

Attachment A: Study resolution

Access to Broadband across the Commonwealth Authorized by the Commission on November 13, 2023

WHEREAS, broadband is not universally available in the Commonwealth; and

WHEREAS, Virginia has so far received approximately \$700 million in federal funds and has appropriated approximately \$200 million in state general funds for expanding broadband access; and

WHEREAS, Virginia is expected to receive another \$1.48 billion in federal Broadband Equity, Access, and Deployment (BEAD) funds, as long the state meets specified federal milestones, which will be deployed for broadband efforts over the next few years; and

WHEREAS, the state's broadband efforts are led by the Department of Housing and Community Development and involve coordination of numerous state-level entities, localities, utilities, and broadband providers; and

WHEREAS, the Commonwealth has established a goal of extending affordable and reliable broadband to parts of the Commonwealth that do not have it by 2028 now, therefore, be it

RESOLVED by the Joint Legislative Audit and Review Commission that staff be directed to review the state's efforts to expand access to affordable and reliable broadband throughout the Commonwealth. In conducting its study staff shall (i) evaluate whether broadband funds have been deployed effectively through state programs such as the Virginia Telecommunication Initiative Program and Line Extension Customer Assistance Program; (ii) identify federal broadband programs available to Virginia and determine whether Virginia has taken full advantage of them; (iii) evaluate whether the state has sufficient staff and effective procedures in place to distribute forthcoming federal funds; (iv) evaluate whether the state has sufficient authority and expertise to monitor broadband deployment projects, facilitate collaboration among key broadband stakeholders, and assist stakeholders with overcoming obstacles to projects' success; (v) assess whether the state is on track to achieve its universal connectivity goals, identify obstacles that may impede the achievement of these goals, and propose state government actions to overcome these obstacles; and (vi) evaluate the state's role in helping ensure access to and the affordability of broadband in the future. JLARC may make recommendations as necessary and may review other issues as warranted.

All agencies of the Commonwealth, including the Office of the Secretary of Commerce and Trade, Department of Housing and Community Development, and the Broadband Advisory Committee shall provide assistance, information, and data to JLARC for this study, upon request. JLARC staff shall have access to all information in the possession of agencies pursuant to § 30-59 and § 30-69 of the Code of Virginia. No provision of the Code of Virginia shall be interpreted as limiting or restricting the access of JLARC staff to information pursuant to its statutory authority.

Attachment B: Research activities and methods

Key research activities performed by JLARC staff for this study included:

- structured interviews with state, local, and federal government entities, private internet service providers, utilities, other states' broadband offices, and national subject matter experts;
- a survey of broadband stakeholders;
- data analysis of broadband connectivity, VATI projects' statuses, VDOT permitting processing, utility locate requests, and broadband affordability;
- review of VATI project case files; and
- document and policy review, including state laws, regulations, policies, and national research relevant to broadband deployment and affordability.

Structured interviews

Structured interviews were a key research method for this report. JLARC staff conducted 53 structured interviews for this study. Key interviews included:

- state agency/entity staff, including staff from the Virginia Department of Housing and Community Development (DHCD) Office of Broadband, Virginia Department of Transportation (VDOT) central office and local residencies, the State Corporation Commission (SCC), Virginia811, the Virginia Department of Social Services, and the Virginia Department of General Services;
- local government and regional entity staff, including staff of planning district commissions;
- federal agency staff from the National Telecommunications and Information Administration (NTIA);
- internet service providers;
- investor-owned utilities and electric cooperatives; and
- other state's broadband offices and national subject-matter experts.

State agencies

JLARC staff conducted multiple interviews with DHCD Office of Broadband staff. Topics varied across interviews but were primarily focused on the status of broadband connectivity in Virginia, the Virginia Telecommunications Initiative (VATI) program design and administration, the federal Broadband Equity, Access, and Deployment (BEAD) program design and plans for administration, and the availability of broadband-related data.

JLARC staff conducted several interviews with staff from the VDOT Office of Land Use within VDOT's central office, five VDOT local residency offices, and VDOT's Procurement and administrative services division. The interviews with VDOT Office of Land Use staff focused on VDOT's

role in the broadband deployment process, including the land use permitting process and the availability of permit processing data. Interviews with local residency staff focused on VDOT districts and residencies' role in the permitting process, differences in permitting processes throughout the state, reasons for delays and challenges in the permitting process, and opportunities to streamline the permitting process for broadband projects. The interview with Procurement and Administrative Services staff focused on best practices for contract development and contract management for contracts between government entities and private sector entities.

JLARC staff interviewed staff from the State Corporation Commission (SCC) to learn more about the SCC's role in broadband deployment, with a particular focus on the SCC's role related to regulating utility pole attachments, the utility leverage program, and utility locating.

JLARC staff interviewed staff from the Virginia Department of Social Services Office of Research and Planning to learn more about the department's Energy Assistance Program survey and to discuss the possibility of using the survey to collect additional information about broadband costs and affordability.

JLARC staff interviewed staff from the Department of General Services to learn more about state and local procurement and contracting practices, including differences in state and local procurement authority and best practices for designing contract performance metrics and penalties and holding vendors accountable for performance.

Local and regional entities

JLARC staff conducted interviews with staff from four local governments involved in state-funded broadband deployment projects, as well as interviews with staff from five planning district commissions (PDCs). The purpose of the interviews was to understand the role of local and regional entities in broadband deployment, the challenges they faced during VATTI broadband deployment projects, their perspectives on DHCD's Office of Broadband's administration of state broadband programs, and opportunities to improve broadband deployment in the state.

JLARC staff also conducted an interview with the Virginia Municipal League and Virginia Association of Counties to discuss similar topics, including the role and experience of local government entities in broadband deployment in Virginia.

Federal agency staff

JLARC staff interviewed staff from the National Telecommunications and Information Administration (NTIA) to collect information on the BEAD program; specifically, the federal requirements associated with the program; the availability of federal guidance on BEAD; NTIA's perspective on Virginia's approach to BEAD implementation; and the status of Virginia's and other states' BEAD proposals.

Internet service providers

JLARC staff conducted interviews with seven different internet service providers (ISPs) and one industry group representing multiple ISPs (VCTA – Broadband Association of Virginia). The purpose

of these interviews was to learn about ISPs' experience with broadband deployment projects in Virginia, including the status of projects they are undertaking and challenges they have experienced that have delayed or otherwise impacted projects (e.g., make ready process, permitting, workforce and supply chain issues); ISPs' perspectives on the administration of the VATI program, including the program's requirements, application and award process, and reporting requirements; ISPs' experience working with investor-owned utilities through the Utility Leverage Program; ISPs' perspectives on DHCD Office of Broadband's administration and oversight of state broadband efforts, including any perspectives on the state's approach to the BEAD program; and any opportunities for state action to improve the timeliness and efficiency of ongoing and future broadband deployment efforts.

Investor-owned utilities and electric cooperatives

JLARC staff conducted interviews with staff of the state's two primary investor-owned utilities, leadership of electric cooperatives, and a group representing electric cooperatives (the Virginia, Maryland, and Delaware Association of Electric Cooperatives).

The purpose of the interviews with investor-owned utilities was to learn about their role in broadband deployment, including their role as utility pole owners in the "make ready" process, challenges related to that process, and their perspectives on recent "make ready" legislation; their role as middle mile broadband fiber owners and operators through the Utility Leverage Program; their perspectives on other challenges to broadband deployment in Virginia; and their perspectives regarding DHCD Office of Broadband's administration and oversight of state broadband efforts.

Interviews with electric cooperatives were similar to interviews with investor-owned utility interviews, covering many of the same topics related to the "make ready" process and recent legislation, their perspectives on challenges to broadband deployment, their perspectives on DHCD Office of Broadband's administration and oversight of state broadband efforts, and the availability of data. Some electric cooperatives have subsidiaries that operate as internet service providers. Interviews with electric cooperatives enabled JLARC staff to learn about the experience of these subsidiaries in deploying broadband in Virginia, their experience and perspectives on the VATI program, their perspectives on the upcoming roll out of the BEAD program, and opportunities for state action to improve the timeliness and efficiency of ongoing and future broadband deployment efforts.

Other state broadband offices and national subject-matter experts

JLARC staff interviewed representatives from state broadband offices in Colorado and Louisiana. The purpose of these interviews was to learn more about their state's experience with broadband deployment programs, their approach to designing their BEAD program proposals and plans for administering the program, their plans for use of BEAD non-deployment funding, and their perspectives on the future role of their offices following the conclusion of the BEAD program.

JLARC staff also interviewed several national subject-matter experts, including staff from the Pew Charitable Trusts Broadband Access Initiative and staff from the Benton Institute for Broadband and Society. Interviews with these experts focused on their research into state broadband programs, challenges to broadband connectivity, state options to incentivize effective and efficient broadband deployment, broadband affordability, and the availability of national data on broadband connectivity.

Surveys

JLARC conducted an online survey of various broadband stakeholders, including internet service providers, county and city governments, planning district commissions, and electric cooperatives.

Survey of broadband stakeholders

The survey of broadband stakeholders was administered electronically to 226 broadband stakeholders using contact information provided by the DHCD Office of Broadband and industry stakeholder groups, including the Virginia, Maryland, and Delaware Association of Electric Cooperatives and Virginia Association of Planning District Commissions. The survey covered numerous topics, including challenges to universal broadband connectivity, the VATI grant criteria and application process, administration of VATI grants, the “make ready” process and associated recent legislation, the BEAD program, DHCD Office of Broadband administration of state broadband efforts, and opportunities for additional state action to facilitate broadband deployment. The survey received 61 total responses (27 percent), including responses from 21 local city and county governments, 10 Planning District Commissions, 18 internet service providers, and 12 electric cooperatives.

Data analysis

JLARC staff collected several types of data from state agencies and internet service providers to analyze broadband connectivity, VATI projects, VDOT permitting, utility locates tickets, and broadband affordability for this study.

Analysis of broadband connectivity

JLARC staff obtained data from DHCD on the number of Virginia locations (residential and business) with and without broadband service across the state. Locations were counted as having broadband service if, as of December 31, 2023, they had internet (1) with download/upload speeds at least 100 Mbps/20 Mbps and (2) provided through wired technologies (e.g., fiber, cable, DSL) or licensed fixed wireless. The data was subject to a public challenge process in Virginia where individuals, business, and other stakeholders provided feedback on whether specific locations currently have broadband. The universe of locations included in the data aligns with the Federal Communications Commission’s national broadband map, which is being used to identify locations eligible for Broadband Equity, Access, and Deployment program funding.

JLARC staff also obtained data from DHCD on the number of community institutions in Virginia with and without broadband. Community institutions were counted as having broadband service if they had internet with speeds of at least 1,000 Mbps/1,000 Mbps, as required by the federal government.

To assess the number of Virginia locations with and without broadband service, JLARC staff divided locations into four categories: (1) served; (2) unserved – received *state* deployment funding; (3) unserved – received *federal* deployment funding; and (4) unserved – received *no* deployment funding. The unserved categories that have received state and federal deployment funding already have deployment projects underway (e.g., VATI, CAF II, RDOF), but they had not yet been completed as of October 2024 when DHCD shared the data with JLARC.

Data on the number of Virginia locations with and without broadband service has several limitations. Importantly, the data does not include all legitimate locations. For example, locations that are part of multi-dwelling units (e.g., apartment complexes), and locations the national broadband map does not capture because of data limitations, are excluded. JLARC’s counts of the number of “served” and “unserved” locations in Virginia may differ from other publicly available broadband service data (e.g., Virginia’s Commonwealth Connection map) because of differences in the universe of locations considered and/or the time period.

Analysis of VATI project status

JLARC staff used data from the DHCD Office of Broadband to assess the status of ongoing VATI projects, which included projects awarded after 2021 that have not yet been completed. Monthly report data was reviewed for these ongoing projects through November 2024. Data derived from monthly project updates and funding data were used to assess how long current projects have been ongoing, the number of contract extensions that projects have received, the extent to which these projects have connected locations they were contracted to connect, and the amount of grant funding expended and remaining for these projects. This analysis helped inform findings related to the extent to which federal pandemic relief funds used to fund VATI projects may be at risk of recapture by the federal government. Narrative information included in monthly project reports was also used to help assess the causes of project delays and informed findings concerning the key challenges impacting broadband deployment projects in Virginia.

JLARC staff also reviewed data provided by the DHCD Office of Broadband on all completed VATI projects from 2017 through 2022. This data included information on those projects award amounts, completion status, and broadband service take rates.

Analysis of VDOT permitting data

JLARC staff obtained land use permitting data related to broadband projects from VDOT for 2019 through 2024. Permitting data was used to assess the magnitude of broadband-related permits VDOT processed each year from 2019 to 2024 (January – July), and the average length of time it took VDOT residencies and districts to process broadband-related permits in 2024 (January - July).

Analysis of utility locate data

JLARC staff collected data from Virginia811 on utility locator tickets submitted related to broadband fiber installation for 2019 through 2024. This data was used to assess changes in the overall volume of utility locator ticket requests related to broadband projects, as well as the number of requests resulted in delayed or “no show” responses by locators. This data was analyzed at the county level over time.

Analysis of pole attachment request data

JLARC staff collected data on pole attachment requests received by investor-owned utilities, which own the largest portion of utility poles in the state, and the status of those requests in the “make ready” process as of November 2024. This data was used to assess how the volume of attachment requests has changed over time, where delays in the “make ready” process occur, and which parties

may be responsible for those delays. One large electric cooperative also shared data on pole attachment requests as of September 2024, which informed similar findings.

Analysis of cost and affordability of broadband services

Limited information is available on the rates that Virginia households currently pay for broadband. Therefore, JLARC staff collected information on the rates households pay for broadband from two different sources: (1) rates charged by Virginia's largest ISPs and (2) rates charged by ISPs that received FY22 VATI grant awards.

Source 1: Rates charged by Virginia's largest ISPs

In August 2024, JLARC staff contacted four ISPs (Xfinity/Comcast, Cox, Verizon, and T-Mobile) that provide broadband to the majority of Virginians to request information on the highest and lowest monthly broadband costs their customers pay in Virginia for a broadband plan at a speed as close as possible to 100 Mbps/20 Mbps. JLARC also asked whether the lowest priced plan was part of a low-cost program with eligibility requirements. Three ISPs provided the requested information. JLARC located price data for the remaining ISP using the FCC's 2024 Urban Rate Survey.

Source 2: Rates charge by ISPs that received FY22 VATI awards

DHCD provided JLARC staff with data on rates charged by ISPs that won FY22 VATI grant awards. JLARC staff focused on ISPs that offered at least broadband-level speeds (100 Mbps/20 Mbps), with the fastest broadband speed in the sample being 200/200 Mbps. This sample included six ISPs across seven VATI projects. Most of these projects were in central Virginia, while the remaining counties were in the Southside and the Shenandoah regions. Importantly, this rate information only reflects the rate paid by households brought online through the VATI project, which is a limited number of households.

JLARC analyzed whether the rates Virginians are paying for broadband are affordable by: (1) calculating the median cost of broadband based on available rate data (\$49.99/month); (2) reviewing existing research conducted by the Pew Charitable Trusts and the Benton Institute on how much a household may be able to spend on broadband and still consider it affordable (approximately 3 percent of household income); (3) determining Virginia household incomes using 2022 inflation-adjusted data (2018-2022 American Community Survey data); and (4) identifying the Virginia households in each county that would have to spend more than 3 percent of their income on broadband if they were charged the median rate of \$49.99/month (households making less than \$20,000 per year). This analysis informed JLARC's findings on broadband affordability in Virginia.

JLARC's broadband affordability analysis had several limitations. For example, there is no industry-accepted standard for what households can afford to pay for broadband. ACS income data is the self-reported amount of total household income, and it is unclear what amount of each household's income could be put towards broadband. In addition, JLARC staff did not have access to household-level information on whether each household has broadband and the reason for those that don't, which ISP households use, what type of subscription they have, or what they pay. Consequently, JLARC's broadband affordability analysis had to assume that each household has access to a broadband plan at the median price. Some households may pay more or less for broadband in practice.

Review of VATI project case files

JLARC staff reviewed case file documents for a sample of 31 VATI projects awarded between 2019 and 2023 to understand the project process and how deployment challenges contribute to project delays. Projects were selected for review because they (1) were considered at-risk based on DHCD's risk determination process or (2) had received contract extensions indicating the project had experienced delays. This case file review informed JLARC staff's assessment of VATI projects' status and evaluation of the DHCD Office of Broadband's administration and oversight of VATI grants.

JLARC completed full case file reviews for three large VATI projects serving multiple localities awarded in 2022 that received federal pandemic relief funding and are considered at risk of incompleteness by the federal funding deadline of December 31, 2026. Full case files included contracts between DHCD and local entity; MOU/MOAs between local entities and private ISPs; project management plans, construction milestones, and timelines; monthly project update reports; extension requests; desk audits and site visit reports; and corrective action plans.

JLARC reviewed portions of the case files for 28 projects. Reviews primarily focused on the monthly project update reports, extension requests, and agreements between local entities and private ISPs.

Document and policy review

JLARC staff reviewed numerous other documents and literature pertaining to broadband in Virginia and nationwide, such as:

- Virginia laws, regulations, and policies related to broadband deployment and affordability, including VATI guidelines and application scorecards;
- other states' BEAD plans proposal documents and state-level broadband deployment initiatives;
- reports from federal agencies (e.g., GAO, FCC) related to broadband; and
- national, state, and local media reports.

VATI guidelines and application scorecards

JLARC staff reviewed VATI program guidelines and criteria for the 2021 through 2024 award years to assess the sufficiency of the guidelines and criteria and how they have changed over time. Specifically, staff evaluated the program guidelines and criteria to assess whether they ensure that state funding was awarded to applications that proposed to advance the state's universal connectivity goals and were of overall good quality (e.g., reasonable cost estimates and project timelines, thorough project plans), and that program requirements ensure grants are awarded to qualified applicants.

To further evaluate the sufficiency of VATI program award criteria, JLARC staff reviewed grant application scorecards. Staff reviewed the overall project scoring from 2017 through 2024, as well as a selection of individual project scorecards for each year. Through this review, JLARC staff evaluated how program guidelines and scoring criteria were applied to individual project applications, including how the scoring process has evolved over the history of the program.

BEAD plans and proposal documents

JLARC staff reviewed a selection of BEAD program documents, including the BEAD Notice of Funding Opportunity (NOFO), Virginia’s Five-Year Plan, Virginia’s Initial Proposal Volume 1, Virginia and other states’ (Louisiana, Colorado, West Virginia, Delaware, Kansas, and Michigan) Initial Proposal Volume 2, DHCD BEAD Workshops, and DHCD BEAD program application guidance. Staff analyzed the Volume 2 document across states to look for similarities and differences in states’ approaches to BEAD program requirements, especially where states had flexibility in program design and administration.

- The BEAD NOFO document is a federal guidance document that outlines the structure and steps of the BEAD program.
- Virginia’s Five-Year Plan outlines the state’s broadband needs, goals, and priorities, including a list of current state and federal broadband programs, details on the current broadband office and its staffing capacity, outline of a community engagement process, and identifying potential barriers to implementation.
- Virginia’s Initial Proposal Volume 1 focuses on the state’s challenge process and current broadband availability landscape.
- Virginia’s Initial Proposal Volume 2 describes how the state plans to implement the BEAD program, especially through their outline of the subgrantee application and selection process.
- DHCD BEAD workshops provide BEAD program overviews to different stakeholder groups.
- DHCD BEAD program application guidance outlines expectations and clarifies processes for potential BEAD applicants.

Attachment C: Agency Response

As part of an extensive validation process, the state agencies and other entities that are subject to a JLARC assessment are given the opportunity to comment on an exposure draft of the report. JLARC staff sent an exposure draft of the full report to the Virginia Department of Housing and Community Development (DHCD) and the Secretary of Commerce and Trade. Relevant portions of the report were sent to the Virginia Department of Transportation (VDOT).

Appropriate corrections resulting from technical and substantive comments are incorporated in this version of the report. This appendix includes a response letter from DHCD.



Glenn Youngkin
Governor

Caren Merrick
Secretary of
Commerce and Trade

COMMONWEALTH of VIRGINIA

Bryan W. Horn
Director

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

December 3, 2024

Hal E. Greer
Director
Joint Legislative Audit and Review Commission (JLARC)
919 E. Main Street, Suite 2101
Richmond, Virginia 23219

Mr. Greer:

Thank you for the ongoing work in partnership with the Virginia Office of Broadband in the Department of Housing and Community Development (DHCD) to evaluate the progress of broadband deployment in the Commonwealth and offer recommendations on how to expedite this ongoing work and effectively finish the job through the Broadband Equity, Access, and Deployment (BEAD) Program.

The Commonwealth is proud to be the national leader in building out broadband connectivity. Through our research in publicly displayed records, Virginia and our partners have provided broadband access to more than 147,000 locations under the Virginia Telecommunication Initiative – five times as many locations as any other state through state-funded initiatives. Reflecting this, we appreciate JLARC's summary finding that "Virginia's broadband program has been successful and well managed by DHCD."

JLARC's staff have been thorough in their evaluation of existing programs and development of recommendations for future efforts. We appreciate the Commission's interest, as well as your staff's time and investment in analyzing our work. Many of JLARC's recommendations have already been incorporated, or will be incorporated, into the upcoming BEAD program.

The Department will continue to work with our local government partners to expedite project delivery of ongoing construction across the Commonwealth. These local governments, through their broadband provider partners, are the driving force behind serving their constituencies. We appreciate JLARC's innovative approaches to project management for high-risk projects and will work with our local government partners to adopt these recommendations where mutually interested and feasible.

Thank you for your work to advance the operations of the Commonwealth.

Sincerely,

A handwritten signature in blue ink, appearing to read "Bryan W. Horn".

Bryan W. Horn
Director, Virginia Department of Housing and
Community Development

Attachment D: Glossary

- **Affordable Connectivity Program (ACP)** – a federal assistance program that provided eligible households with a discount up to \$30 per month (or \$70 per month on tribal lands) towards an internet service package of their choice. A household was eligible if their income was below 200 percent of the Federal Poverty Guidelines, if they participated in a government assistance program or tribal program, or if they meet the eligibility criteria for a participating internet service provider’s low-cost program. The program ended when funding expired in June 2024.
- **Broadband** – high-speed internet with download speeds of at least 100 megabits per second (Mbps) and upload speeds of at least 20 Mbps. Broadband can be delivered through wired technologies (e.g., fiber, DSL, or cable), wireless technologies (e.g., fixed wireless or satellite) or mobile devices (e.g., cell phones or mobile hot spots).
- **Broadband Equity, Access, and Deployment (BEAD) program** – a federal grant program providing over \$42 billion in funding to states and territories to expand high-speed internet access through broadband planning, deployment, affordability, and adoption. States and territories partner directly with internet providers to expand broadband access to all unserved locations, based on the FCC’s National Broadband Map.
- **Community institutions** – locations such as schools, libraries, health centers, and local state agency offices. Called “community anchor institutions” for the federal BEAD program.
- **Connect America Fund (CAF) II** – a federal broadband program that provides funding to telephone companies and internet service providers to build out broadband networks in largely unserved areas. This program first allocated funding to telephone companies in 2015. Starting in 2018, internet service providers were eligible to receive funding to serve remaining unserved census blocks won through a reverse auction process. Award winners receive funding over 10 years and are expected to complete broadband deployment projects by December 31, 2025.
- **Challenge Process** – part of the federal BEAD program where states confirm and validate their unserved locations. Virginia’s challenge process identified 80,000 additional unserved locations, which resulted in an additional \$250 million in federal BEAD funding.
- **Department of Housing and Community Development (DHCD)** – the Virginia state agency that administers state and federal broadband programs through the Office of Broadband.
- **Deployment projects** – projects that expand broadband access by building infrastructure to bring broadband to locations without broadband service.

- **Enhanced Alternative Connect America Cost Model (E-ACAM)** – a federal broadband program that helps internet service providers that have participated in other federal programs, such as earlier versions of the Alternative Connect America Cost Model program, to expand broadband access to additional locations at faster speeds. Award winners receive funding over 15 years and have until December 31, 2028 to complete broadband deployment projects.
- **Federal Communications Commission (FCC)** – Federal agency that regulates pole attachments for investor-owned utilities and maintains the National Broadband Map which is used to identify unserved locations for the federal BEAD program.
- **Internet Service Providers (ISPs)** – provide broadband to locations in their service area for a fee. Broadband fees help ISPs recoup costs they incur providing broadband service to an area.
- **Investor-owned utilities** – privately owned companies that provide utility services to customers under a regulated rate structure. In Virginia, Dominion Energy and Appalachian Power are the primary investor-owned electric utilities and they are regulated by the State Corporation Commission (SCC). Investor-owned utilities are involved in broadband deployment as utility pole owners and as middle mile infrastructure owners.
- **Locations** – places that individuals need access to broadband, such as homes, businesses, and community institutions (e.g., schools, libraries, health centers, etc.).
- **Lifeline program** – a federal broadband affordability program that provides qualifying households up to a \$9.25 per month (or \$34.25 per month on tribal lands) discount on either a telephone, internet, or bundled plan. Households qualify for the Lifeline program if their household income is up to 135 percent of the Federal Poverty Guidelines, or someone in the household participates in an included federal assistance program or tribal program (i.e. Medicaid, SNAP, FPHA, Veterans Pension and Survivors Benefit, Bureau of Indian Affairs General Assistance, Head Start, Tribal TANF, Food Distribution Program on Indian Reservations).
- **“Make Ready” Process** – the process of preparing a utility pole for a new line (e.g., broadband or other type) to be attached. The pole may need to be replaced, or the lines already on the pole may need to be rearranged to accommodate the new broadband line. Internet service providers and pole owners (typically utility companies) must complete multiple steps to ensure broadband attachments adhere to federal and industry safety requirements. These steps include: (1) application submitted by an internet service provider and reviewed by the pole owner, (2) an inspection of the poles, (3) an estimate of the cost of “make ready” work, and (4) completion of the pole replacement or rearrangement. Once the pole is “made ready,” the internet service provider can attach their broadband line, and the pole owner must then inspect the attachment to ensure it meets regulatory and safety standards. In total, the “make ready” process should take less than 280 days. Not all pole attachment requests require “make ready” work, as some poles do not need to be replaced and have space for new attachments without rearrangement.
- **Middle mile infrastructure** – part of a broadband network that connects the internet’s global network to last-mile networks.

- **Megabits per second (Mbps)** – the unit of speed used to measure broadband. The current Federal Communications Commission definition for broadband is 100 Mbps (download)/20 Mbps (upload).
- **National Telecommunications and Information Administration (NTIA)** – the federal agency overseeing the federal BEAD program.
- **National Broadband Map** – the map maintained by the Federal Communications Commission that shows what type of internet service is available at specific locations nationwide. This map is being used to identify unserved locations that are eligible for grant funding through the federal BEAD program.
- **“Nearly universal” broadband coverage** – provision of broadband to all locations identified on the Federal Communications Commission’s national broadband map that have not already received state or federal funding for a broadband deployment project (as of December 31, 2023).
- **Non-deployment projects** – projects that support broadband affordability and/or adoption initiatives after broadband is made accessible.
- **Rural Digital Opportunity Fund (RDOF)** – a federal broadband program designed to close the digital divide in rural areas. Program applications compete to win project awards for areas through a reverse auction process that favors low-cost. Winners for the first round of grants were announced in 2020. (A second round of winners is expected but has not been announced.) Award winners must complete their broadband deployment projects by the end of 2028.
- **Risk determination process** – process directed by language in the 2024 state budget through which DHCD evaluated all VATI projects funded by federal pandemic relief funds to identify projects that may be at-risk for non-completion by the end of 2026. Under this process, projects considered “high risk” will be required to participate in quarterly risk mitigation meetings with DHCD and information on project status will be posted on a publicly available dashboard. All projects considered at risk (low risk or high risk) were provided with the following options intended to ensure that locations that may go unserved would be eligible for BEAD funding: project surrender, partial project surrender, contiguous area surrender, project transfer to another private sector partner, passing transfer to another active Virginia Telecommunication Initiative funded project, or other form of project redesign.
- **State Corporation Commission (SCC)** – Virginia state agency that enforces pole attachment timelines for electric cooperatives and approves petitions for investor-owned utilities to recoup certain costs associated with building “middle mile” broadband infrastructure as part of the Utility Leverage Program.
- **Unserved locations** – locations that lack access to broadband because (1) they do not have service with download/upload speeds of at least 100 Mbps/20 Mbps, and/or (2) are not served by fiber, cable, DSL, or licensed fixed wireless technologies. Internet that does not meet this minimum speed level, or that is provided through other technologies (e.g., satellite or unlicensed fixed wireless), typically does not qualify as broadband.

- **Utility Leverage Program** – a state broadband program that allows Virginia’s investor-owned utilities to recover costs for “middle mile” broadband projects by partnering with localities or internet service providers to expand broadband access to unserved areas.
- **Utility locator tickets** – a service in which a utility locator marks the ground where existing utility lines are located so that construction crews can avoid disturbing underground infrastructure when installing broadband (e.g., line trenching, pole replacements) or completing other construction work.
- **Virginia Department of Transportation (VDOT)** – a state agency responsible for building, maintaining, and operating the state’s roads, bridges, and tunnels. VDOT grants land use permits to broadband infrastructure owners to install infrastructure in state owned and maintained right-of-way, such as the area alongside roads or across bridges. VDOT has a central office and 9 regional districts, which are further divided into 31 residencies. Most land use permits for broadband deployment projects are granted by residencies.
- **Virginia 811 (VA811)** – a not-for-profit organization that coordinates the marking of underground utility lines to prevent damage during excavation (formerly known as Miss Utility). All utility infrastructure owners in Virginia are members of VA811. VA811 receives requests to mark existing underground utilities from entities performing excavation work, including installation of broadband infrastructure, and notifies utility infrastructure owners to mark the location of their underground infrastructure in the area.
- **Virginia Telecommunication Initiative (VATI)** – a state grant program that provides financial assistance to supplement the construction costs incurred by private sector internet service providers, in partnership with local units of government, to extend broadband service to areas that are currently unserved by any broadband provider.

Attachment E: Inventory of Broadband Programs in Virginia

This appendix includes a list of 21 programs that supported broadband efforts in Virginia between FY17 and FY25. Programs are administered by various state entities (e.g., the Department of Housing and Community Development, State Corporation Commission, or Tobacco Commission) and federal entities (e.g., the National Telecommunications and Information Administration, Federal Communications Commission, etc.). Programs also have different goals, such as broadband deployment, affordability, and/or adoption. Several of the programs listed are no longer active in Virginia.

TABLE E-1
Broadband Programs in Virginia (FY17 – current)

Program	Administering entity	Broadband goal	Description	Active in Virginia	Funding
Administered by state entity					
Virginia Telecommunication Initiative (VATI)	State – DHCD	Deployment	Uses state and other funds to fund public-private partnerships providing targeted financial assistance to extend broadband service to areas currently unserved by a provider.	FY17 - current	State/Federal - \$976.6M (including federal pandemic relief funding)
Last Mile Broadband Program	State - Tobacco Commission	Deployment	Supports deployment of broadband services to southern and southwest Virginia.	FY17 - FY20	State - \$140M
Line Extension Customer Assistance Program (LECAP)	State – DHCD	Deployment & Affordability	Supports extension of existing broadband networks to low and moderate-income households where distance exceeds the internet service provider's standard for connection drop length.	FY22 - current	State - \$10M ^a
GO Virginia	State - DHCD	Deployment	Supports extension of “middle mile” broadband projects in partnership with the private sector.	FY19 - current	State - \$5M
Utility Leverage Unserved Area Certification Program	State – SCC, DHCD ^b	Deployment	Allows Virginia’s investor-owned utilities to recover costs for “middle mile” broadband projects.	FY21 - current	N/A
Administered by federal entity					
Broadband Equity, Access, and Deployment (BEAD)	Federal – NTIA ^c , DHCD	Deployment, Affordability, & Adoption	Provides funding to states to enable greater broadband access in unserved areas, underserved areas, and community institutions.	Expected FY25	Federal - \$1.48B ^a

			Requires 25% match (e.g., from the internet service provider, locality, utility, state, etc.) and low-cost options.		
Affordable Connectivity Program (ACP)	Federal - FCC	Affordability	Provides eligible households a discount up to \$30/month, or \$70/month on tribal lands, towards the internet service package of their choice.	FY22 - FY24	Federal - \$285.4M
Enhanced - Alternative Connect America Model (E-ACAM)	Federal – FCC	Deployment	Provides funding to broadband providers, usually legacy phone companies, to extend broadband access throughout locations in their legacy footprints.	FY24 - current	Federal - \$180.1M
Rural Digital Opportunity Fund (RDOF)	Federal - FCC	Deployment	Supports bringing high speed fixed broadband service to rural homes and small businesses that lack it through a federal auction-based program.	FY21 - current	Federal - \$159M
Connect America Fund II (CAF II)	Federal – FCC	Deployment	Supports bringing broadband to eligible rural areas in the U.S. through a federal auction-based program.	FY19 - current	Federal - \$109M
USDA ReConnect	Federal - USDA	Deployment	Offers loans, grants, and loan-grant combinations to facilitate broadband deployment in areas of rural America that currently do not have sufficient access to broadband.	FY20 - current	Federal - \$83.1M (grants and loans)
Emergency Broadband Benefit	Federal - FCC	Affordability	A pandemic-era program that provided \$50/month to eligible households to be used towards the cost of broadband services.	May 2021 - Dec 2021	Federal - \$34.3M
Coronavirus Aid, Recovery, and Economic Security (CARES) Act	Federal – U.S. Treasury	Deployment, Affordability, & Adoption	Provided funding to address short-term broadband needs during the COVID-19 pandemic. Funding utilized for connectivity (access), affordability, and adoption programs.	FY20 - FY21	State - \$30M ^a
Enabling Middle Mile Broadband Infrastructure Program	Federal - NTIA	Deployment	Provides funding to expand “middle mile” infrastructure to reduce the cost of connecting unserved and underserved areas.	FY24 - current	State - \$16.4M
Connecting Minority Communities Pilot Program (CMC)	Federal - NTIA	Deployment, Affordability, & Adoption	Provides funding to help colleges and institutions that serve minority and tribal communities.	FY22 - current	Federal - \$9.7M
Appalachian Regional Commission	Federal – DHCD	Deployment	Similar to VATI, uses federal funds, run through state application processes to extend broadband service to areas currently unserved by a provider.	FY19 - current	State - \$4.3M ^a
Local Government Broadband Affordability and Adoption Planning Grants (Using BEAD Planning Grant funds)	Federal – NTIA ^c , DHCD	Affordability & Adoption	A planning grant program, with \$25,000 in funding available (each) to cities, counties, and tribal governments to conduct local	FY23 - current	State - \$3.1M

			needs assessments, asset inventories, and other activities to develop local broadband affordability and adoption plans.		
Tribal Broadband Connectivity Program (TBCP)	Federal – NTIA	Deployment, Affordability, & Adoption	Supports tribal governments bringing high-speed internet to tribal lands, including telehealth, distance learning, affordability, and digital inclusion initiatives.	FY21 - current	Federal - \$1.5M
Regional Digital Opportunity Planning Grant Program (Digital Equity Act Planning Grant subgrant program)	Federal – NTIA ^c , DHCD	Affordability & Adoption	A planning program conducted with Community Action Agencies to study the affordability and adoption needs of a region, the findings of which were used to inform the development of Virginia's Digital Opportunity Plan.	2022-2023	State – Up to \$500K ^a
Digital Opportunity Case Study Pilot Program (Digital Equity Act Planning Grant subgrant program)	Federal – NTIA ^c , DHCD	Affordability & Adoption	A planning program conducted with local organizations and non-profits to conduct small-scale pilot programs directed at addressing broadband affordability and adoption needs, the findings of which were used to inform the development of Virginia's Digital Opportunity Plan.	2022-2023	State – Up to \$100K ^a
Lifeline Program	Federal – USAC	Affordability	Helps make phone and internet service more affordable for low-income households by providing eligible consumers with a monthly discount of up to \$9.25/month, or \$34.25/month on tribal lands.	Pre FY15 - current	Unknown ^d

SOURCE: DHCD data on broadband-related programs in Virginia since FY17. (Data provided to JLARC in August 2024).

^a Funding is federal funding that was run through the state.

^b DHCD certified areas are unserved.

^c Funds were provided by the National Telecommunications and Information Administration.

^d 161,583 monthly households subscribed as of March 2024.

Attachment F: Broadband Deployment Status, by Virginia Locality

This appendix includes data on the number and percentage of locations in each Virginia locality that lack access to broadband. Location data include residential homes and businesses that were “served” or “unserved” by broadband as of December 31, 2023. Location data also include community institutions that lack broadband (100 Mbps/20 Mbps).

Data in this appendix aligns with the Federal Communications Commission’s National Broadband Map, which is being used for the new federal Broadband Equity, Access, and Deployment program. The total number of “served” and “unserved” locations across localities differs from the statewide data DHCD provided JLARC on “served” and “unserved” locations because locality-level data has not been updated to reflect Virginia’s efforts to validate the data through a “challenge” process, or recent progress made deploying broadband.

Data in this appendix may not align with other publicly available broadband services maps, such as Virginia’s Commonwealth Connection map, because of differences in the location data used to inform broadband service information and the date broadband service information was recorded.

TABLE F-1
Broadband access by Virginia locality (as of December 31, 2023)

Locality	% Served	# Served	% Unserved	# Unserved	Total locations
Falls Church	100%	3,331	0%	-	3,331
Bristol	100	7,940	0	2	7,942
Manassas	100	9,631	0	10	9,641
Arlington	100	36,729	0	41	36,770
Norton	100	1,781	0	2	1,783
Charlottesville	100	13,102	0	16	13,118
Fairfax City	100	255,883	0	314	256,197
Alexandria	100	24,875	0	31	24,906
Manassas Park	100	3,618	0	5	3,623
Hampton	100	45,344	0	91	45,435
Richmond City	100	64,568	0	142	64,710
Lexington	100	2,203	0	5	2,208
Portsmouth	100	32,807	0	82	32,889
Norfolk	100	60,989	0	167	61,156
Winchester	100	9,235	0	28	9,263
Virginia Beach	100	136,332	0	427	136,759
Newport News	100	49,829	0	160	49,989
Salem	100	9,691	0	36	9,727
Colonial Heights	100	6,977	0	26	7,003
Roanoke City	99	35,964	1	190	36,154
Hopewell	99	8,877	1	48	8,925
Fredericksburg	99	7,316	1	42	7,358
Martinsville	99	6,181	1	39	6,220
Poquoson	99	4,796	1	35	4,831
Prince William	99	112,469	1	837	113,306

York	99	24,109	1	193	24,302
Waynesboro	99	9,152	1	81	9,233
Henrico	99	101,932	1	931	102,863
Petersburg	99	12,464	1	126	12,590
Franklin City	99	3,266	1	34	3,300
Fairfax	99	6,703	1	71	6,774
Harrisonburg	99	11,832	1	134	11,966
Danville	99	18,707	1	212	18,919
James City	99	29,394	1	335	29,729
Chesapeake	99	78,680	1	1,094	79,774
Chesterfield	99	124,210	1	1,794	126,004
Staunton	99	9,854	1	147	10,001
Covington	98	3,357	2	58	3,415
Smyth	98	16,001	2	282	16,283
Emporia	98	2,430	2	48	2,478
Radford	98	4,140	2	89	4,229
Buena Vista	98	2,759	2	62	2,821
Galax	97	3,080	3	82	3,162
Nelson	97	9,919	3	277	10,196
Stafford	97	46,687	3	1,327	48,014
Lee	97	12,602	3	415	13,017
Suffolk	97	33,566	3	1,171	34,737
Lynchburg	97	24,213	3	859	25,072
Roanoke	96	35,827	4	1,639	37,466
Fluvanna	95	11,615	5	637	12,252
Wise	94	16,408	6	1,008	17,416
Washington	94	25,815	6	1,587	27,402
Surry	94	3,538	6	230	3,768
Prince George	93	11,132	7	797	11,929
Loudoun	93	97,966	7	7,323	105,289
Tazewell	92	19,388	8	1,686	21,074
Russell	91	13,750	9	1,278	15,028
King and Queen	91	3,597	9	339	3,936
Buchanan	90	9,575	10	1,038	10,613
Spotsylvania	89	43,982	11	5,331	49,313
Orange	89	14,306	11	1,746	16,052
Williamsburg	89	2,976	11	367	3,343
Northampton	88	7,054	12	958	8,012
Mathews	84	5,123	16	947	6,070
Accomack	84	18,620	16	3,529	22,149
Henry	84	22,206	16	4,275	26,481
Isle of Wight	83	13,826	17	2,780	16,606
King George	83	8,620	17	1,760	10,380
Warren	82	14,037	18	3,016	17,053
Montgomery	82	26,340	18	5,771	32,111
Scott	82	11,044	18	2,482	13,526
Alleghany	81	7,453	19	1,698	9,151
Westmoreland	81	10,009	19	2,319	12,328
Albemarle	79	30,227	21	8,226	38,453
Buckingham	79	6,022	21	1,647	7,669
Hanover	77	33,840	23	9,996	43,836
Frederick	77	28,585	23	8,649	37,234
Rockbridge	76	9,189	24	2,926	12,115
Botetourt	75	12,008	25	3,930	15,938
Pulaski	75	13,088	25	4,350	17,438
Richmond	75	3,129	25	1,065	4,194
Middlesex	74	6,089	26	2,103	8,192
Floyd	74	6,728	26	2,327	9,055
Giles	74	6,942	26	2,427	9,369

Culpeper	74	13,929	26	4,999	18,928
Shenandoah	74	16,256	27	5,861	22,117
Appomattox	73	5,881	27	2,169	8,050
Powhatan	73	9,193	27	3,422	12,615
Highland	72	1,769	28	689	2,458
Rockingham	72	26,205	28	10,438	36,643
Amherst	71	10,870	29	4,450	15,320
Dickenson	71	5,488	29	2,271	7,759
Augusta	69	24,131	31	10,695	34,826
Bath	69	2,511	31	1,114	3,625
Northumberland	69	6,869	31	3,081	9,950
Campbell	69	17,102	31	7,791	24,893
Gloucester	68	11,665	32	5,448	17,113
Bedford	68	26,267	32	12,305	38,572
Goochland	66	7,532	34	3,807	11,339
Grayson	64	6,942	36	3,835	10,777
Greene	64	5,492	36	3,092	8,584
Franklin	64	18,707	36	10,707	29,414
Lancaster	63	5,199	37	2,989	8,188
Charles City	63	2,295	37	1,344	3,639
Caroline	62	8,652	38	5,203	13,855
Fauquier	62	17,827	38	10,764	28,591
Wythe	60	9,501	40	6,233	15,734
New Kent	58	6,004	42	4,316	10,320
Page	58	7,610	42	5,614	13,224
Essex	55	3,478	45	2,820	6,298
Clarke	54	3,591	46	3,094	6,685
Sussex	50	2,861	50	2,807	5,668
Pittsylvania	50	17,060	50	16,898	33,958
Mecklenburg	50	10,394	50	10,322	20,716
Southampton	47	5,113	53	5,758	10,871
Louisa	47	9,293	53	10,639	19,932
Dinwiddie	46	6,251	54	7,246	13,497
King William	45	3,611	55	4,492	8,103
Nottoway	44	3,226	56	4,124	7,350
Halifax	43	8,455	57	11,152	19,607
Carroll	41	7,529	59	10,864	18,393
Cumberland	41	2,257	59	3,305	5,562
Prince Edward	38	3,308	62	5,403	8,711
Rappahannock	36	1,632	64	2,918	4,550
Brunswick	35	3,018	65	5,610	8,628
Greensville	35	1,647	65	3,090	4,737
Madison	34	2,345	66	4,472	6,817
Amelia	34	2,168	66	4,229	6,397
Lunenburg	33	2,324	67	4,726	7,050
Bland	30	1,220	70	2,835	4,055
Craig	28	892	72	2,284	3,176
Charlotte	23	1,643	77	5,373	7,016
Patrick	22	2,552	78	8,971	11,523
Total	--	2,529,344	--	390,854^a	2,920,198

SOURCE: Data on unserved locations according to the FCC National Broadband map (as of December 31, 2023).

NOTES: "Served" locations have access to internet that (1) has a minimum speed of 100 Mbps/20 Mbps and (2) is provided through fiber, cable, DSL, or licensed fixed wireless technology. "Unserved" locations do not have access to broadband, but they may still have internet with speeds below the broadband definition. Some of the locations counted as "unserved" have state- or federally funded broadband deployment projects that have been initiated but not completed.

^aThe total number of "served" and "unserved" locations across localities differs from the statewide data DHCD provided JLARC on "served" and "unserved" locations because locality-level data has not been updated to reflect Virginia's efforts to validate the data through a "challenge" process, or recent progress made deploying broadband.