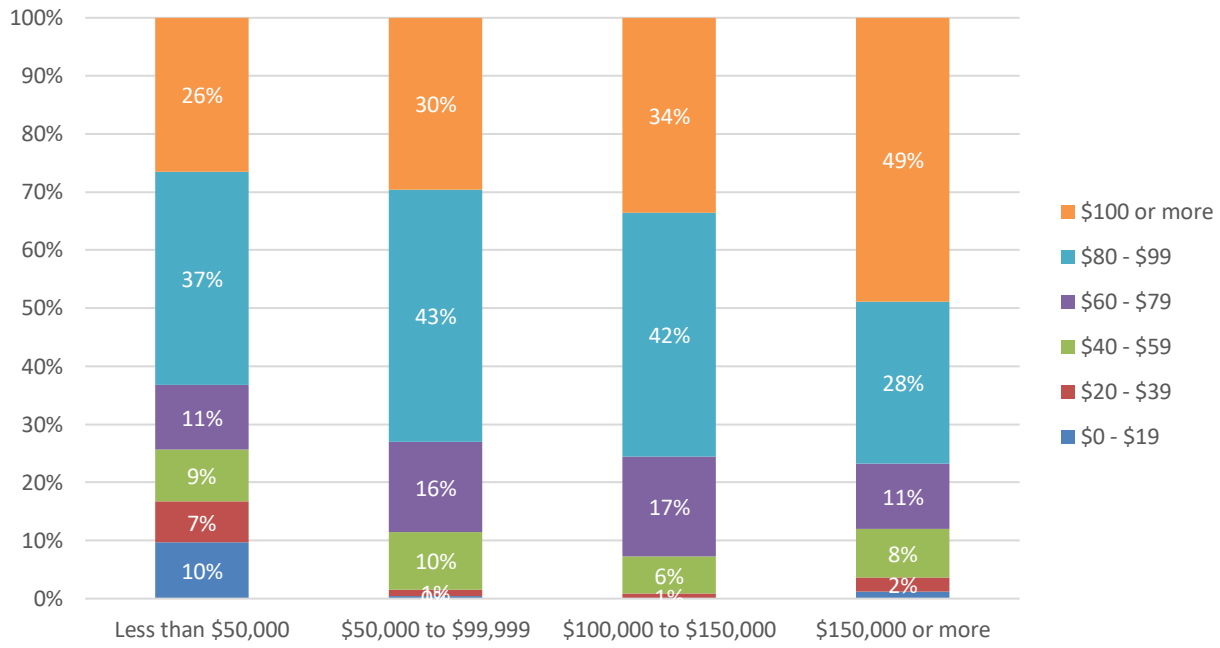
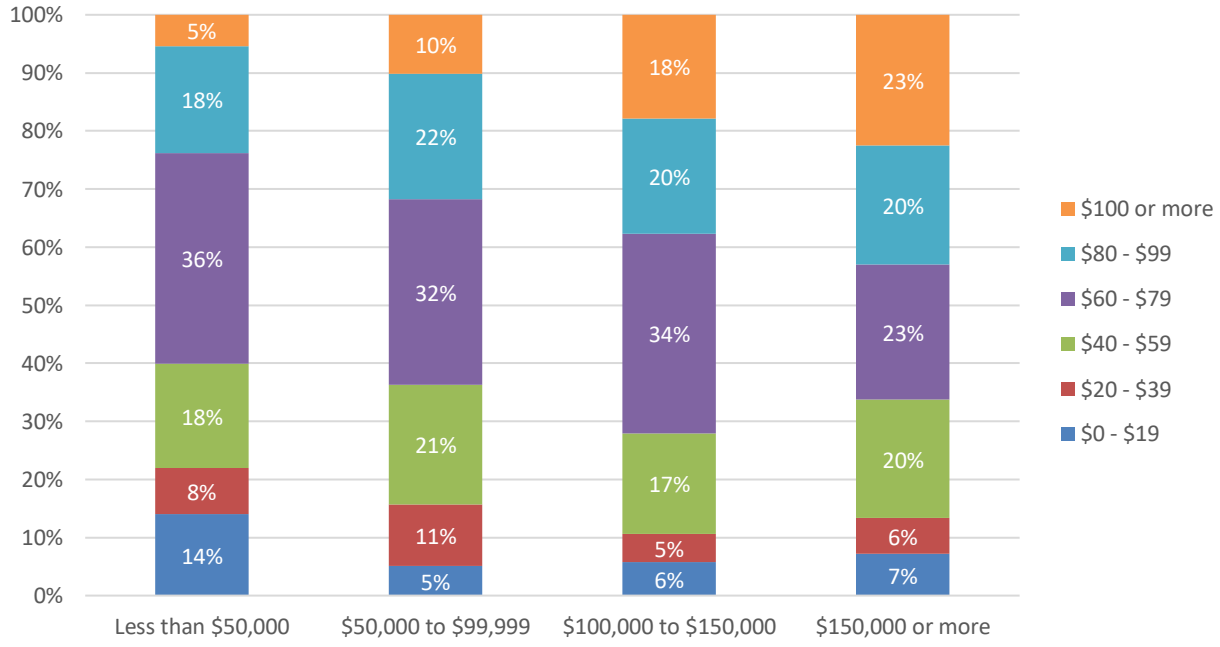


Figure 21: Amount willing to pay for high-speed, reliable home internet service by household income



OSB 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, OSB 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, OSB 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:** OSB 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. OSB 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:** OSB 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 Maryland 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 Maryland 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 Maryland residents a genuine opportunity to be fully engaged in the digital world.

15 Use of 20 percent of funding (Requirement 17)

15.1 Planned use of funds requested

Maryland requests that NTIA obligate 100 percent of the funds remaining of its BEAD allocation, making 100 percent available immediately for programmatic and grant work. Maryland requests that NTIA obligate 100 percent of the funds remaining of its BEAD allocation, making 100 percent available immediately for programmatic and grant work. Maryland, working closely with its partners from local governments, industry, and community organizations, will use the funding to begin closing the digital divide as quickly as possible. With 100 percent of the funding obligated, the Maryland Legislature will be able to pass the required State budget for the federal funds by April 2024 so that OSB may provisionally obligated the funds.[96] That way, ISP 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, State requests 100 percent of its BEAD allocations as follows:

Category	Details	Budget percent
Deployment Costs	Sample Subgrantee costs for deployment	95%
Programmatic Expenses	BEAD Planning, Challenge Process, IT Systems to run Challenge and Grant Applications, Subgrantee Selection Process Development and Management,	3%
Administrative Expenses	Staffing, travel, day-to-day monitoring and oversight of subgrantees, training staff, subgrantees and public, ongoing stakeholder communications	2%
Non-Deployment Expenses	Workforce program, digital equity program supplementation, training and capacity building	0%

Given that Maryland anticipates its BEAD allocation will not cover sufficient broadband deployment expenses to reach to all unserved, underserved and CAIs, 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.

[96] See, "Federal Funds," definition, available at https://dbm.maryland.gov/budget/Pages/glossary.aspx.

15.2 Amount of Initial Proposal funding request

Maryland requests 100 percent of funds remaining of its BEAD allocation of $267,738,400.71.

15.3 Certification

OSB hereby certifies that:

☑ OSB will adhere to BEAD Program requirements regarding Initial Proposal funds usage

16 Eligible Entity regulatory approach (Requirement 18)

Maryland 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

Maryland certifies that it will:

☑ Comply with all applicable requirements of the BEAD Program, including the reporting requirements

Maryland would like to avail subgrantees of the Part 200 exceptions and adjustments NTIA applies in the BEAD program. Should any revisions to this Initial Proposal be needed to accomplish this, Maryland would like an opportunity to make those revisions.

17.2 Subgrantee accountability procedures

17.2.1 Overview

In creating the BEAD program through The Infrastructure Investment and Jobs Act (IIJA), Congress made a once in a lifetime investment in connectivity and digital equity/opportunity. The State is committed to ensuring that everyone has access to broadband and the ability to use it meaningfully. OSB, in executing the BEAD program, will work diligently to ensure the success of all its recipients' projects so that State's residents all have access to broadband within five years.

In achieving that goal, OSB also takes its role as a steward of federal funding seriously. OSB is creating and implementing robust programmatic monitoring, including effective risk-based assessments and active interventions to make sure its subgrantees meet BEAD and the State's goals. OSB will actively protect this investment, at a minimum, using the following criteria: risk-based oversight and engagement, distribution of funding on a reimbursement basis, appropriate provisions to claw back funds from subgrantees if needed, timely reporting requirements, and robust subgrantee monitoring.

17.2.2 Risk-based monitoring

The State will establish a manageable approach to its risk-based management that is pragmatic, yet effective. It is in the best interest of the State for subgrantees to successfully complete their projects and offer broadband service to those who need it most. To that end, OSB will review the organizational, financial, and technical strengths of each subgrantee. Then, it will assign a risk category and appropriate monitoring and technical assistance resources. OSB will monitor individual grants, but it will also monitor the portfolio using program-wide data to ensure early intervention when it finds systemic issues.

17.2.3 Fraud, waste, and abuse

The State will utilize a mechanism to report fraud, waste, and abuse operated by the Office of Legislative Audits.[97] The State will also utilize federal reporting mechanisms such as the U.S. Department of Commerce's Inspector General hotline.[98]

17.2.4 Distribution of funds on a reimbursement basis

Although most federal grants allow grantees and subgrantees to obtain an advanced payment to cover grant-related expenses, OSB will indicate clearly in its guidance and through its award documentation that its BEAD subgrants will be issued on a reimbursement-only basis. OSB will require the following from subgrantees before dispersing BEAD funds:

- Reaching grant milestones
    - OSB will require the timely reporting of the completion of grant milestones, according to the plan outlined in Section 5 (Requirement 8).
- Providing compliant documentation
    - OSB will require subgrantees to support a request for reimbursement through a certification and a submittal of as-builts and GIS location data, which will be verified according to procedures outlined in the contracting documents. OSB will ensure that it has a right to access documents and physical assets in a manner similar to that employed by the federal government in broadband grant programs.

17.2.5 Clawback provisions

OSB will also work with the Maryland Office of Attorney General to ensure its grant awards contain clawback provisions. In other words, if the subgrantee fails to meet its obligations under the award, including those provided in the application, OSB can deny a reimbursement request, require partial or full forfeiture of BEAD funds, or issue financial penalties for fraud, misconduct, or non-performance. For its purposes, OSB considers non-performance to include effective, timely broadband deployment, continuing to offer low-cost service options for the useful life of the assets, meeting reporting deadlines, providing accurate deployment data, and fulfilling all additional BEAD requirements such as broadband speeds.

17.2.6 Timely reporting requirements

Building on its existing broadband funding and grantmaking experience, OSB will require subgrantees to report timely on their awards to identify and mitigate risks to ensure both the

[97] "OLA Fraud Hotline," Department of Legislative Services, Maryland General Assembly, https://www.ola.state.md.us/fraud/ola-fraud-hotline.

[98] "Report Fraud, Waste, Abuse, & Whistleblower Reprisal," Office of the Inspector General, U.S. Department of Commerce, https://www.oig.doc.gov/Pages/Hotline.aspx.

State's and subgrantees' compliance with statutory and BEAD requirements. These reports include:

- Regular check-ins with OSB to discuss the project progress
- Periodic reporting on project progress and fiscal performance
- Responses to intermittent requests from OSB about the project
- On-site project reviews

17.2.7 Robust subgrantee monitoring

OSB will use various monitoring activities that produce data about subgrantee performance and progress to assess individual and portfolio risks and inform OSB's decisions about targeting technical assistance, corrective action, or enforcement actions as needed. Such activities include:

- Desk reviews – periodic review of subgrantees' progress and financial reports designed to ensure that OSB's own reports to NTIA contain timely information.
- Field reviews and audits –review teams evaluate constructed segments and full projects against as-built reporting and application requirements.
- Site visits – periodic visits using a standardized agenda to capture first-hand observations of recipient performance along various dimensions, including subgrantee capacity, performance validation, safety practices, and employment practices.

In reviewing its portfolio, OSB will establish and update monitoring levels for its projects based on factors including performance reporting, desk reviews, and OSB interactions.

17.3 Certification of nondiscrimination and civil rights

Maryland certifies that it will, in its selection of subgrantees, account for:

☑ Parts II and III of Executive Order 11246, Equal Employment Opportunity

☑ Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency

☑ Executive Order 13798, Promoting Free Speech and Religious Liberty

Additionally, prior to distributing any BEAD funding to a subgrantee, OSB will require the subgrantee to agree, by contract or other binding commitment (to be determined by counsel), to abide by the non-discrimination requirements set forth in the following legal authorities, 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

☑ Title IX of the Education Amendments of 1972

☑ The Americans with Disabilities Act of 1990

☑ Section 504 of the Rehabilitation Act of 1973

☑ The Age Discrimination Act of 1975

☑ Any other applicable non-discrimination law(s)

17.4 Certification of cybersecurity and supply chain risk management

The State certifies that it will ensure subgrantee compliance with the cybersecurity requirements of the BEAD NOFO to require prospective subgrantees to attest that:

☑ The prospective subgrantee has a cybersecurity risk management plan (hereafter in this list, "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.

☑ 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.

☑ The plan will be reevaluated and updated on a periodic basis and as events warrant.

☑ The plan will be submitted to OSB prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, a new version will be submitted to OSB within 30 days.

The State further certifies that it will ensure subgrantee compliance with the supply chain risk management (SCRM) requirements of the BEAD NOFO to require prospective subgrantees to attest that:

☑ The prospective subgrantee has a SCRM plan (hereafter in this list, "the 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 award.

☑ 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.

☑ The plan will be reevaluated and updated on a periodic basis and as events warrant.

☑ The plan will be submitted to OSB prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, a new version will be submitted to OSB within 30 days. OSB will provide a subgrantee's plan to NTIA upon NTIA's request.

OSB will ensure that, to the extent a BEAD subgrantee relies in whole or in part on network facilities owned or operated by a third party, it will obtain the above attestations from its network provider with respect to cybersecurity practices and supply chain risk management practices.

As needed, OSB may also make subgrantees aware of Maryland's cybersecurity policies, that are the work of the Office of Security Management (OSM) of Maryland's Department of Information Technology. OSM is responsible for the direction, coordination, and implementation of the overall cybersecurity strategy and policy for units of State government.[99] OSM establishes Security Policies, Security Guidance, Security Awareness, and is a source of IT security information for State agencies. OSM recently published Maryland's State Minimum Security Standards document was issued on May 22, 2023, which is designed to be a living document, with periodic reviews and updates.[100]

[99] "Cybersecurity," Maryland Department of Information Technology, https://doit.maryland.gov/cybersecurity/Pages/default.aspx.
[100] "State Minimum Cybersecurity Standards, Version 1.0," OSM, May 22, 2023, https://doit.maryland.gov/cybersecurity/Documents/2023%20State%20Minimum%20Cybersecurity%20Standards%20Maryland.pdf.

Appendix A: Local coordination tracker tool

For more details, see Section 4.

Appendix B: Proposed scoring rubric

The final expanded proposed scoring rubric will be included in this appendix in the version of this Initial Proposal that is submitted to NTIA. See Scoring rubric for more details.

Appendix C: Organized table summarizing the subgrantee selection process

The following table organizes the documents required from OSB 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.

Table 11: Summary of subgrantee selection process documents and milestones

Phase	OSB 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		
	Continual updates to FAQ document as questions are received and answered		
Prequalification submission window opens			
Prequalification	Dedicated email address for questions and technical assistance	Audited unqualified financial statements from the last three years	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
		Certifications and licenses of the organization, the officer or director, management staff,	5.3.1 4.12.6.1 4.12.6.2

Phase	OSB provides	Subgrantee provides	
		Brief description	**Section**
		contractor oversight team, and key technical personnel; and certification of processes and resources to employ continued skilled, credentialed workforce	
		Description of planned contractors and consultants, and certification that any future contracted resources will have the relevant and necessary skills	5.3.1 4.12.5.3
		Organizational chart and narrative description of Applicant's 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
		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	5.3.1 5.12.9

Phase	OSB provides	Subgrantee provides	
		Brief description	Section
		information provided	
		Certification of history of compliance and of intention to comply with environmental and historic preservation requirements and BABA	5.3.1
		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 OSB	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 OSB	5.3.1
		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 OSB 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	5.12.7

Phase	OSB provides	Subgrantee provides	
		Brief description	**Section**
		outreach to workers and worker representative labor organizations	
		Certification of worker-led health and safety committees	5.3.1 5.12.7
		Certifications: of awareness of letter of credit obligations; of qualifications and resources to obtain letter of commitment and letter of credit from financial institution for no less than 25% of award	5.12.2
Prequalification submission window closes			
	"Reasonable" curing		
	Announcement of prequalification determinations		
NTIA approval of Initial Proposal Volume II			
Completion of Challenge Process			
Scoring	Grant Area Determination Process documentation, and results (including benchmark prices)		
NTIA Challenge Process Validation			
	Grant and application materials (Application, Program Guide, FAQ documents, sample engineer certification)		
	Template for budget narrative, proposed budget, and business case analysis		
	Technical Specifications Template and Project Timeline Template		
	Website information (also directing to third-party resources)		
	Online application workshop and workshop materials		

Phase	OSB provides	Subgrantee provides	
		Brief description	Section
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 OSB templates, specifying expenses, team responsible for each expense, and relation to project objective	5.12.4
		Business case analysis using OSB template, involving take rates, churn, revenue, cash flow, expenditures	5.12.4
		Descriptions of managerial capability connected to unique needs of specific proposed project	5.12.5.4
		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	5.12.1

Phase	OSB provides	Subgrantee provides	
		Brief description	**Section**
		matching funds	
		Letter of commitment from qualified financial institution describing the institution, stating that they stand ready to issue a letter of credit for the proposed project and specified amount, and stating that it has reviewed the model letter and is prepared to comply with terms	5.12.2
Scoring Phase submission window closes			
	Scoring, according to guidelines in 4.3.2		
	Curing, as necessary		
Scoring (Negotiation)	Counteroffers to negotiate pricing and proposal area boundaries, if needed		
	If necessary, second phase grant window for remaining needs		
	Curing, as necessary		
Negotiation Phase closes			
Finalization	Announcement of provisional determinations, subject to NTIA approval	Irrevocable standby letter of credit from financial institution	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