Summary: Broadband Deployment in Virginia

BACKGROUND

Achieving universal broadband connectivity relies on government funding

Internet service providers (ISP) build broadband networks to bring high speed internet to Virginia households, businesses, and community institutions (e.g., schools, libraries, hospitals, etc.). Some areas—particularly in rural Virginia—still lack access to broadband because they have a limited customer base and because it is more challenging and costly to build broadband infrastructure in relatively remote locations. Government programs award state or federal grant funding to help ISPs cover broadband deployment costs in areas that may not be economically feasible for ISPs to serve. Approximately $3.2 billion in state and federal funding has been awarded to broadband deployment projects in Virginia since FY17.

WHY WE DID THIS STUDY

In 2023, the Joint Legislative Audit and Review Commission (JLARC) directed staff to review Virginia's broadband deployment efforts.

BROADBAND DEFINITION

Broadband is high-speed internet that has a minimum download speed of 100 megabits per second (Mbps) and minimum upload speed of 20 Mbps. Broadband can be provided through various wired technologies (e.g., fiber, DSL, or cable) or wireless technologies (e.g., fixed wireless or satellite), though some state and federal programs do not award grant funding for broadband provided through wireless technologies.

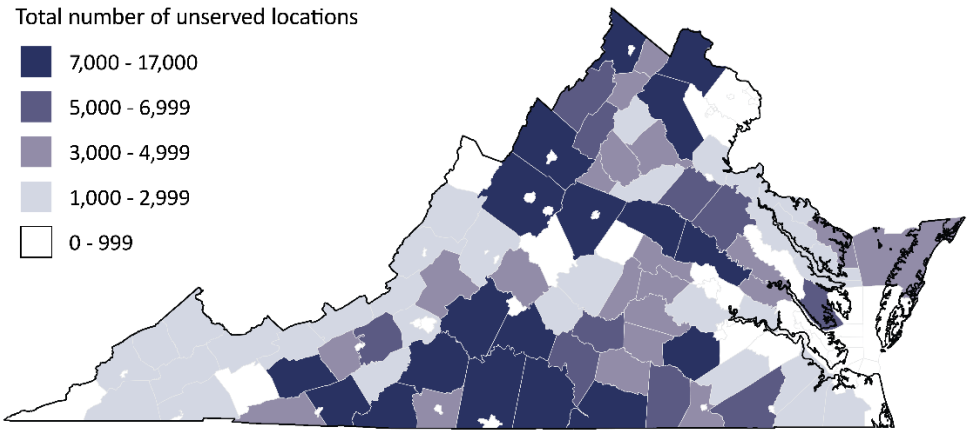
The Office of Broadband in the Department of Housing and Community Development (DHCD) is responsible for overseeing Virginia's broadband efforts and administering state and federal broadband deployment programs. DHCD staff work closely with state, local, federal, and private sector stakeholders to inform them of broadband programs operating in Virginia, monitor the progress of state-administered projects, and help address challenges and underperformance where possible. Stakeholders report that DHCD staff have strong broadband-related expertise and have done a good job managing broadband programs.

WHAT WE FOUND

Most Virginians have access to broadband, but ~392K locations are unserved, and some will not have access to broadband before 2030

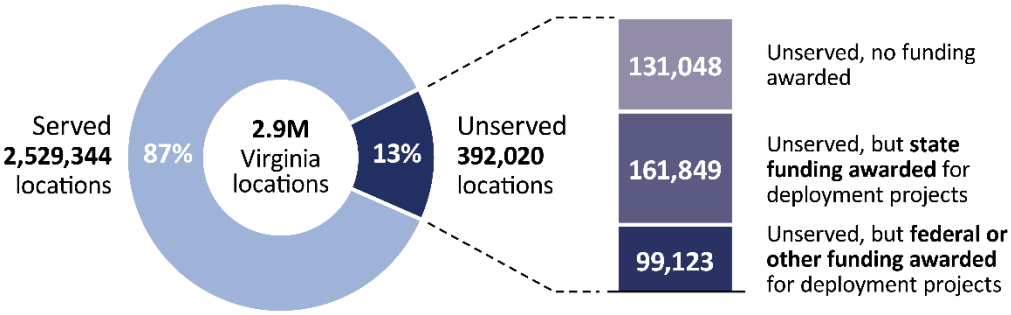
The relevant measure of broadband availability is a "location," which could be a home, business, community institution, or other place where broadband could be installed, and 87 percent of Virginia locations had access to broadband as of December 2023. The unserved 13 percent (392,020 locations) were largely concentrated in Virginia's Southside and Shenandoah Valley regions, with Pittsylvania County, Bedford County, and Halifax County each having over 10,000 unserved locations (Figure 1). The majority of Virginia's unserved locations have already received state or federal funding for deployment projects that are currently underway (Figure 2).

Figure 1
Many unserved locations in Virginia are concentrated in Southside and Shenandoah Valley regions



SOURCE: Data on unserved locations according to the FCC National Broadband map (as of December 31, 2023). An unserved location may have internet access, but the connection speed is lower than required to be considered "broadband."

Figure 2
~392K locations in Virginia currently lack access to broadband



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

Although Virginia has set a goal of achieving near universal broadband coverage by 2028, it will take at least until 2030 to achieve that goal. A large federal broadband deployment program—the Broadband Equity, Access, and Deployment (BEAD) program—is expected to connect most of the remaining unserved locations, but the projects funded by BEAD are not expected to begin until mid-2026 and are unlikely to be completed until 2030 or later. Furthermore, even after planned and current deployment projects are completed, some locations will remain unserved because (i) some ISPs will likely be unable to complete their projects on time or at all, and (ii) deployment projects are based on already outdated "coverage maps" that are known to have omitted some unserved locations.

Many deployment projects have been delayed because of challenges attaching broadband to utility poles and obtaining necessary permits

A surge in broadband projects in recent years has strained deployment and delayed many projects. A large infusion of government funding caused a surge in the number of broadband deployment projects in Virginia, which overwhelmed available personnel and systems and strained supplies of needed equipment and materials. At least 29 of the 57 ongoing projects funded through the state's Virginia Telecommunication Initiative (VATI) program have experienced delays because of deployment challenges, many by 12 months or more.

The "make ready" process is one of the most substantial challenges to completing broadband deployment projects—primarily projects that involve installing broadband fiber overhead on utility poles. "Make ready" challenges are delaying at least 16 of the state's ongoing VATI projects. ISPs and utility pole owners (e.g., electric companies) have disputed who is responsible for these delays, but they share responsibility in many cases. The General Assembly enacted legislation in 2024 to minimize future delays and disputes (sidebar). It is too soon to determine the impact of the legislation's changes, but there appear to be no additional state measures that would meaningfully facilitate "make ready" work.

The 2024 General Assembly enacted changes to support the "make ready" process, including: (1) establishing a "make ready" timeline for electric cooperatives; (2) creating a dispute resolution process for ISPs and electric cooperatives that is administered by the State Corporation Commission; and (3) allocating funding to help pay "make ready" costs for 2022 VATI projects at risk of incompletion.

Several projects have cost much more than the ISPs' original estimates, and challenges coming up with additional resources to pay for unplanned costs have contributed to delays. Some ISPs that were awarded VATI projects found that actual "make ready" costs substantially exceeded their original estimates, which made it difficult to adhere to project timelines and budgets. The 2024 General Assembly created the Virginia Make Ready Initiative (VMRI) with $30 million in general funds to supplement "make ready" costs for at-risk 2022 VATI projects. DHCD began making monthly VMRI awards in September 2024 and has awarded $19 million to four ISPs as of November 2024. Projects that have received these awards have started to use the funds to pay for additional pole attachments and underground activities.

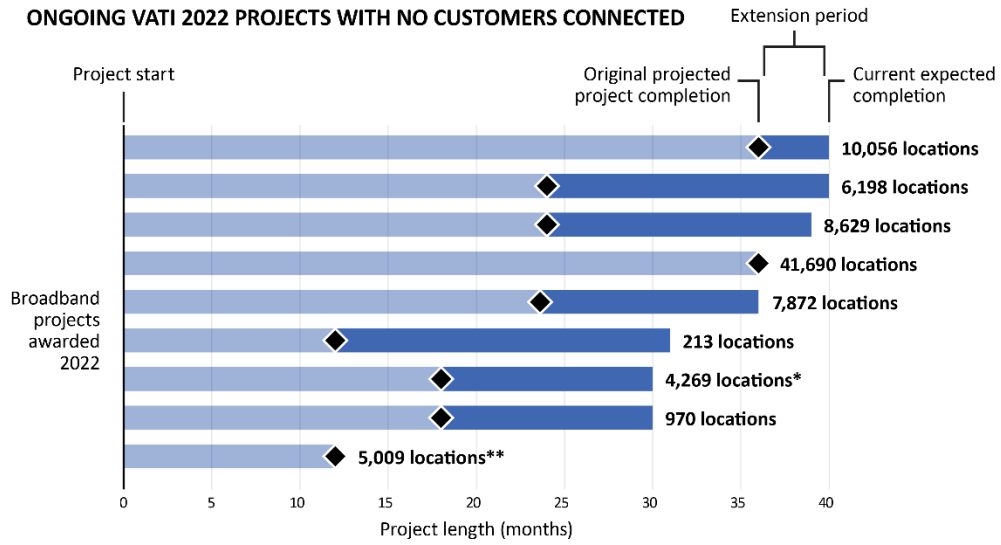
Obtaining VDOT land use permits has also delayed some broadband deployment projects. Between January and July 2024, local VDOT "residency" offices approved broadband-related permits in an average of 10 days, but several offices took over 100 days to approve some permits. Some ISPs report confusion over permitting requirements, which vary across VDOT offices, and many ISPs' permit applications lack sufficient information to obtain VDOT approval. Furthermore, VDOT staff report being unaware that some permit applications are tied to deployment projects that have federal deadlines, so they are unable to prioritize them over less time-sensitive permit applications.

State VATI program has increased broadband availability, but some VATI projects have made little progress

Since 2017, the VATI program has awarded state and federal funds to 110 deployment projects covering approximately 370,000 locations across the state. As of November 2024, 46 VATI projects had been completed, 57 projects were ongoing, and seven projects were recently awarded but have not yet begun because contracts between DHCD and the localities were still being negotiated.

The majority of ongoing VATI projects (29 of 57) have not kept up with their original schedules and have received at least one contract extension from DHCD. Some of the delayed projects have made very little progress to date. For example, nine projects that began in 2022 had not connected any locations as of November 2024 (Figure 3). VATI projects from 2022 were funded with federal pandemic relief funding that expires if not used by the end of 2026.

Figure 3
Nine 2022 VATI projects have not connected any locations (as of Nov 2024)



SOURCE: DHCD data on VATI projects (as of November 2024).
*Funded with state general funds. All other projects in figure funded with federal pandemic relief funds. Project has connected one customer as of November 2024.
**Original project awarded in 2022 but transferred to new grantee in 2024.

DHCD grouped VATI 2022 projects into 3 categories: (1) no risk, (2) low risk, and (3) high risk. Projects were considered "low risk" if they had received a contract extension or were significantly behind milestones. Projects were considered "high risk" if they had a contractual end date in 2026.

Inadequate contract provisions and inconsistent state oversight of project performance have enabled some VATI project delays. Localities have not established clear performance targets for ISPs or penalties for underperformance, in some cases enabling ISPs to make unsatisfactory progress without meaningful consequences. Additionally, DHCD has not consistently required either localities or ISPs to complete corrective action plans when projects miss key milestones.

The General Assembly enacted budget language in 2024 to enable localities involved in 2022 VATI projects to take actions to improve the likelihood of completing the projects by the December 31, 2026, federal funding deadline. The budget language directed DHCD to assess the risk level of each 2022 VATI project and to notify local entities of their ability to (1) entirely surrender their projects, (2) rescope their projects to include fewer locations, (3) transfer locations from their project to another VATI project, or (4) replace their private ISP partner. In July 2024, DHCD identified which 2022 VATI projects were at "no risk" (11 projects), "low risk" (22) or "high risk" (one project) of incompletion by December 31, 2026 (sidebar). DHCD also notified each local entity of their options to rescope their projects or replace their ISP partners. In response, only one locality chose to transfer some of their project locations to a different ISP partner. All other projects chose to continue their projects as originally designed.

As projects continue, localities could replace underperforming ISP partners; however, some localities expressed concerns that their contracts lack provisions to protect them from being sued by the ISP for contract termination. Localities have a narrow window of time to terminate their existing contracts and hire a new ISP, if they choose, given the amount of work that remains to be completed before the 2026 federal deadline. The state has some limited actions it can still take to help localities navigate changes to their existing contracts, if they choose.

Forthcoming federal BEAD program will help Virginia achieve nearly universal broadband availability, but delays and cost overruns could be avoided by applying lessons learned from VATI projects

In 2021 the federal government announced a new broadband deployment funding program for states, and in 2026 Virginia will receive $1.4 billion to deploy broadband to its remaining unserved locations. BEAD projects will occur throughout the state, with Carroll, Rockingham, Gloucester, Spotsylvania, and Augusta counties having the most remaining unserved locations. DHCD is awaiting federal approval to begin making BEAD project awards, but DHCD staff estimate that projects will begin in 2026 and conclude by 2030.

The state should take steps to prevent past deployment challenges when administering the BEAD program. Similar to other broadband deployment projects, BEAD-funded projects will be vulnerable to unreliable, inexperienced, or under-resourced ISPs, unrealistic cost estimates, and challenges arising from other stakeholders involved in the process. Although many parameters of BEAD projects have been determined by the federal government, the state can help ensure the success of these projects by applying lessons learned over the past several years. For example, DHCD can validate projects' estimates of "make ready" costs to ensure that sufficient funds are awarded to each project and can ensure that Virginia's contracts with ISPs include clear performance targets, penalties for underperformance, and mechanisms to hire replacement ISPs for an underperforming project, if necessary.

The federal government requires states to prioritize BEAD funding for projects that deploy broadband to unserved locations, but leftover funds can be used for programs that improve broadband affordability and facilitate broadband adoption. DHCD estimates that a majority of Virginia's BEAD allocation will be needed for deployment, but a substantial amount (~$480 million) could be leftover for non-deployment initiatives. The state's priorities for this significant sum, and parameters for spending it, are unclear, but the General Assembly reiterated federal guidance on possible uses for non-deployment funding in the 2024–26 budget (e.g., direct subsidies for broadband subscriptions, remote learning, or telehealth services/facilities, etc.). Virginia's governor and the federal government must approve Virginia's non-deployment project awards.

Lower-income households may find broadband rates unaffordable when it becomes available

Even when broadband has been deployed to the remaining unserved locations, many Virginia households will have difficulty affording it. Monthly broadband subscription rates in Virginia vary widely, ranging between approximately $45 per month to $90 per month, depending on the ISP. Some ISPs offer low-cost plans ranging from approximately $10 to $30 per month for eligible households, and some households qualify for discounted monthly broadband subscriptions through the federal government. Experts agree that, to be affordable, utilities should cost no more than between 2 and 4 percent of household income. The cost of a broadband subscription would be considered affordable for most Virginia households, who would pay 3 percent or less of their monthly income toward the median broadband subscription ($50 per month). However, a broadband subscription would account for more than 3 percent of monthly income for 10 percent of Virginia households, which are largely concentrated in Southwest, Southside, and Eastern Virginia.

WHAT WE RECOMMEND

Legislative action

- Expand membership of the Broadband Advisory Council to include members from VDOT, Virginia811, and investor-owned utilities, so all key broadband stakeholders are represented.
- Direct DHCD to 1) determine by July 1, 2025, whether any projects whose funding expires in December 2026 are unlikely to be completed by then and 2) require the localities with those projects to take actions to improve the likelihood that they will be completed on time, including transferring all or part of the project to a different ISP.

Executive action

- VDOT develop and publish online the specific information each VDOT residency requires from applicants for broadband-related VDOT land use permits.
- VDOT identify the land use permit applications needed for time-sensitive broadband deployment projects and prioritize the permits needed specifically for projects with federal pandemic relief funding that expires in 2026, when practicable.
- DHCD, for 2022 VATI projects: (1) determine if localities' existing contracts with ISPs could be terminated for underperformance, (2) require localities to amend their contracts to clarify performance goals and termination rights, if needed, before granting future project extensions, and (3) issue a Request for Qualifications to identify ISPs that may be able to provide broadband to unserved locations if localities change ISPs.
- DHCD, for future VATI and BEAD projects: (1) consistently require corrective action plans when projects miss performance milestones and monitor whether they are implemented, (2) require contracts with ISPs to have clear performance targets, penalties for not meeting targets, and a process for termination, (3) require ISPs to estimate "make ready" costs based on previous projects in similar areas and information from utility pole owners, and (4) compare "make ready" cost estimates submitted by grant applicants to actual costs from previous projects to verify reasonableness of estimates.
- DHCD not award funding to projects that are using ISPs with a recent history of underperformance on broadband deployment projects.

Recommendations and Policy Options: Broadband Deployment in Virginia

Recommendations

RECOMMENDATION 1

The Virginia Department of Transportation (VDOT) central office should develop and publish on its website, by March 1, 2025, the specific information each VDOT residency requires from applicants for broadband-related land use permits and include on the permit application itself a link to these requirements.

RECOMMENDATION 2

The Virginia Department of Transportation (VDOT) should, by March 1, 2025, modify its land use permit application to direct applicants to indicate in the "project description field" whether the requested permit is related to a Virginia Telecommunication Initiative project funded with federal pandemic relief funding that expires at the end of December 2026; a Broadband Equity, Access, and Deployment project; or other time-sensitive broadband project.

RECOMMENDATION 3

The Virginia Department of Transportation residency and district offices should prioritize processing broadband-related land use permit applications for Virginia Telecommunication Initiative projects funded with federal pandemic relief funding that expires at the end of December 2026, when practicable.

RECOMMENDATION 4

The Department of Housing and Community Development Office of Broadband should distribute detailed information at least twice per year on the location, completion schedule, and funding time constraint for every state-administered current and future broadband deployment project to all stakeholders involved in broadband deployment. These stakeholders should include investor-owned utilities, electric cooperatives, railroad companies, Virginia811, the State Corporation Commission, and the Virginia Department of Transportation central and appropriate district and residency offices.

RECOMMENDATION 5

The General Assembly may wish to consider amending § 2.2-2699.3 of the Code of Virginia to expand the membership of the Broadband Advisory Council to include representation from the Virginia Department of Transportation, Virginia811, and investor-owned utilities.

RECOMMENDATION 6

The Department of Housing and Community Development Office of Broadband should require that all future contracts between state/local government entities and internet service providers contain (1) clear and measurable performance requirements, (2) specific penalties if internet service providers do not meet these performance requirements if the non-performance is attributable to the internet service provider, and (3) criteria and a process for contract termination if performance requirements continue to not be met.

RECOMMENDATION 7

The Department of Housing and Community Development Office of Broadband should, for all ongoing and future Virginia Telecommunication Initiative projects and future Broadband Equity, Access, and Deployment projects, (1) require corrective action plans be completed by the internet service provider and/or local government entity (if applicable) when projects do not meet performance requirements or otherwise do not comply with program requirements and (2) monitor whether the corrective actions included in plans are implemented.

RECOMMENDATION 8

The Department of Housing and Community Development Office of Broadband should seek legal guidance to determine whether local entities that have entered into broadband deployment contracts pursuant to the Virginia Telecommunication Initiative (VATI) have the legal right to terminate contracts with internet service providers involved in 2022 VATI projects considered at risk, without penalty, if an internet service provider has not met the performance requirements of the contract.

RECOMMENDATION 9

The Department of Housing and Community Development Office of Broadband should, prior to granting an extension to any ongoing Virginia Telecommunication Initiative project, require the local government entity and its internet service provider to amend their broadband deployment contract to include (1) specific performance requirements and (2) provisions to allow the local government entity to terminate the agreement when those requirements are not met, if the contract does not already contain adequate provisions to this effect.

RECOMMENDATION 10

The General Assembly may wish to consider including language in the Appropriation Act (1) directing the Department of Housing and Community Development (DHCD) Office of Broadband to identify by July 1, 2025, any broadband deployment projects funded with federal funds set to expire on December 31, 2026, that are unlikely to be completed by that deadline, and, for those projects, (2) requiring the appropriate unit of local government under contract with DHCD for project delivery to, by July 15, 2025, initiate the process to either transfer all or part of the project to another internet service provider, transfer all or part of the project to another active Virginia Telecommunication Initiative funded project, or take another action that would improve the likelihood of project completion by December 31, 2026.

RECOMMENDATION 11

The Department of Housing and Community Development (DHCD) Office of Broadband should, in consultation with the Department of General Services, issue a Request for Qualifications (RFQ) to identify internet service providers (ISPs) that may be able to provide broadband to unserved locations that are part of 2022 Virginia Telecommunication Initiative projects currently considered at risk of not being completed by December 2026. The RFQ should be completed by March 1, 2025, and DHCD should share the results with the local government entities that are party to the contracts for the at-risk projects to help them identify potential new ISPs.

RECOMMENDATION 12

The Department of Housing and Community Development Office of Broadband should not award funding to Virginia Telecommunication Initiative projects or Broadband Equity, Access, and Deployment projects that are using internet service providers with a recent history of underperformance on broadband deployment projects.

RECOMMENDATION 13

The Department of Housing and Community Development Office of Broadband should require applicants for all future Virginia Telecommunication Initiative and Broadband Equity, Access, and Deployment projects to (1) request information from utility pole owners on the need for "make ready" work in the proposed project areas, (2) estimate anticipated "make ready" costs based on previous broadband deployment projects in similar geographic areas, and (3) submit in their grant applications evidence of these efforts and project cost estimates directly based on the information collected.

RECOMMENDATION 14

The Department of Housing and Community Development Office of Broadband should compare "make ready" cost estimates submitted by applicants for all future Virginia Telecommunication Initiative and Broadband Equity, Access, and Deployment projects to data on actual "make ready" costs from previous projects to verify the reasonableness of those estimates.

Policy Options to Consider

JLARC staff typically make recommendations to address findings during reviews. Staff also sometimes propose policy options rather than recommendations. The three most common reasons staff propose policy options rather than recommendations are: (1) the action proposed is a policy judgment best made by the General Assembly or other elected officials, (2) the evidence indicates that addressing a report finding is not necessarily required, but doing so could be beneficial, or (3) there are multiple ways in which a report finding could be addressed and there is insufficient evidence of a single best way to address the finding.

POLICY OPTION 1

The General Assembly could include language in Item 103 of the Appropriation Act requiring internet service providers to include in their required annual submission of information to the Department of Housing and Community Development information on the monthly rate customers pay by locality, on average, for the base and low-cost broadband service plans and the speed of the service.

POLICY OPTION 2

The General Assembly could direct the Department of Housing and Community Development (DHCD) Office of Broadband to seek federal approval to use Broadband Equity, Access, and Deployment program funding to create a pilot program intended to encourage adoption of new broadband service by low-income households. DHCD could (i) include a geographically diverse subset of the state's internet service providers in the program and require them to offer a standardized discounted monthly broadband subscription rate to new customers who meet income eligibility parameters established by DHCD, (ii) evaluate the program's effectiveness in encouraging low-income households to adopt broadband service after six months and one year, (iii) determine whether the program should be expanded and/or extended based on that evaluation, and, if so, (iv) propose a program design, including the estimated amount of necessary funding, in a future budget request.

JLARC
JOINT LEGISLATIVE AUDIT
AND REVIEW COMMISSION

December 9, 2024

Broadband Deployment in Virginia

Study resolution

- Evaluate whether broadband funds have been deployed effectively through existing state programs (e.g., VATI)
- Assess whether state is on track to achieve its goal of achieving universal connectivity by 2028
- Evaluate whether state has sufficient staff and procedures to distribute new federal BEAD funds
- Evaluate state's role in helping ensure the affordability of broadband in the future

VATI=Virginia Telecommunication Initiative
BEAD=Broadband Equity, Access, and Deployment program

Research activities

- Interviewed DHCD staff and various stakeholders (e.g., internet service providers, localities, utilities) about current broadband efforts and key challenges
- Surveyed stakeholders (e.g., internet service providers, localities, utilities)
- Analyzed data and reviewed documents related to specific VATI-funded projects, especially projects experiencing delays
- Analyzed data on extent of project delays caused by utility pole "make ready" requests, VDOT permits, and utility locations
- Reviewed Virginia's BEAD program design and requirements and compared them to other states' BEAD programs

*More information about research methods in Attachment B.

In brief

Even after the next infusion of federal funding, some locations in Virginia will not have access to broadband, and Virginia is unlikely to achieve its goal of near universal coverage until 2030 or later.

Approximately 392K locations in Virginia do not have access to broadband, but about 2/3 of these are part of deployment projects currently underway. Unserved locations are concentrated in Southside and the Shenandoah Valley.

Several broadband deployment projects are delayed and have been deemed to be “at risk” by DHCD; state has a few options to affect the pace and outcomes of these projects but should act soon.

Overall, Virginia’s broadband program has been successful and well managed by DHCD.

In this presentation

Background

Status of broadband deployment in Virginia

Key challenges to broadband deployment

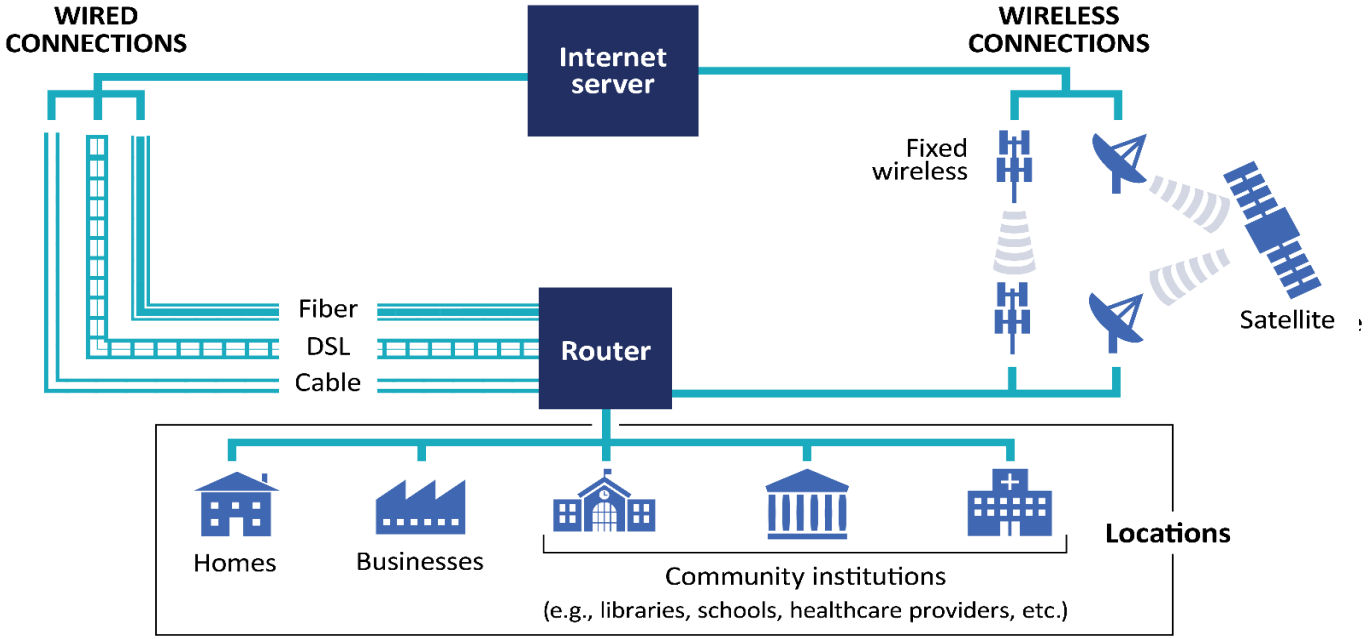
VATI program

BEAD program

Affordability of broadband

Broadband provides high speed internet to a variety of locations

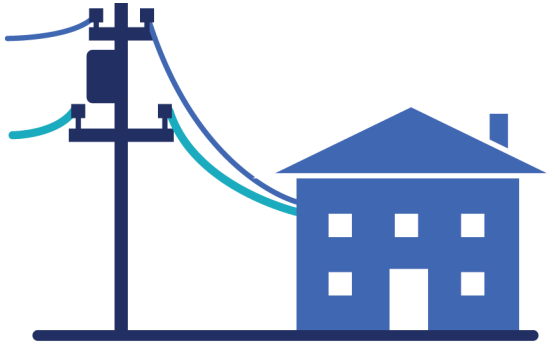
Broadband = high speed internet with at least: **100Mbps** (Download) / **20Mbps** (Upload)



Source: JLARC staff review of federal and state broadband definitions.
Note: Internet accessed through mobile phones, hot spots, and satellite are not considered broadband for many state and federal programs because (1) the lack of wired infrastructure makes it difficult to justify funding and (2) technologies like fiber are generally more reliable and scalable.

Broadband infrastructure is built or "deployed" across state using overhead or underground lines

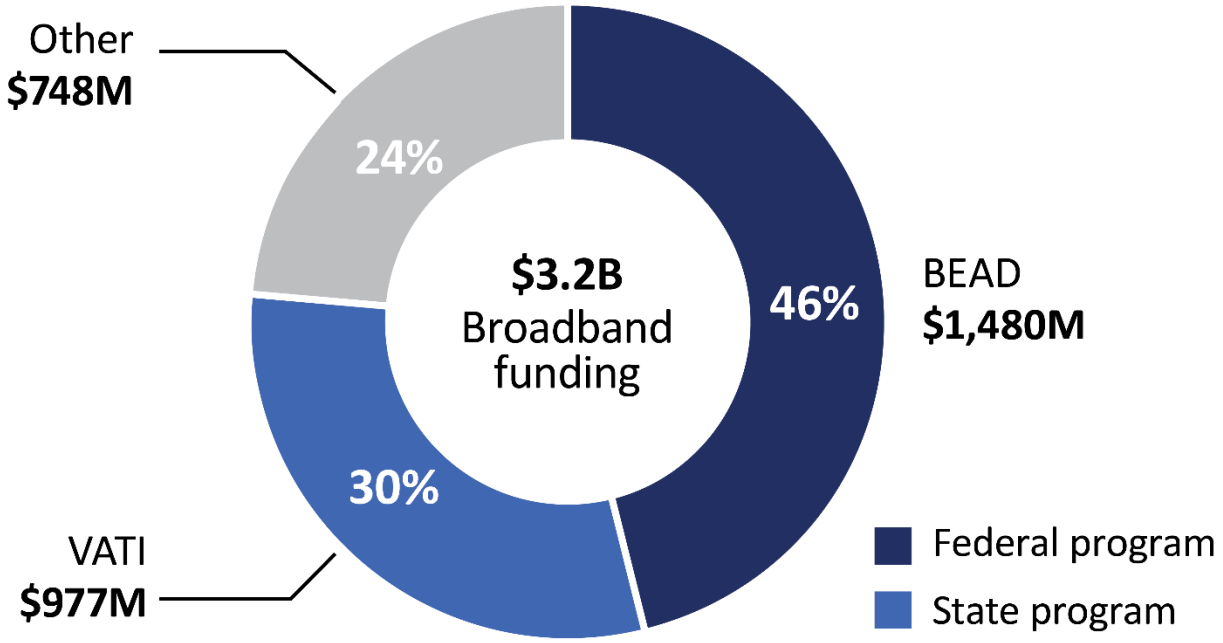
- Can be installed overhead on poles
  - Poles typically owned by utility companies
  - Often cheaper deployment method
  - Susceptible to weather damage; more ongoing maintenance



- Can also be installed underground
  - Lines buried in accordance with state/federal rules
  - Difficult to dig in rocky terrain; must mark and avoid damaging existing utilities
  - Less ongoing maintenance

Note: Broadband provided through fixed wireless technology is transmitted aerially through a signal.

VATI and new federal BEAD program are Virginia's largest deployment programs



Source: DHCD data on state and federal funding awarded for broadband deployment projects (since FY17).
Notes: VATI = Virginia Telecommunication Initiative program; BEAD = Broadband Equity, Access, and Deployment program; "Other" includes 12 state and federal broadband deployment programs. See Attachment E for a list of broadband programs in Virginia.

DHCD's Office of Broadband oversees Virginia's broadband efforts

- ~12 staff with broadband-related responsibilities
- Administers state VATI and federal BEAD broadband deployment programs
- Works closely with various broadband stakeholders
  - State – State Corporation Commission, VDOT, Virginia811
  - Local – Local governments, Planning District Commissions
  - Private sector – ISPs, utilities
- Also oversees digital equity programs that support broadband affordability and adoption

Virginia is a national broadband leader and has developed strong expertise

- Virginia is one of the first states to have a state-funded broadband deployment grant program
- VATI program design was used to inform aspects of federal BEAD program
- DHCD has strong expertise, according to stakeholders (e.g., localities, ISPs, utilities)
  - *"[DHCD] has done an incredible job. They have always been a good partner." – Locality*
  - *"We commend Virginia as one of the leading states on broadband deployment and feel that DHCD does an excellent job managing the programs." – ISP*

In this presentation

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VATI program

BEAD program

Affordability of broadband

Virginia has a goal of achieving near universal broadband connectivity by 2028

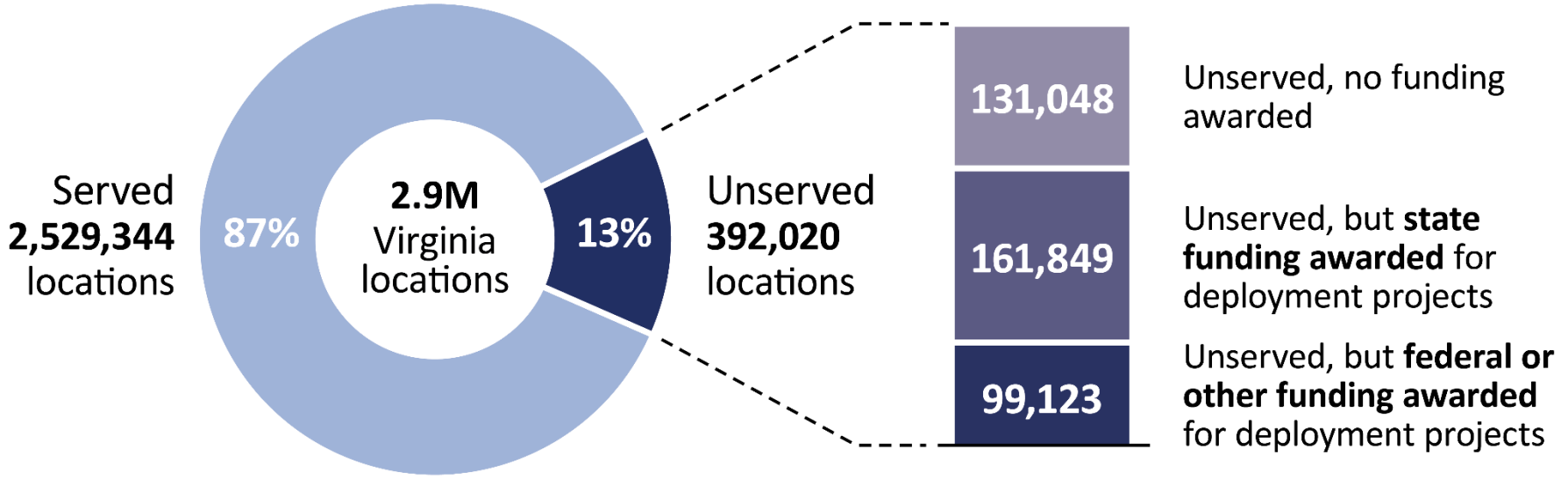
- Virginia aims to achieve near universal connectivity by providing broadband access to all locations that:
  - have not received state/federal project funding and
  - are captured on federal broadband map (as of Dec. 2023)
- Virginia initially set goal to achieve near universal broadband connectivity by 2024
  - Goal was not well informed by extent of unserved locations and challenges of broadband deployment
- Virginia updated its goal as part of BEAD program planning and is working toward achieving near universal connectivity by 2028

Finding

Although the vast majority of Virginians currently have access to broadband, around 392,000 locations* are still unserved across the state.

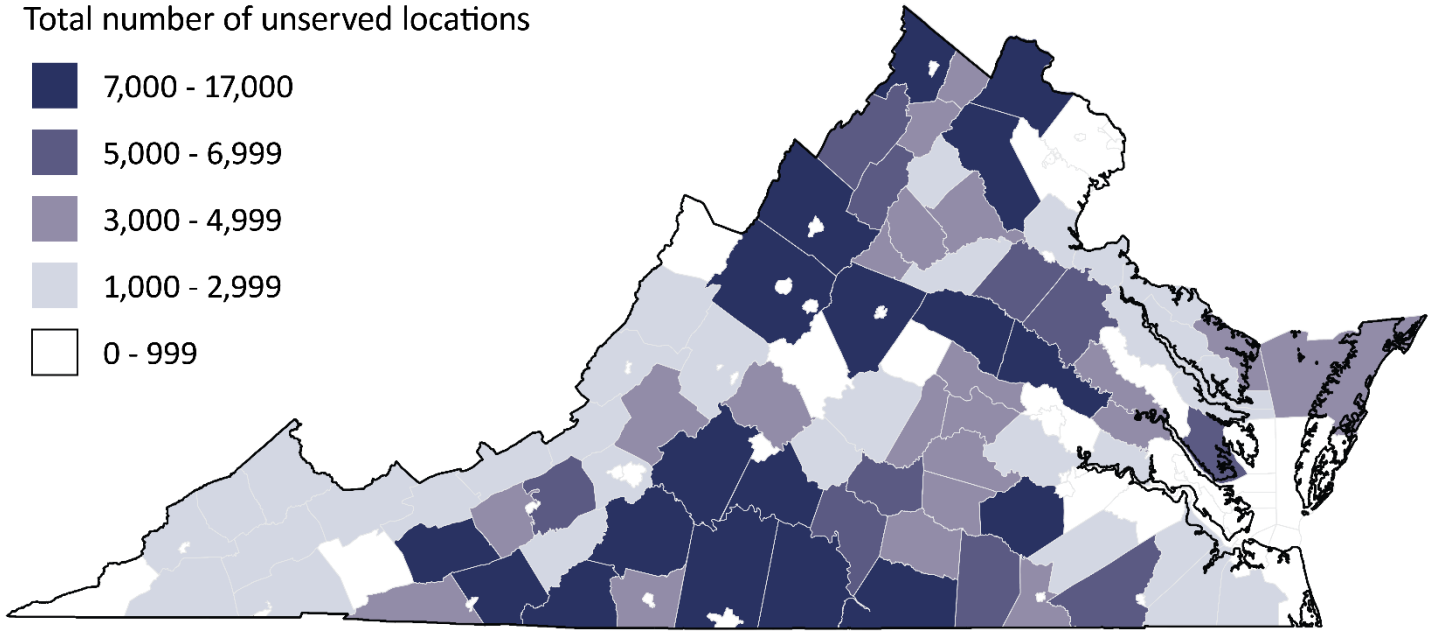
*Locations include homes, businesses, and some community institutions. Unserved locations do not have access to broadband, but they may still have internet with speeds below the broadband definition (100 Mbps/20 Mbps).

Vast majority of Virginians have access to broadband services, but ~392K locations are currently unserved



Source: Data on unserved locations according to the FCC National Broadband map (as of December 31, 2023) and DHCD validation of location information.
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.

Many unserved locations in Virginia are concentrated in Southside and Shenandoah Valley regions



- Localities with the largest number of unserved locations (10K+) are Pittsylvania, Bedford, and Halifax

Source: Data on unserved locations according to the FCC National Broadband map (as of December 31, 2023).
Note: See Attachment F for list of unserved locations by Virginia locality.

Some community institutions do not yet have broadband, though many have internet

- Community institutions include schools, libraries, health-care providers, public safety entities, higher education institutions, and other community support organizations
- ~7.7K of ~12K* community institutions still lack access to broadband, according to DHCD estimates
  - Examples of community institutions without broadband are public safety entities, libraries, gov't buildings, public housing
  - All schools and hospitals have broadband
- Many community institutions without broadband have internet, but speeds do not qualify as "broadband"**

*DHCD identified 11,973 community institutions in Virginia. Community institutions were not included in Virginia's ~392K "unserved" locations unless they lacked access to 100 Mbps/20 Mbps internet.
**Community institutions' internet speeds must be a minimum of 1,000 Mbps / 1,000 Mbps to be considered broadband, which is higher than the 100 Mbps/20 Mbps requirement for residences and businesses.

Finding

Virginia is unlikely to achieve near universal broadband connectivity until at least 2030.

Virginia is unlikely to achieve near universal connectivity by its 2028 goal

- All ongoing state and federal deployment projects are expected to be completed by 2028
- Upcoming BEAD projects likely will not be completed until 2030 if they begin mid-2026 as expected
  - Will address ~131K locations that are currently unserved and have not been awarded state or federal funding

Virginia will not achieve 100% connectivity even with current and upcoming projects

- Some ongoing state/federal deployment projects may fall short of original project commitments, ultimately serving fewer locations than planned
- Some unserved locations have been missed by existing broadband maps and will be left out of BEAD projects
  - According to DHCD, the total number of unserved locations could be "in the upper hundreds to low thousands"
- State funds will be required unless federal government provides additional funds or allows BEAD funding to be reserved for future unserved locations
  - Technologies not historically funded by government programs, such as satellite, may be needed to connect hard-to-reach locations

In this presentation

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Status of broadband deployment in Virginia

Key challenges to broadband deployment

VATI program

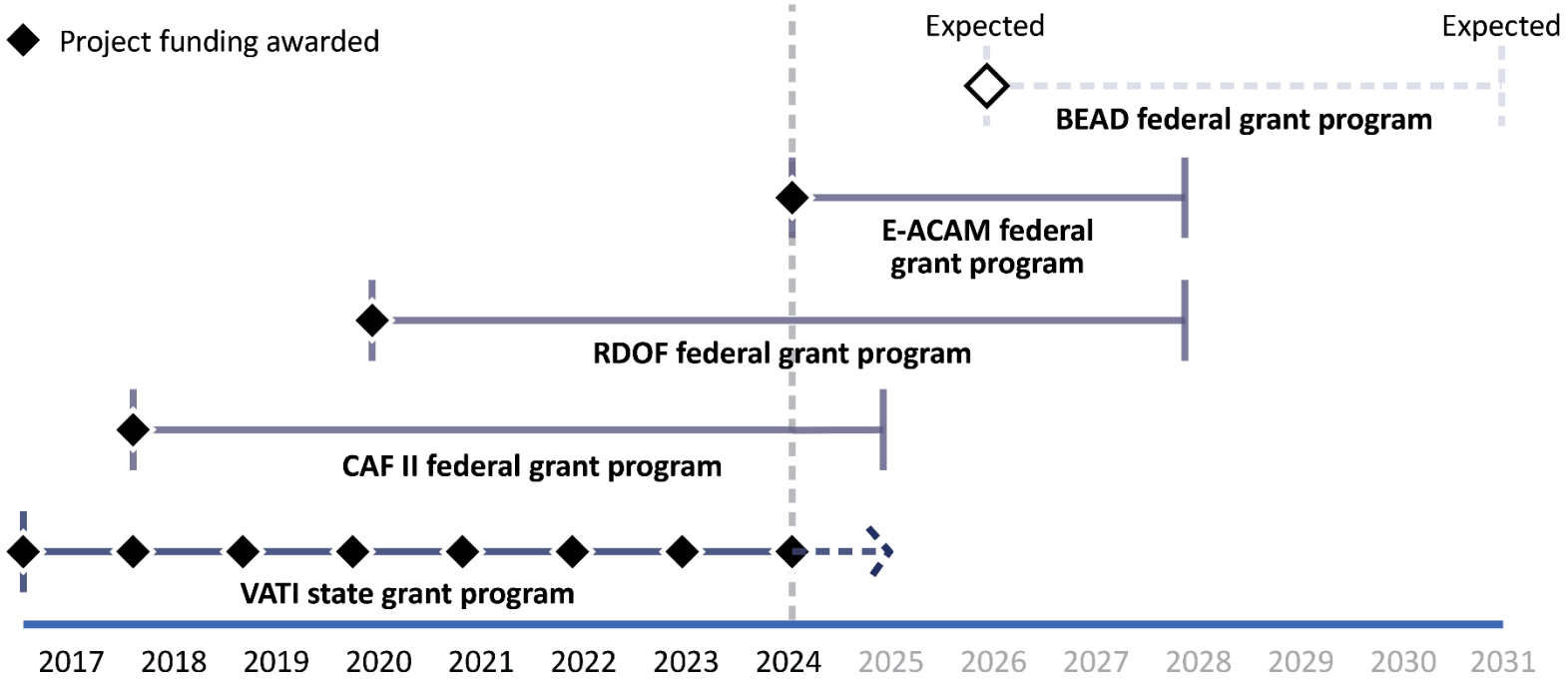
BEAD program

Affordability of broadband

Broadband deployment is a complex process that involves multiple steps and stakeholders

Source: JLARC staff interviews with broadband stakeholders and review of broadband deployment process documents.
Note: This process is generally applicable to all broadband deployment projects, including those funded through state and federal programs. Large projects and projects serving difficult geographic terrain may have longer timeframes. Underground deployment is not shown but follows a similar process and timeline.

Multiple broadband deployment programs are currently operating in Virginia



Source: JLARC staff review of state and federal broadband program documents.
Notes: BEAD = Broadband Equity, Access, and Deployment program; E-ACAM = Enhanced Alternative Connect America Cost Model; RDOF = Rural Digital Opportunity Fund program; CAF II = Connect America Fund II program; VATI = Virginia Telecommunication Initiative. Other smaller deployment programs and programs not focused solely on deployment are also currently operating in Virginia.

Increase in deployment projects pursued simultaneously since 2019 has created challenges

- State- and federally funded broadband deployment projects expected to serve ~261K locations are currently underway
- Broadband-related workload increases strained workforce throughout state, especially in rural areas. Since 2019,
  - requests to hang fiber on poles increased 6–10X for some utilities;
  - requests to locate underground utilities increased 7X; and
  - fiber-related VDOT permit requests increased 3X statewide
- BEAD projects may further strain broadband-related workforce and key steps in process (e.g., permitting and “make ready” construction)

Deployment challenges have resulted in project delays and defaults

State VATI program

- 29 of 57 ongoing projects have been delayed because of deployment challenges and required contract extensions
  - 22 projects delayed at least 12 months
- Five projects did not bring broadband to ~6,100 “locations” they were originally expected to serve

Federal RDOF and CAF II programs

- Two RDOF projects and one CAF II project defaulted and did not bring broadband to ~4,400 intended locations

Note: Locations not served by their intended deployment project are typically incorporated into a new deployment project, according to DHCD staff. State’s VATI program does not pay ISPs for locations they do not serve.

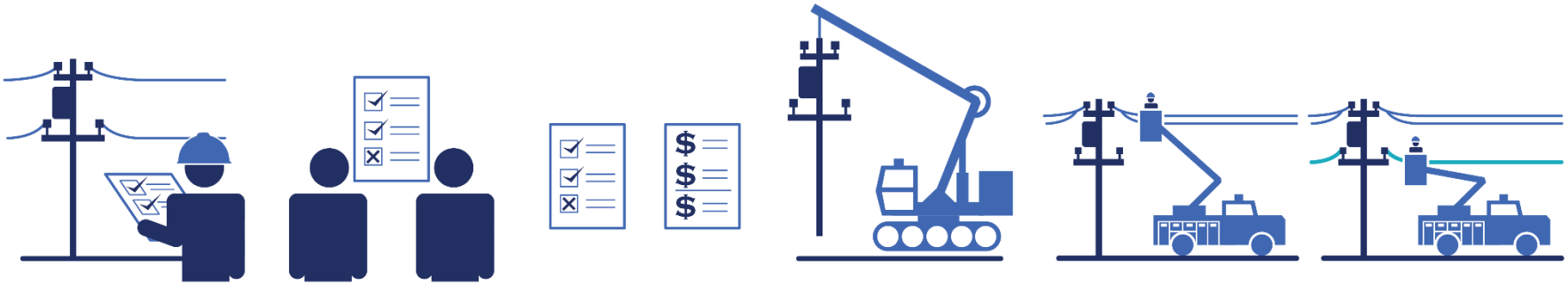
Project delays may impact funding and have frustrated citizens, businesses, and community institutions

- Households, businesses, and community institutions in areas with ongoing projects have been promised broadband access within certain timeframes; frustrated by repeated delays
- State will have to return unspent federal pandemic relief funding if projects are not completed by December 2026
- If delayed projects do not serve expected locations, state funding may be needed to connect those locations
  - Federal statute excludes these locations from BEAD funding

Finding

The “make ready” process is one of the most substantial challenges to completing broadband deployment projects in Virginia in a timely manner.

“Make ready” process is part of many broadband deployment projects



STEP 1

FIELD INSPECTION OF POLES

Lead: **ISP**

STEP 2

POLE ATTACHMENT REQUESTS

Lead: **ISP**

STEP 3

ATTACHMENT REQUEST REVIEW

Lead: **Pole owner**

STEP 4

MAKE READY CONSTRUCTION AND RELOCATION

Lead: **Pole owner**

STEP 5

FIBER ATTACHMENT

Lead: **ISP**

Source: JLARC staff interviews with broadband stakeholders and review of broadband deployment process documents.

“Make ready” process has delayed broadband deployment projects across the state

- At least 16 of 57 ongoing VATI projects reported “make ready” to be a cause of *current* project challenges (as of Nov 2024)
- Both pole owners and ISPs contribute to such delays
  - *Example - One large pole owner has backlog of more than 100,000 pole attachment requests. ISPs cannot move forward until the pole owner completes “make ready” construction.*
  - *Example - For another large pole owner, 65% (90K) of all pole attachment requests from an ISP are awaiting ISP action before the pole owner can proceed.*

“Make ready” process has cost more than anticipated for some projects, contributing to delays

Project A	
ISP estimated make ready costs	~ $14,500 per mile
Actual make ready costs	~ $43,800 per mile
Impact to project	Delayed network construction by more than a year while network was redesigned to use underground deployment

Project B	
ISP estimated make ready costs	~ $10,000 to $15,000 per mile
Actual make ready costs	~ $50,000 to $100,000 per mile
Impact to project	Contributed to more than a year of construction delays; ISP dropping ~8K locations from project area

Source: JLARC staff review of VATI project case files, data provided by ISPs and utilities, and interviews with broadband stakeholders, including DHCD staff.

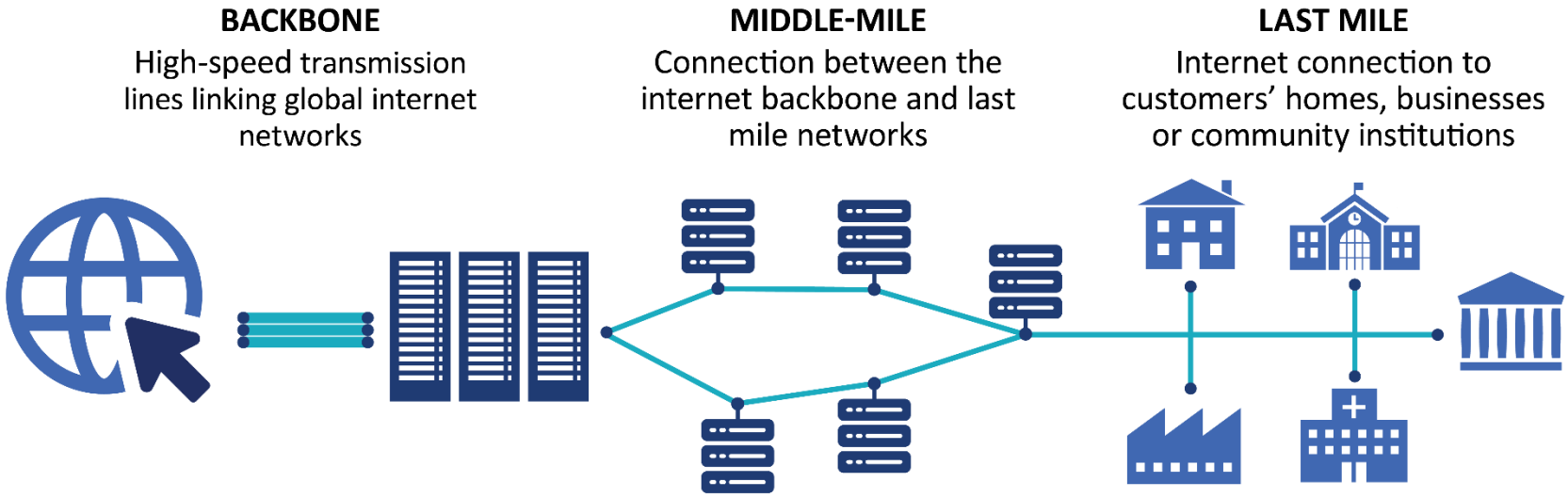
Recent legislative action aims to address some "make ready" challenges; too early to tell impact

- ISPs and pole owners blame each other for "make ready" delays, but responsibility is shared
- General Assembly enacted several changes in 2024:
  - "Make ready" timeline requirements for electric co-ops
  - SCC-administered dispute resolution process for ISPs/co-ops
  - Virginia Make Ready Initiative to provide additional funds for "make ready" costs of at-risk 2022 VATI projects
- Dispute resolution process has not been used but has potential to change ISP/co-op behavior to improve process
- State has limited additional opportunities to facilitate "make ready" work

Finding

Construction of “middle mile” portions of broadband networks by utility companies (not ISPs) is delaying some broadband deployment project timelines.

Broadband networks have “middle mile” portions that connect internet backbone to end users



Source: U.S. Government Accountability Office.

Reliance on utilities to build "middle mile" portions of broadband networks is delaying some projects

- Deployment projects cannot be fully planned and/or constructed until utilities' middle mile segments are largely complete
  - Several ISPs plan to use utilities' middle mile in 35+ counties, and construction is ongoing in 30+ of those counties
- Several delayed VATI projects are waiting for utilities to complete middle mile construction
  - Example: One utility has been unable to meet construction targets, delaying two projects serving ~27K locations by several months
- ISPs' use of investor-owned utilities' middle-mile segments requires SCC approval; can take 6 months

Finding

Vast majority of VDOT broadband-related land use permits have been issued in a timely manner, but some permits take a long time to be approved, which can delay broadband deployment projects.

VDOT land use permits are required for broadband deployment projects

- ISPs and utilities must obtain VDOT permits for any fiber broadband network construction in VDOT right-of-way (ROW)
- Permit applicants must submit a plan for their proposed fiber installation, including details on how they will accomplish the work, protect traffic, and restore the ROW
  - Applicants must also provide a “surety” (e.g., cash, bonds, or certificate of deposit) to cover potential ROW damages; amount varies based on size and complexity of project

VDOT approves many broadband-related permits quickly, though some take a long time

- VDOT approved 2,267 broadband-related permits in ~10 days on average (January–July 2024); many issued by local residencies
- Although most broadband-related permits are approved quickly, some took several months to approve
  - Over 80% of broadband-related permits are approved in 14 days
  - However, 9 of 31 VDOT residencies processed at least one broadband-related permit that took 105 days or more to approve
  - Longest broadband-related permit approval took 169 days
- According to VDOT staff, some factors that can affect review time are thoroughness of plan, project duration, complexity of location, and potential traffic impact

Clarifying requirements for broadband-related permit applications could reduce delays

- VDOT staff: Many permit applications submitted by ISPs or utilities lack sufficiently detailed plans
  - Applicants must correct plans and send them back to VDOT, delaying approval process
  - Permit applications typically submitted by third-party contractors that may lack knowledge of Virginia's processes
- ISPs confused over permit requirements across VDOT residencies
  - Some residencies require more information than others or charge different surety amounts for similarly sized projects
  - Residencies typically limit permits to 2 miles of construction*, but some allow permits to span up to 10 miles, affecting number of permit applications required per project

*VDOT reports that this regulatory requirement is in the process of being removed from regulations.

Recommendation

VDOT central office should develop and publish on its website the specific information each VDOT residency requires from applicants for broadband-related land use permits and include on the permit application itself a link to these requirements. This should be completed by March 1, 2025.

Certain broadband-related permits could be prioritized when possible

- VDOT land use permits typically processed as “first come, first served”
- VDOT residencies do not have information on which broadband-related permits are linked to projects with time-sensitive funding
- ISPs and utilities could indicate on permit application whether it relates to time-sensitive projects (e.g., VATI projects, future BEAD projects)
  - DHCD should share broadband project information with VDOT so VDOT can verify projects are time sensitive
- VDOT residencies could expedite permit reviews for projects with federal funding that expires in 2026, when possible
  - Would affect approval time of other applications

Recommendations

VDOT should modify its land use permit application to direct applicants to indicate whether the permit is for a time-sensitive broadband deployment project, such as a VATI or BEAD project. This modification should be completed by March 1, 2025.

When practicable, VDOT residency and district offices should prioritize processing broadband-related land use permit applications for VATI projects funded with federal pandemic relief funding that expires at the end of December 2026.

More VDOT staff involvement in deployment projects could help reduce delays

- VDOT staff could be invited to project kick-off meetings to educate ISPs on permitting process, including best practices for timely permit approval
- DHCD plans to use BEAD funds for 2 new VDOT staff to help with broadband-related permitting
  - Staff intended to assist with resolving widespread permitting challenges through VDOT's central office, as well as permit processing at the residency level

Finding

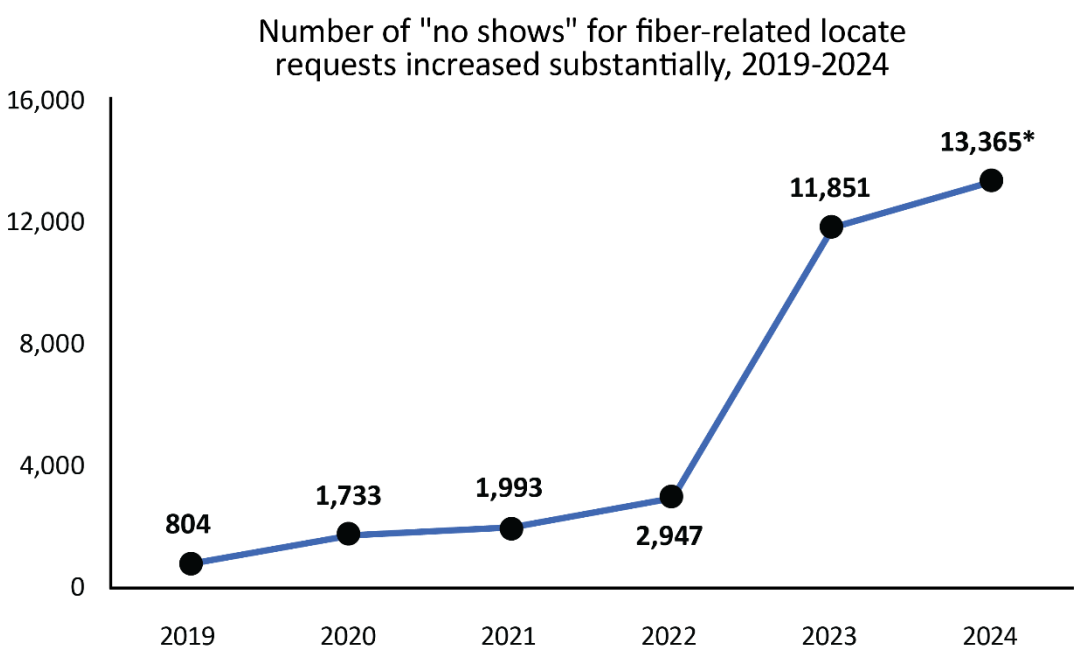
Several additional challenges, including locating underground utility infrastructure and obtaining railroad crossing permits, make it difficult to complete broadband deployment projects in a timely manner.

Slow response by utility locating services has delayed broadband deployment

- Before digging during construction, ISPs and utilities must request that utility owners mark existing underground utility infrastructure to avoid damage
  - VA811 notifies the utility owner, which is responsible for responding to requests and marking their infrastructure
  - Utility owner has 3 days to respond, or request is categorized as a “no show,” must be resubmitted
- Utility owners did not respond within 3 days to more than 10K requests from January through September 2024
  - Delays ISPs’ ability to start deployment work on time

*§ 56-265.17 of the Code of Virginia, Underground Utility Damage Prevention Act.

Number of “no-show” utility requests has increased statewide, particularly problematic in some localities



Locality	“No-show” requests
Charlotte County	1070
Hanover County	927
Pittsylvania County	814
Mecklenburg County	689
Bedford County	677
James City County	618
Campbell County	412
Henrico County	325
Fairfax County	320
New Kent County	318
Rest of localities	**Median = 18.5**

*2024 data estimated for full year based on tickets received through September 2024.
SOURCE: VA811 fiber no-show requests per county data, 2019-2024 YTD.

Stakeholders have been working to address utility locating challenges, resulting in some improvement

- Insufficient number of utility sub-contractors marking utilities is cause of many “no show” requests
- VA811, DHCD, and other stakeholders working to improve timeliness and efficiency of utility marking
  - VA811 facilitated work by a group of stakeholders to address issues; has held at least 12 “town hall” meetings
  - VA811 developing new system to manage locate requests
  - DHCD planning to use BEAD funds for 2 additional VA811 staff positions to coordinate broadband-related locate requests
- Proportion of “no shows” has fallen in 2024, though number of “no shows” remains high

Obtaining approval to cross railroads has created challenges for some broadband deployment projects

- ISPs and utilities must obtain permits from railroads to cross tracks with overhead or underground fiber lines
  - Railroads require their contractors be present to oversee crossings
- Not all projects require railroad crossings, but some that do have experienced significant delays
  - Data collected by DHCD indicates railroad crossings can delay projects by 6 to 12 months
- Legislation was passed in 2023 to expedite the railroad crossing process but has since been challenged in court

Finding

Some key stakeholders in Virginia's broadband deployment efforts do not have full knowledge of deployment project locations or project deadlines, and they do not fully understand financial and other implications of project delays.

Virginia's broadband deployment efforts involve many stakeholders with varying insight into projects

- Broadband deployment projects involve a variety of:
  - state entities (DHCD, VDOT, SCC, VA811);
  - local entities (counties, cities/towns, PDCs); and
  - private-sector partners (ISPs, investor-owned utilities, electric co-ops)
- DHCD publishes information about status of VATI projects, but not all stakeholders are aware of it
  - *Staff at multiple VDOT residencies indicated they do not have information on VATI project locations, timelines, and impact of delays*
- Better insight into projects' statuses would let stakeholders better plan for workload increases, permitting, etc.

Broadband Advisory Council helps share deployment information, but some stakeholders not represented

- Broadband Advisory Council (BAC) has 17 members
  - 7 legislators; 4 ex-officio members; 6 citizen members
- DHCD staff support BAC meetings, update members on status of VATI projects and other broadband-related efforts
- BAC includes only some key stakeholders
  - Includes wireless, cable, and electric cooperative industry representatives
  - Does not include investor-owned utilities, VDOT, or VA811
- Additional members could be added to BAC to ensure all key stakeholders are apprised of broadband efforts

Recommendations

DHCD should regularly distribute information on the location, completion schedule, and any time constraint on funding for ongoing and upcoming broadband deployment projects administered by the state to all stakeholders involved in broadband deployment.

The General Assembly may wish to consider expanding the membership of the Broadband Advisory Council to include representation from the Virginia Department of Transportation, VA811, and investor-owned utilities.*

*The State Corporation Commission should regularly attend Broadband Advisory Council meetings to serve as a resource.

In this presentation

Background

Status of broadband deployment in Virginia

Key challenges to broadband deployment

VATI program

BEAD program

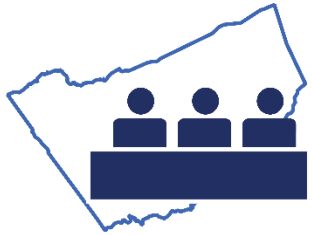
Affordability of broadband

Localities manage VATI projects, but DHCD controls state funding and monitors performance and compliance

STATE (DHCD)

ROLES:

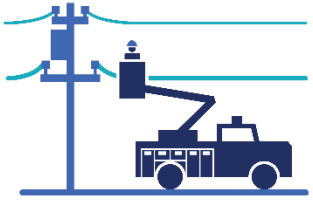
- Evaluates VATI project applications and awards grant funding
- Signs contract with local entity for VATI project
- High-level monitoring of project performance
  *Can require corrective action or terminate project for non-performance
- Reviews/approves grant payments
- Determines if projects are completed satisfactorily



LOCAL ENTITY
(localities, planning district commissions, etc.)

ROLES:

- Procures and signs contract with ISP for VATI project
- Day-to-day management of project performance and ISP
  *Can terminate contract/switch ISP for non-performance



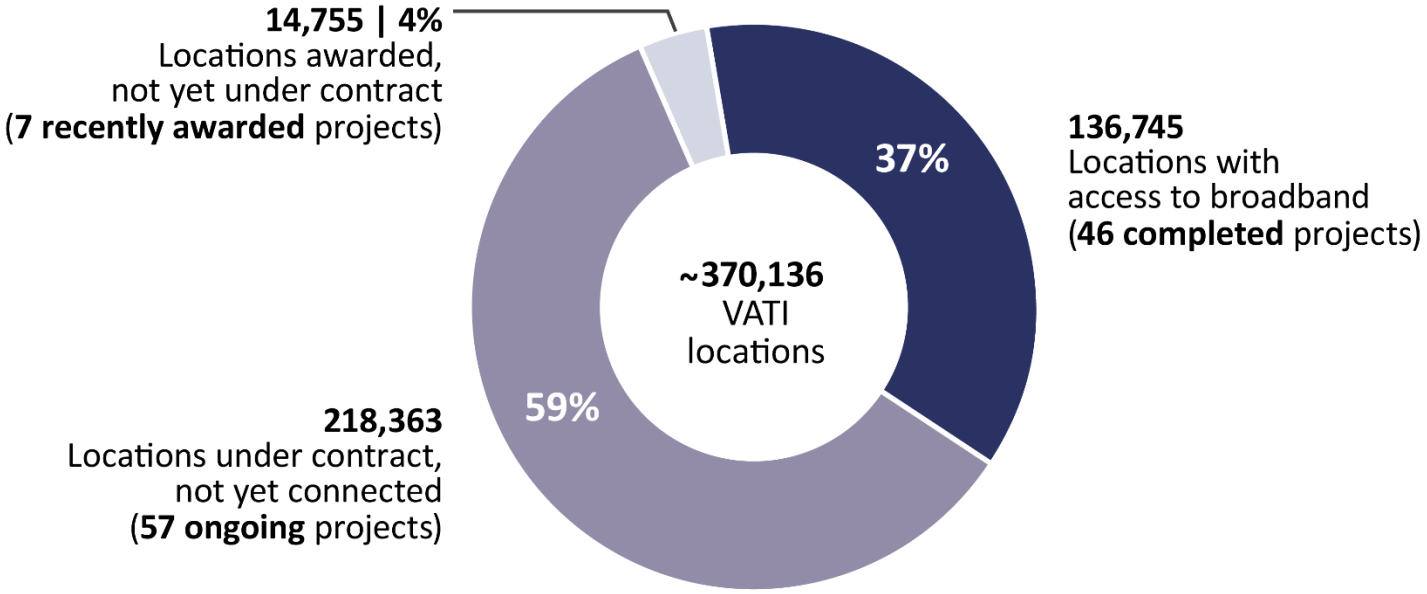
PRIVATE INTERNET SERVICE PROVIDERS (ISPs)

ROLES:

- Designs, builds, and operates VATI-funded broadband networks
- Submits project performance information and payment requests

Source: JLARC staff interviews with broadband stakeholders and review of VATI program documents.

Since 2017, VATI has awarded funding to connect ~370K locations



Source: DHCD VATI project data (as of November 2024).
Note: Locations with access to broadband include only those meeting current 100/20 broadband definition. Locations covered by ongoing VATI projects are part of earlier estimate of state's ~392K unserved locations, but numbers differ because some locations that received VATI funding are not included in the map used to identify ~392K unserved locations. See Appendix B for more information on broadband location data.

Finding

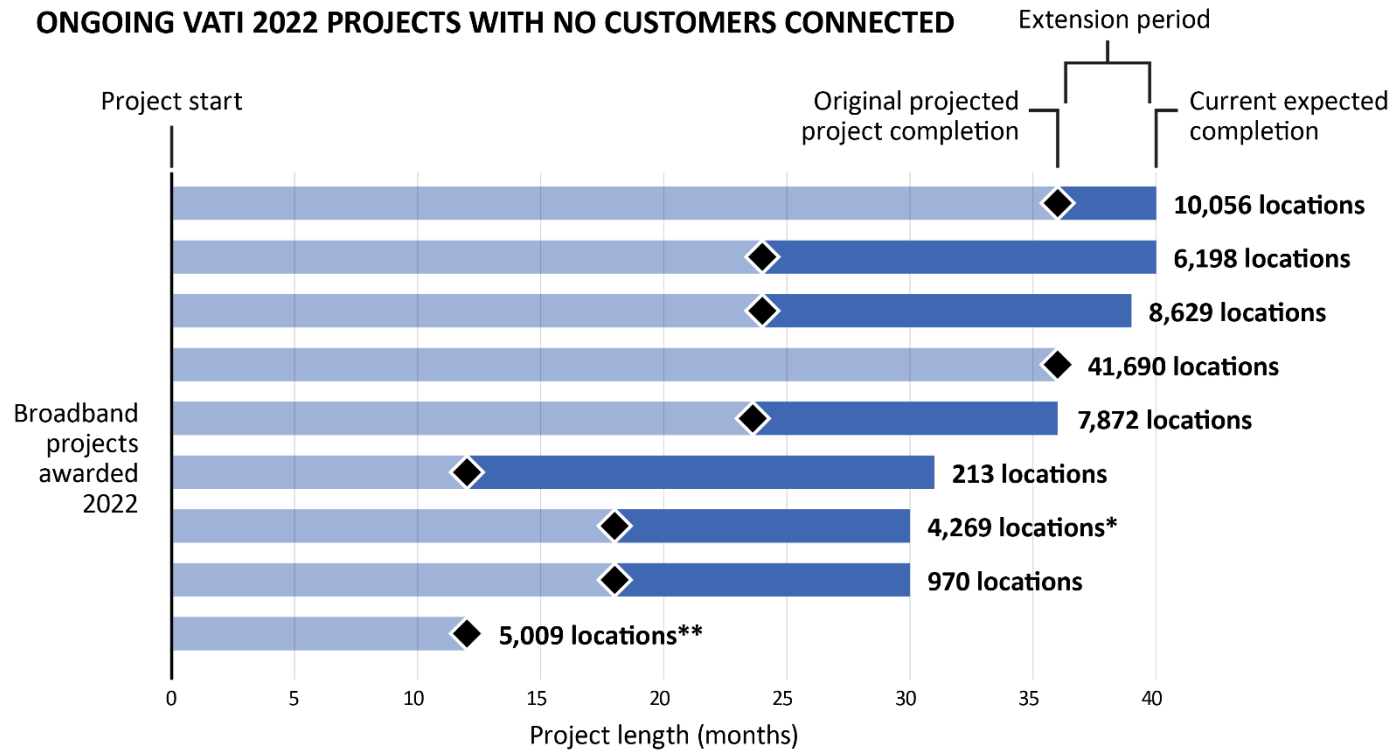
VATI program has expanded broadband access in Virginia, but many ongoing VATI projects are behind their original schedules, and some large projects have made very little progress.

DHCD has extended project timelines for many projects, sometimes multiple times

- As of November 2024, 29 of 57 ongoing VATI projects are behind original project schedule and have received at least one contract extension from DHCD
  - 10 ongoing projects have received multiple extensions
- Some ISPs have demonstrated a pattern of requiring multiple extensions
  - *Example - One ISP received 12 extensions across 8 projects*
  - *Example – One ISP received an extension on each of 6 projects*

Note: The length of contract extensions varies, ranging from one month to 12+ months. Many of the extensions granted for ongoing VATI projects have been for 12+ months.

Nine ongoing VATI 2022 projects have not connected any locations as of November 2024



*Funded with state general funds, all other projects in figure funded with federal pandemic relief funds. Project has connected one customer as of November 2024.

**Original project awarded in 2022 but transferred to new grantee in 2024.

Notes: 40 projects received grants awards in the 2022 VATI funding round. The 9 projects in this figure represent ~30 percent of all contracted locations from those 40 projects, span 18 localities, and are being constructed by 3 different ISPs.

Finding

Insufficient contract enforcement mechanisms and hesitancy by localities and DHCD to revoke contract awards have contributed to project delays, jeopardizing some federal pandemic relief funds.

Some localities have difficulty holding ISPs accountable due to inadequate contracts and project management

- Localities' contracts with ISPs often lack clear performance requirements and penalties
- Some localities are hesitant to levy penalties or replace partners when ISPs do not make progress as expected
  - Do not want to strain relationships with ISPs
  - Concerned about time needed and ability to procure new ISP, will have to restart planning and engineering process
- Only 4 localities have replaced ISPs during a VATI project, even though many ISPs have missed milestones
  - Lack of intervention enabled some projects to make little progress with no consequences years after projects started

Corrective action plans could be used more regularly to document project underperformance

- DHCD can require corrective action plans when projects miss performance requirements or do not comply with reporting requirements
  - Has done so for some projects but has been inconsistent
- Some projects' interim deadlines were extended rather than requiring localities/ISPs to take corrective actions
- Requiring corrective action plans for all missed performance requirements could help localities/DHCD document poor performance, which is necessary to enforce agreements

Recommendations

DHCD should require that all future contracts between state/local government entities and ISPs contain (1) clear and measurable performance requirements, (2) specific penalties for not meeting performance requirements if attributable to ISPs' actions, and (3) criteria and a process for contract termination.

DHCD should require corrective action plans when ongoing and future VATI projects miss performance requirements or are otherwise not in compliance with VATI requirements and should monitor whether corrective actions are implemented.

Unspent federal pandemic relief funding may be at risk if certain VATI projects not completed by FY26

- VATI projects awarded federal pandemic relief funds* must be completed by Dec 31, 2026, to avoid losing unspent federal funds, unless federal deadline is extended
- DHCD considers 25, 2022 VATI projects to be at risk of incompletion by the end of 2026 (as of Nov 2024)
  - $147M in federal funding remained unspent across these 25 projects as of Nov 2024; unspent amount will decrease as projects continue
- Project delays often caused by challenges outside ISPs' control (e.g., "make ready" process, permitting), but ISP underperformance also contributing to delays

*Federal pandemic relief funds include Coronavirus State and Local Fiscal Recovery Funds and Capital Projects Funds allocated through the American Rescue Plan Act (ARPA).

State has attempted to help localities hold ISPs accountable for delayed 2022 VATI projects

- General Assembly enacted budget language (2024) directing DHCD to identify 2022 VATI projects at risk of incompletion by Dec 2026 and to issue corrective action plans
- In July, DHCD determined 23 projects were at risk of incompletion and notified the localities involved that they had the opportunity to alter their project plans or change ISP partners to address those risks
  - One locality opted to transfer a portion of the project to a different ISP
  - Remaining localities opted to continue projects with no changes

Localities may wish to switch ISPs but could benefit from state assistance

- Localities, not the state, contract with ISPs and can decide whether to change ISPs because of underperformance
- Some localities have expressed concern about being able to terminate contracts
  - Inadequate contract terms, poor documentation of problems
- DHCD should work with localities to assess legal right to terminate contracts with ISPs for underperformance, based on existing contract terms
  - Focus on localities with at-risk projects
  - Should collaborate with local governments' attorneys; DHCD could hire a third-party legal expert to lead this effort

Localities may wish to switch ISPs but could benefit from state assistance (cont'd)

- DHCD could require localities to strengthen their legal rights in contracts with ISP partners, if necessary, when localities request project extensions
  - Several delayed 2022 VATI projects are likely to request extensions
  - Future extensions could be conditioned on localities modifying their contracts with ISPs to add specific performance requirements and enforcement mechanisms
- General Assembly should also direct DHCD to determine whether any 2022 VATI projects are unlikely to be completed by the end of 2026 and require that localities with these projects replace their ISP, transfer some of the projects' locations to a different ISP, or take other meaningful actions to improve the likelihood they will be completed by the federal deadline

Localities may wish to switch ISPs but could benefit from state assistance (cont'd)

- Localities are also hesitant to terminate ISP contracts because of delays that would be caused by procuring a new ISP
- Re-procurement delays could be minimized
  - Localities may be able to use "emergency procurement" process
  - State could help localities identify an ISP to take over some or all of the project
- DHCD, in consultation with the Department of General Services (DGS), could help localities streamline procurement of a new ISP
  - Evaluate permissibility of emergency procurement
  - Issue a Request for Qualifications (RFQ) to identify alternative ISPs for localities' projects

Recommendations

DHCD should

- work with localities and their attorneys to review existing contracts between localities and ISPs for at-risk 2022 VATI projects to determine if those agreements could be terminated because of ISP underperformance.

- for any VATI project requesting an extension, condition the extension on the locality and ISP amending their contract to include specific performance requirements and conditions for contract termination if not already included.

Recommendation

The General Assembly may wish to include language in the Appropriation Act (1) directing DHCD to identify by July 1, 2025, any 2022 VATI projects funded with federal funds set to expire on December 31, 2026, that are unlikely to be completed by that deadline, and, for those projects (2) requiring the appropriate unit of local government under contract with DHCD for project delivery to, by July 15, 2025, initiate the process to either transfer all or part of the project to another internet service provider, transfer all or part of the project to another active VATI-funded project, or take another action that would improve the likelihood of completion of the project by December 31, 2026.

Recommendation

DHCD should

- work with the Department of General Services to issue a Request for Qualifications (RFQ) by March 1, 2025, to identify ISPs that may be able to provide broadband to unserved locations that are currently included in at-risk 2022 VATI projects, and

- provide RFQ responses to localities with at-risk projects to enable them to identify a new ISP partner if necessary.

State actions will need to occur as soon as possible to maximize chances of project success

- Actions to facilitate localities' ability to terminate existing ISP partnerships will need to begin prior to the end of 2025 General Assembly session
  - It could take 18+ months to complete several of the larger VATI projects that have yet to make construction progress
- Switching ISP partners may not ensure projects are completed by federal funding deadline but could improve pace of projects that have made little progress
  - New ISPs will have to complete the remaining scope of work with less funding and a shorter timeline

DHCD should more strongly consider past ISP performance for future VATI and BEAD awards

- DHCD should not grant future VATI awards to projects involving ISPs that have substantially underperformed on previous broadband deployment projects
  - Current VATI award criteria do not sufficiently account for ISPs' past performance, qualifications, and capacity
  - VATI program guidelines should state that ISPs with a history of substantial underperformance (e.g., pattern of missed deadlines, poor quality installation) will not be considered for funding
- DHCD should account for ISPs' performance on previous projects when assessing BEAD applications

Recommendation

DHCD should not make future VATI or BEAD awards to projects that are using ISPs with a recent history of underperformance on broadband deployment projects.

Finding

Some VATI projects require additional state funding because ISPs submitted project cost estimates that were substantially below true project costs, primarily related to “make ready” costs.

VATI is a competitive program that has historically emphasized project cost efficiency

- Budget language directs DHCD to “attempt to identify the most cost-effective solutions” to deploy broadband to unserved locations
- Projects with lower estimated costs per location historically scored higher, potentially incentivizing lower bids
- DHCD recently reduced emphasis on cost efficiency to elevate other items (e.g., universal connectivity), but it remains heaviest weighted criterion

Some VATI recipients underestimated "make ready costs," affecting award recipients and amounts

- VATI grant award amounts are based on estimated project costs, with total project costs shared across state grant, local match, and private ISP investment
  - ISP responsible for covering costs that exceed estimates
- After receiving grants, some ISPs found that actual "make ready" costs exceeded their original estimates, in some cases by 3 to 10 times more
- Applications that had more accurate—but higher—cost estimates likely lost out to projects with lower, less accurate estimates

State funding recently allocated to cover “make ready” costs that were not estimated accurately

- Virginia Make Ready Initiative was created in 2024, provides up to $30M in state general funds to supplement “make ready” costs for at-risk 2022 VATI projects
- DHCD started awarding funds on a rolling basis in September 2024
- As of November 2024, DHCD had awarded $19M to 4 ISPs to pay for “make ready” and undergrounding costs across 10 localities
  - Approximately $11M remains to be awarded

Future applicants should be required to take steps to improve accuracy of cost estimates

- Accurate “make ready” cost estimates would help avoid delays and budget overages on future deployment projects
- For future deployment projects, state should require ISPs to
  (1) request information from pole owners on the need for “make ready” work in the proposed project areas and (2) estimate anticipated “make ready” costs based on previous projects in similar areas
- DHCD should also compare project cost estimates submitted by ISPs to data on actual “make ready” costs from previous VATI projects to verify reasonableness

Recommendations

DHCD should require applicants to (1) request information from pole owners on the need for “make ready” work in the proposed project areas and (2) estimate anticipated “make ready” costs based on previous projects in similar areas. Applicants should submit evidence of these efforts and generate cost estimates based on the information collected to be considered for funding.

DHCD should compare “make ready” cost estimates submitted by ISPs to data on actual “make ready” costs from previous VATI projects to verify reasonableness.

In this presentation

Background

Status of broadband deployment in Virginia

Key challenges to broadband deployment

VATI program

BEAD program

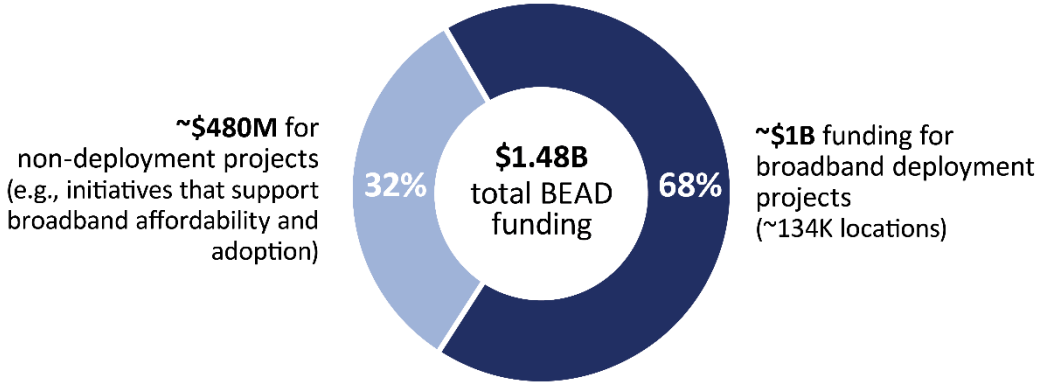
Affordability of broadband

Virginia is receiving $1.48B in federal funding for broadband through BEAD program (expected 2025)

- BEAD provides federal funding to states to support broadband deployment and non-deployment (e.g., affordability and adoption) projects
- Virginia's funding amount was determined using a federal formula based on Virginia's number of unserved locations
- BEAD projects will provide broadband access to unserved locations not addressed through other programs (e.g., VATI, CAF II, RDOF)

Two-thirds of BEAD funding estimated for deployment; remainder will support affordability and adoption

- Federal government requires states to use BEAD funding to address deployment needs first; leftover funds can be used for non-deployment needs (e.g., affordability, adoption)
- DHCD estimates majority of BEAD funding will be needed for deployment, but substantial amount could be leftover



Note: Funding split between deployment and non-deployment projects is based on preliminary DHCD estimates. Actual funding split may vary and will be determined after DHCD makes deployment project awards.

Plans for non-deployment funding are undetermined

- Types of projects to be funded and potential recipients are unclear, but amount could be substantial
  - DHCD estimates could be ~$480M
  - Ideas include: increasing cellular deployment, providing broadband to low-income residents of multi-dwelling units, and creating partnerships to encourage households to use broadband
- Governor and federal government must approve Virginia's proposed non-deployment project awards
  - 2024–26 General Assembly budget reiterates that non-deployment funds be allocated to purposes outlined by the federal government
- DHCD will hold a non-deployment application process after it determines how much funding is available

BEAD has several key differences from state VATI program

- Federal gov't (NTIA*) determined many aspects of BEAD design (e.g., low-cost service option, most award criteria);
  - State has some flexibility but is unable to change certain aspects of program design
- DHCD will contract directly with ISPs for deployment projects
- DHCD will allocate BEAD funding in single round of deployment awards; no additional funding will be available
- BEAD-eligible locations are set (as of December 31, 2023)
  - ~131K locations; many in Carroll, Rockingham, Gloucester, Spotsylvania, and Augusta counties

*NTIA = National Telecommunications and Information Administration

Federal gov't was slower than anticipated in approving VA's BEAD proposal, delaying start of BEAD projects

- Virginia submitted initial BEAD planning documents in Sept. 2023 but did not receive approval until July 2024 (~10 months)
  - Virginia was first state to submit initial documents
- BEAD deployment funding will not be released to DHCD until late 2025
- Federal government has not yet published guidance on key aspects of BEAD, including:
  - Use of non-deployment funds
  - Use of wireless technologies (e.g., satellite, unlicensed fixed wireless)

BEAD projects are now expected to begin in 2026 and may be complete by 2030/2031

- **Late 2024**: Virginia expects to receive approval of finalized BEAD locations, which allows DHCD to begin BEAD application process
- **Late 2024/Early 2025**: DHCD expects to receive ISP applications for BEAD projects and determine awards
- **Early 2026**: DHCD expects to sign contracts with ISPs for BEAD projects; BEAD project must be complete within 4 years (5 years if granted an extension)
- **2030/2031:** BEAD projects expected to be complete, including any projects' granted extensions

Administration of BEAD program should include safeguards against past deployment challenges

- **ISP capacity/expertise:** Past deployment projects experienced delays and difficulties because of insufficient ISP capability/experience
- **ISP project cost estimates:** ISPs submitted estimates that were substantially lower than true costs
- **Project performance:** ISPs did not successfully bring broadband to all locations they committed to serve, especially in the originally specified timeline

ISP capacity/expertise: BEAD has requirements related to ISPs' capacity and expertise

- DHCD is requiring ISPs to submit:
  - engineer-certified network designs and planning documents
  - evidence of operational capability (e.g., operating reports, resumes of key personnel, project summaries, etc.)
  - evidence of financial capability (e.g., letter of credit or performance bonds requirement)
  - evidence of managerial capacity (e.g., organizational chart and narrative on staffing experience)
- DHCD is also factoring ISPs' performance with previous deployment projects into BEAD award decisions

ISP cost estimates: BEAD may not have safeguards to ensure project cost estimates are reasonable

- Project cost estimates help determine which ISPs will receive BEAD funding for deployment projects
  - Lowest project costs receive highest score for cost effectiveness criterion
- ISPs are not required to verify “make ready” costs included in project cost estimates with pole owners
- As a result, BEAD funding may be awarded to ISPs that have difficulty completing projects because costs were underestimated

Project performance: BEAD will need strong contracts and management to avoid delays and defaults

- DHCD will negotiate contracts with ISPs selected for BEAD deployment projects, as required by federal government
  - States have discretion to determine contract terms
  - DHCD/OAG hiring external legal counsel to assist
- Previous state and federal broadband deployment projects in Virginia have experienced delays or defaults
  - ISPs have defaulted on providing broadband to ~10,500 locations that previously received state/federal funding
- Contracts will need sufficient accountability provisions
  - Provisions should ensure good performance but not deter qualified, competent applicants

Recommendations

For future BEAD deployment projects, DHCD should:

- Compare “make ready” cost estimates submitted by ISPs to data on actual “make ready” costs from previous VATI projects to verify reasonableness and

- Require all contracts with ISPs to contain (1) clear and measurable performance targets and (2) specific penalties for not meeting performance targets if attributable to ISPs’ actions.

In this presentation

Background

Status of broadband deployment in Virginia

Key challenges to broadband deployment

VATI program

BEAD program

Affordability of broadband

Finding

Most households in Virginia have access to affordable broadband internet. However, lower-income households might have trouble paying for broadband in some localities, depending on the rates charged by ISPs in their area.

Broadband rates in Virginia vary widely, depending on ISP and speed of service

- ISPs set monthly broadband subscription rates
  - Rates vary based on ISP, area of the state, and internet speed
- Broadband rates range from ~$45 per month to ~$90 per month in Virginia (low-cost plans range from ~$10 - $30/month)*
  - ISPs that serve large portion of Virginia tend to charge $\leq$ $75 per month
- Median broadband rate in Virginia: ~$50 per month

* Data collected by JLARC staff for broadband plans with download/upload speeds as close as possible to 100 Mbps/20 Mbps. See Attachment B for more information about cost data and assumptions.

Several programs help low-income households afford broadband, but large federal program expired in 2024

- Federal ACP* discontinued after funding ran out June 2024
  - Created in 2021; gave households up to $30/month
  - Estimated 41 percent of eligible households in Virginia enrolled as of April 2024
  - Underutilized because eligible participants were unaware of program; application process could be time-consuming
- Other broadband discount programs exist
  - Federal lifeline program - Provides up to $9.25/month toward phone/internet
  - ISP-specific programs – Not available through all ISPs

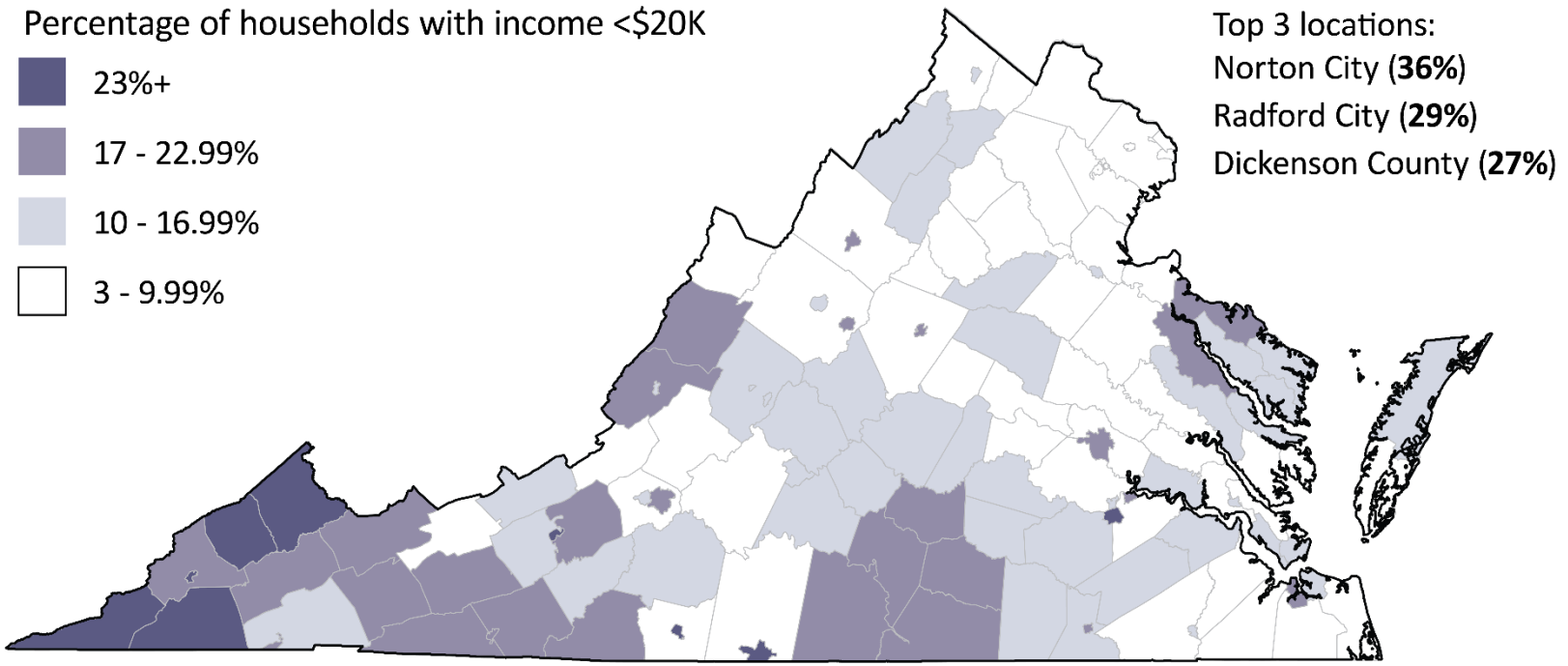
*Affordable Connectivity Program.

Broadband is affordable for most Virginia households

- To illustrate extent of affordability challenges, JLARC staff determined annual household income needed for the median broadband rate in Virginia ($50/month) to not exceed ~3% of monthly income* = ~$20K
- 10% of VA households would pay more than 3% of their monthly income for the median Virginia broadband subscription rate
- For low-income households that have not previously had broadband access, a broadband subscription would be an added expense
  - Limited or no disposable income makes affordability a challenge, even for rates that are a small % of income

*Industry experts agree that affordable utility expenses are between 2 and 4 percent of monthly income.

Broadband affordability challenges are concentrated in Southwest, Southside, and Eastern Virginia



Source: Data compiled by JLARC on broadband costs in Virginia (2024); American Community Survey data on VA household income (2022).

State could help low-income households afford broadband

- Could incentivize ISPs to offer low-cost plans
  - ISPs that receive BEAD funding are already required to offer "low cost" option ($30 to $75 per month)
- Could provide financial assistance directly to low-income households
- State could consider general funds or potentially use BEAD non-deployment funding
  - BEAD funding is time-limited, would eventually require general funds
- State intervention may not be needed if federal ACP program is revived; federal legislation to do so is pending

Better data needed to understand extent to which affordability is a barrier to using broadband

- Extent of affordability challenges are unknown because state lacks comprehensive information on:
  - actual rates households pay for broadband and plans they have
  - which households lack broadband because of affordability
- DHCD surveyed individuals in 2023 to collect information on broadband rates and the reason they lack broadband
  - Difficult for individuals to report specific rates and service plans
- ISPs could be required to submit broadband rates to DHCD
  - ISPs maintain information on rates customers pay
  - ISPs already required to submit information to DHCD annually on their broadband territory; rate information could be added to their submissions

Policy option

The General Assembly could amend existing budget language to require ISPs to submit information to DHCD annually on the rate customers pay, on average, for the base and low-cost broadband service plans, and the speed of service, by locality.

State could test impact of rate subsidy on low-income households' use of broadband

- BEAD non-deployment funds can be used to support affordability and adoption
- DHCD could design a pilot program to reduce broadband costs for low-income households to help them afford broadband subscriptions
  - Geographically diverse subset of ISPs could participate
  - ISPs would offer discounted rates subsidized by DHCD with BEAD funds
  - DHCD would evaluate the impact of the program on adoption rates and recommend whether to modify, extend, expand, or discontinue it

Policy option

The General Assembly could direct DHCD to use one-time BEAD non-deployment funding to create a pilot program to encourage adoption of new broadband service by low-income households and, based on the outcomes of the pilot, determine whether a statewide program is justified and how it would be designed and funded.

JLARC staff for this report

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Appendixes

Appendix slides

- I – Largest state and federal broadband deployment programs in Virginia
- II – Broadband deployment process (detailed)
- III – “Make ready” process (detailed)
- IV – Locations receiving broadband through VATI projects
- V – DHCD VATI project risk definitions
- VI – Hurricane Helene’s impact on existing broadband networks and ongoing deployment projects
- VII – BEAD program timeline (future dates anticipated)

Attachments

Additional online attachments

- A – Study mandate
- B – Research methods
- C – Agency response letter
- D – Glossary
- E – Inventory of broadband programs in Virginia
- F – Broadband deployment status by locality

Appendix I – Largest state and federal broadband deployment programs in Virginia

- **Virginia Telecommunication Initiative (VATI)**
  Provides state grant funding to local entities (e.g., local government, planning district commission) partnering with internet service providers to extend broadband service to unserved areas

- **Broadband Equity, Access, and Deployment (BEAD)**
  Provides federal funding to states to partner with internet service providers to extend broadband service to unserved areas

- **Connect America Fund II (CAF II)**
  Provides federal funding to internet service providers that win project areas though a federal auction to bring broadband to eligible rural areas

- **Rural Digital Opportunity Fund (RDOF)**
  Provides federal funding to internet service providers that win project areas though a federal auction to bring broadband to unserved rural homes and small businesses

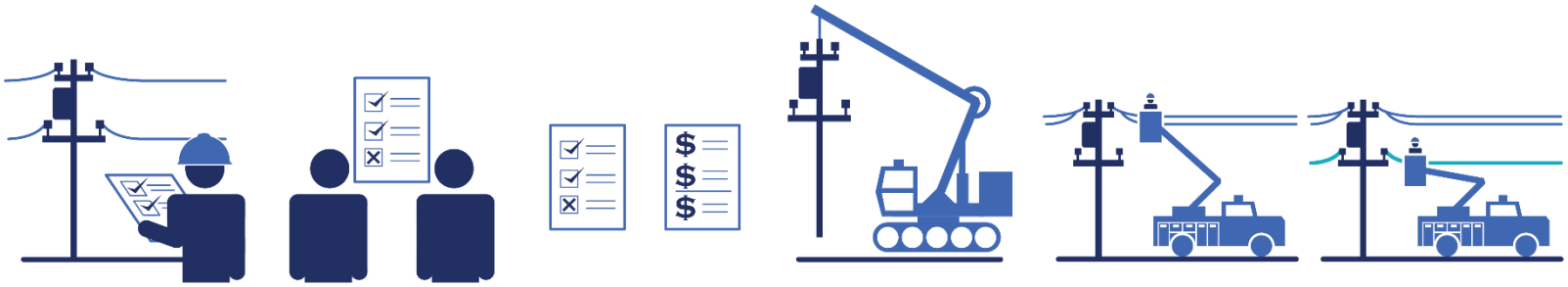
- **Enhanced Alternative Connect Cost America Model (E-ACAM)**
  Provides federal funding to internet service providers, usually legacy phone companies, to extend broadband access to locations in their area

Appendix II – Broadband deployment process (detailed)

PRELIMINARY NETWORK DESIGN AND ENGINEERING	DETAILED NETWORK DESIGN, FIELDING, AND ENGINEERING	PERMITTING, LAND ACQUISITION, AND MAKE READY CONSTRUCTION	NETWORK CONSTRUCTION	CUSTOMER CONNECTIONS (IF THEY SUBSCRIBE)
Estimated timeframe: **1-3 months**	Estimated timeframe: **3-6 months**	Estimated timeframe: **4-8 months**	Estimated timeframe: **4-8 months**	Estimated timeframe: **2-3 months**
Entities involved: **ISPs** **Localities**	Entities involved: **ISPs** **Pole owners** **Localities**	Entities involved: **ISPs** **Pole owners** **Localities** **VDOT** **Private landowners**	Entities involved: **ISPs**	Entities involved: **ISPs** **Private home and business owners** **Community anchor institutions**

Source: JLARC staff interviews with broadband stakeholders and review of broadband deployment process documents.

Appendix III – “Make ready” process (detailed)



STEP 1

FIELD INSPECTION OF POLES

Lead: **ISP**

Document existing conditions of each pole.

STEP 2

POLE ATTACHMENT REQUESTS

Lead: **ISP**

Review field results and submit applications for attachment to pole owner.

STEP 3

ATTACHMENT REQUEST REVIEW

Lead: **Pole owner**

Identify scope of work to accomodate new attachments and develop cost estimates.

STEP 4

MAKE READY CONSTRUCTION AND RELOCATION

Lead: **Pole owner**

Pole replaced by owner if necessary and other work to accomodate a new attachment.

Existing attachers relocate their attachments as necessary.

STEP 5

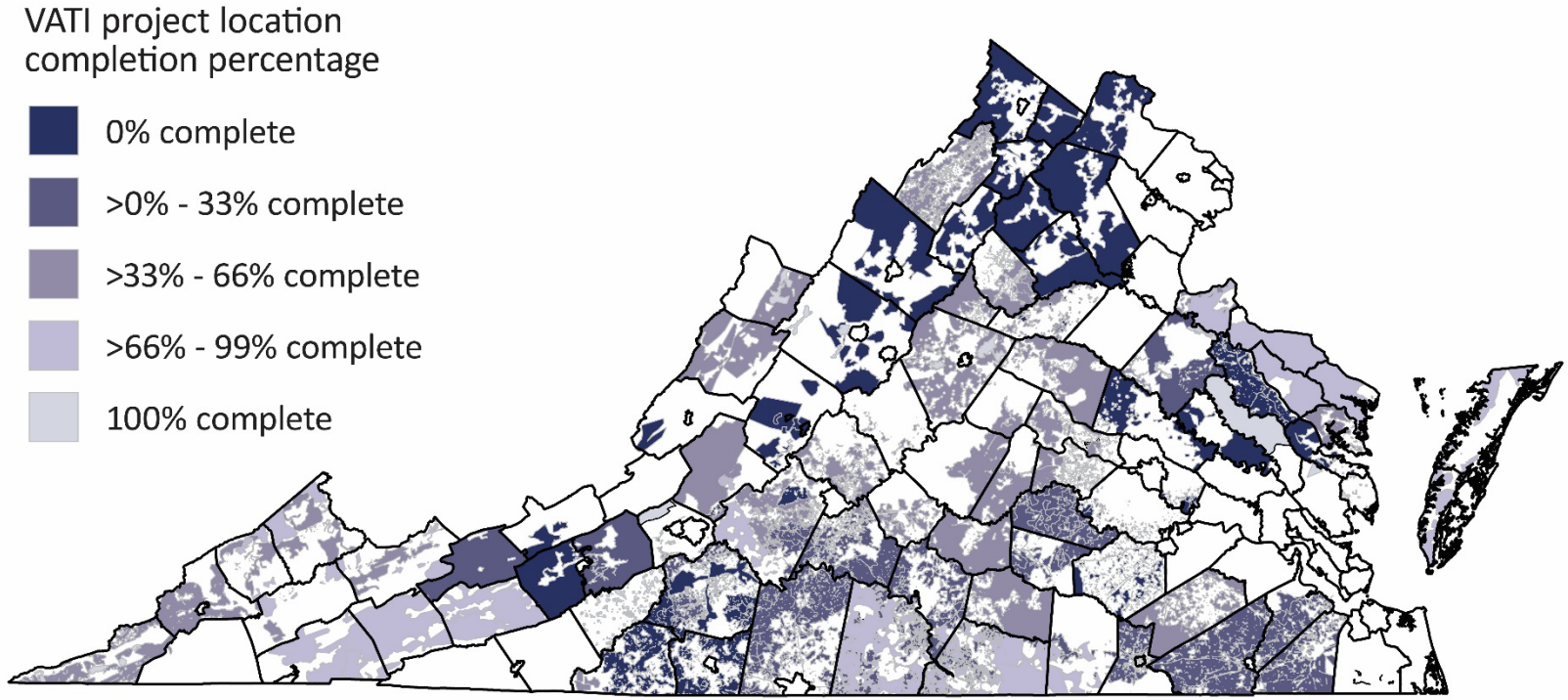
FIBER ATTACHMENT

Lead: **ISP**

ISP releases contractor to hang fiber.

Source: JLARC staff interviews with broadband stakeholders and review of broadband deployment process documents.

Appendix IV – Locations receiving broadband through VATI projects



Source: DHCD VATI project data (as of September 2024).
Note: FY17–FY20 projects not included because of lack of available mapping data. White space represents areas not served by a VATI project.

Appendix V – DHCD VATI project risk definitions

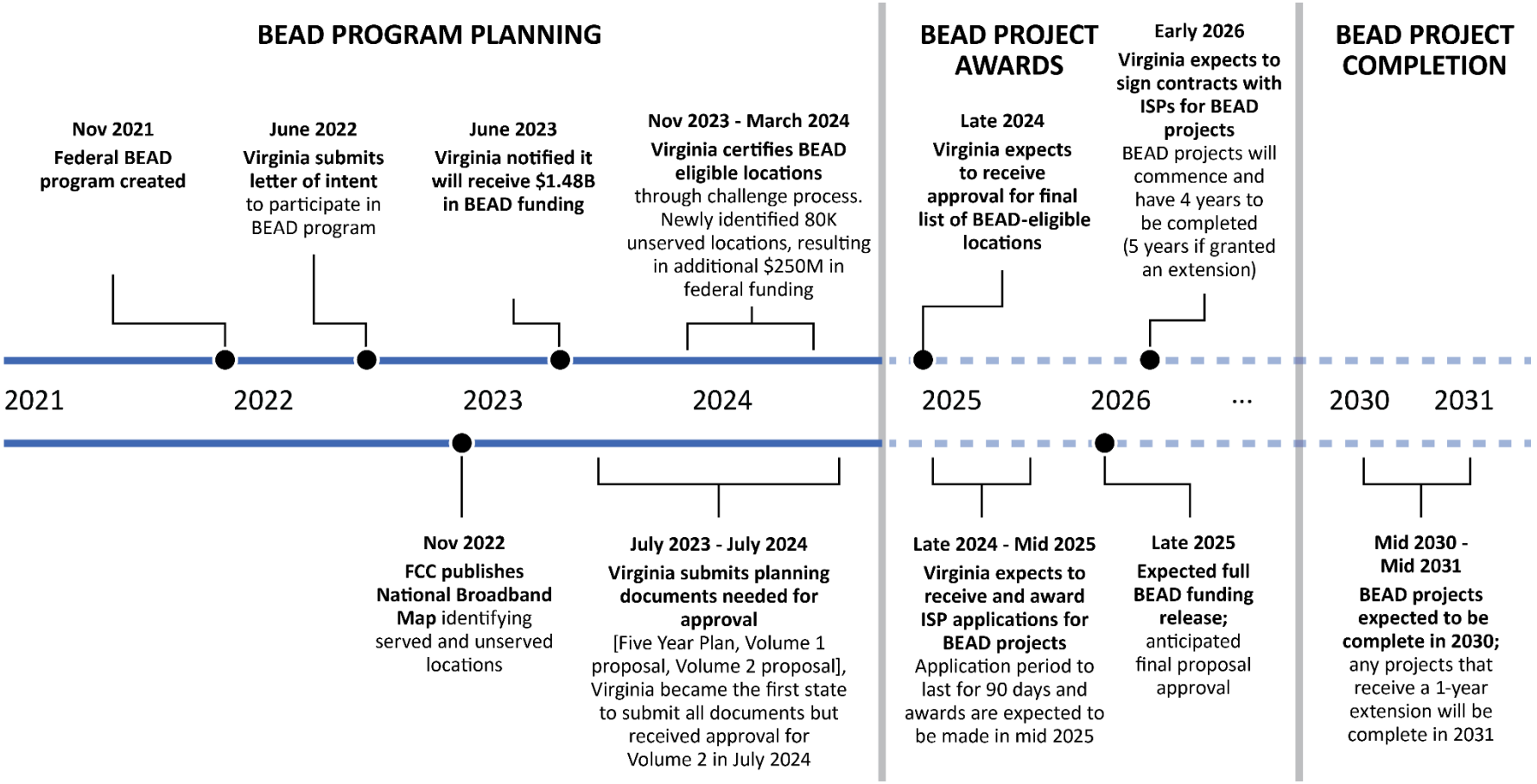
- DHCD developed the following risk categories to characterize VATI 2022 projects in response to language in the 2024 Appropriation Act:
  - **No risk:** Grantee has not requested a timeline extension beyond original contract date; grantee is not significantly behind their current approved milestone timeline; and the timeline for that project does not have an end date in 2026.
  - **Low risk:** Grantee has requested a timeline extension beyond their original contract date, or the grantee is significantly behind the current approved milestone timeline.
  - **High risk:** The grantee's contractual end date is in 2026.

Appendix VI - Hurricane Helene's impact on existing broadband networks and ongoing deployment projects

- Several existing fiber broadband networks in Southwest Virginia were substantially damaged or destroyed by Hurricane Helene
  - Broadband network destroyed in part of Washington County; affected ~200 locations
  - BEAD funding being used to restore broadband to affected locations
- Ongoing broadband deployment efforts were also impacted by the storm
  - AEP*, the primary electric utility in Southwest Virginia, had to reassign many of the crews working on broadband projects (including "make ready" work) to assist with power restoration
  - AEP estimates broadband deployment efforts in the area experienced 2-3-week delay because of staff reassignment

*American Electric Power.

Appendix VII - BEAD program timeline (future dates anticipated)



Source: JLARC staff review of BEAD documents and interviews with DHCD.

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 VATI 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 incompletion 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,

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 are members 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 tele-health, distance learning, affordability, and digital inclusion initiatives.	FY21 - current	Federal - $1.5M
Regional Digital Opportunity Planning Grant Program (Digital Equity Act Plan-ning Grant subgrant program)	Federal – NTIA[c], DHCD	Affordability & Adoption	A planning program conducted with Com-munity Action Agencies to study the afforda-bility and adoption needs of a region, the findings of which were used to inform the development of Virginia's Digital Oppor-tunity Plan.	2022-2023	State – Up to $500K[a]
Digital Opportunity Case Study Pilot Pro-gram (Digital Equity Act Planning Grant subgrant program)	Federal – NTIA[c], DHCD	Affordability & Adoption	A planning program conducted with local or-ganizations and non-profits to conduct small-scale pilot programs directed at ad-dressing broadband affordability and adop-tion needs, the findings of which were used to inform the development of Virginia's Digi-tal 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.
[a] 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.