



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 Appendix 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

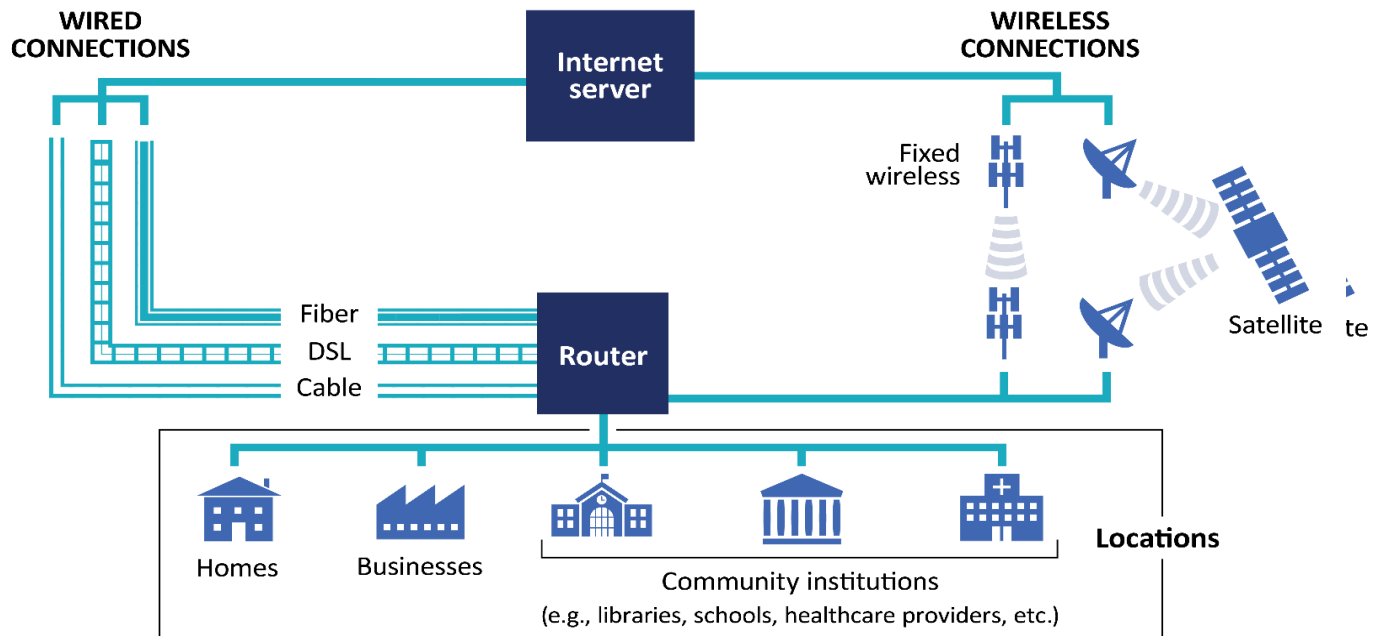
VATI program

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)

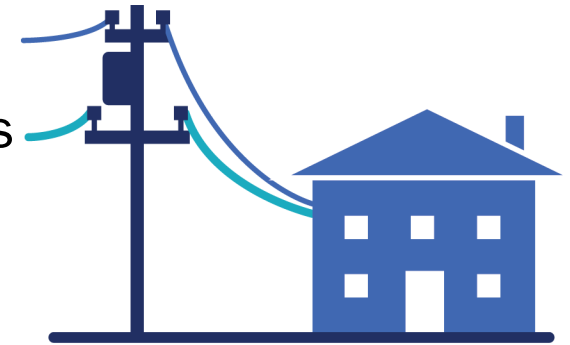


Source: JLARC staff review of federal and state broadband definitions.

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

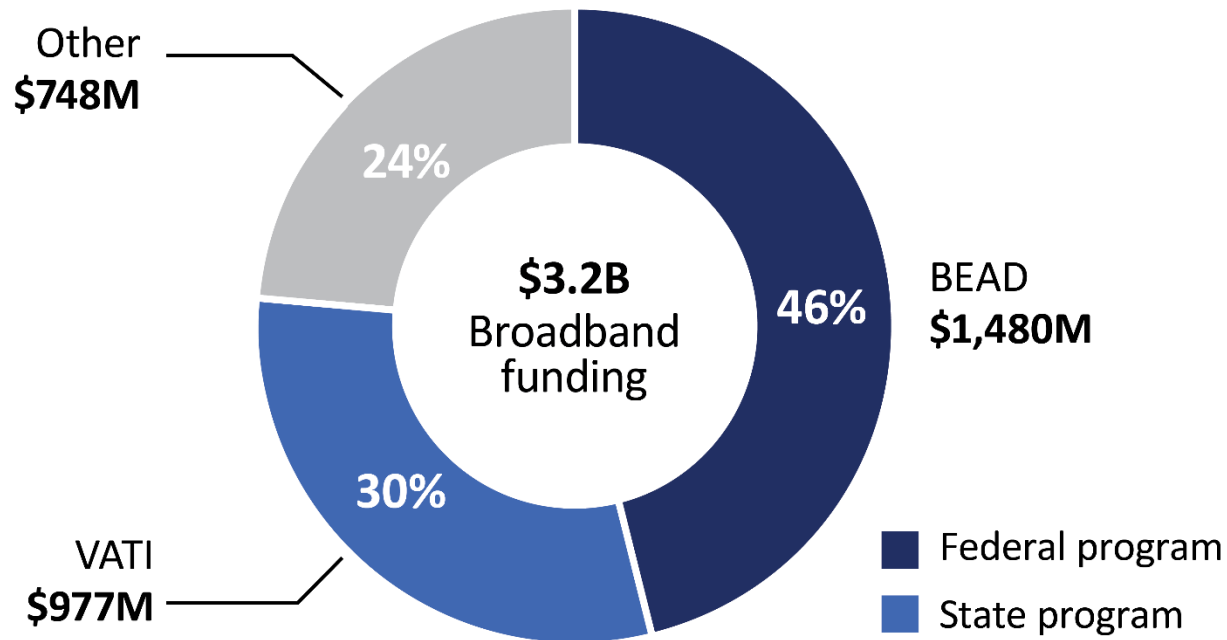


- Can also be installed underground
 - Lines buried in accordance with state/federal rules
 - Difficult to dig in rocky terrain; must mark and avoid damaging existing utilities
 - Less ongoing maintenance



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 Appendix 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

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BEAD program

Affordability of broadband

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

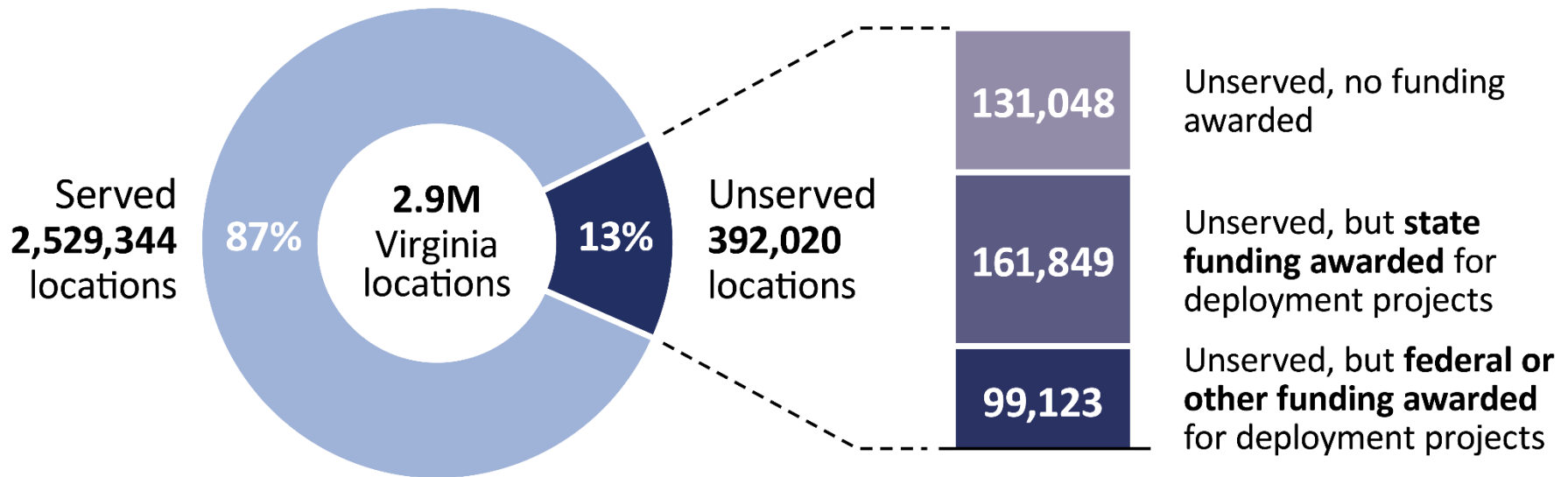
- Virginia aims to achieve near universal connectivity by providing broadband access to all locations that:
 - have not received state/federal project funding and
 - are captured on federal broadband map (as of Dec 2023)
- Virginia initially set goal to achieve near universal broadband connectivity by 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).

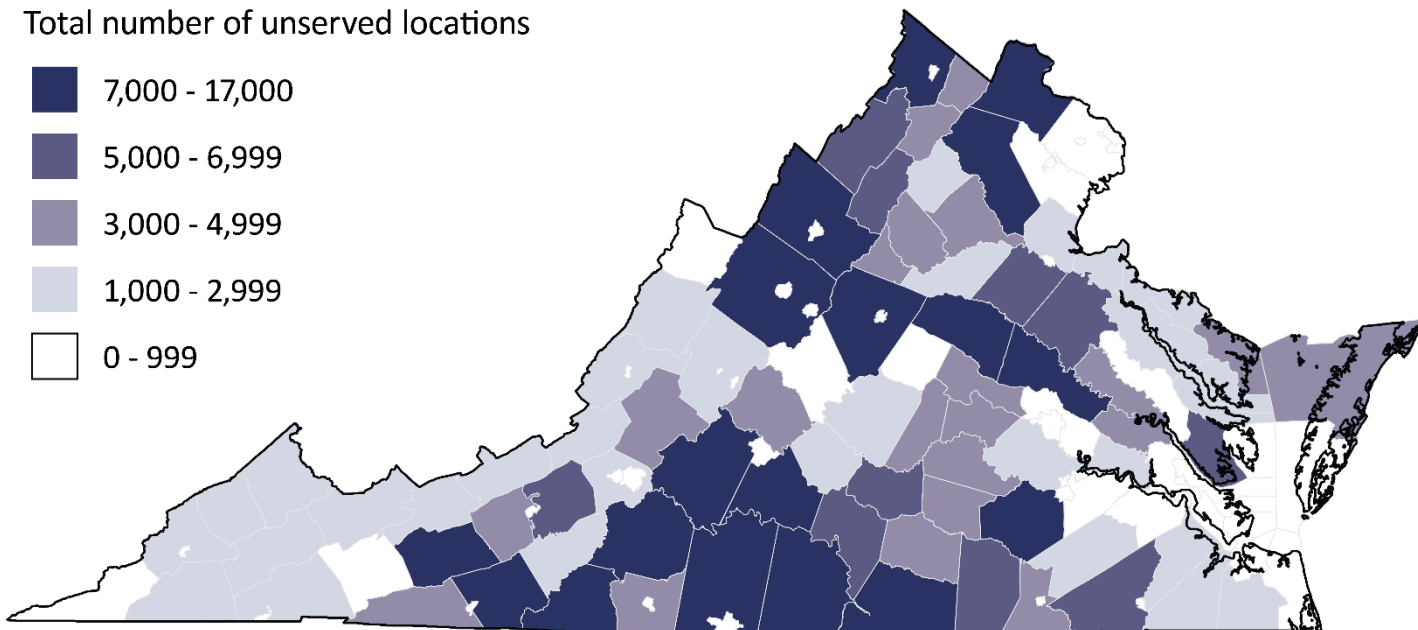
Vast majority of Virginians have access to broadband services, but ~392K locations are currently unserved



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 Appendix 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 lack 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

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VATI program

BEAD program

Affordability of broadband

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



Estimated timeframe:

1-3 months

3-6 months

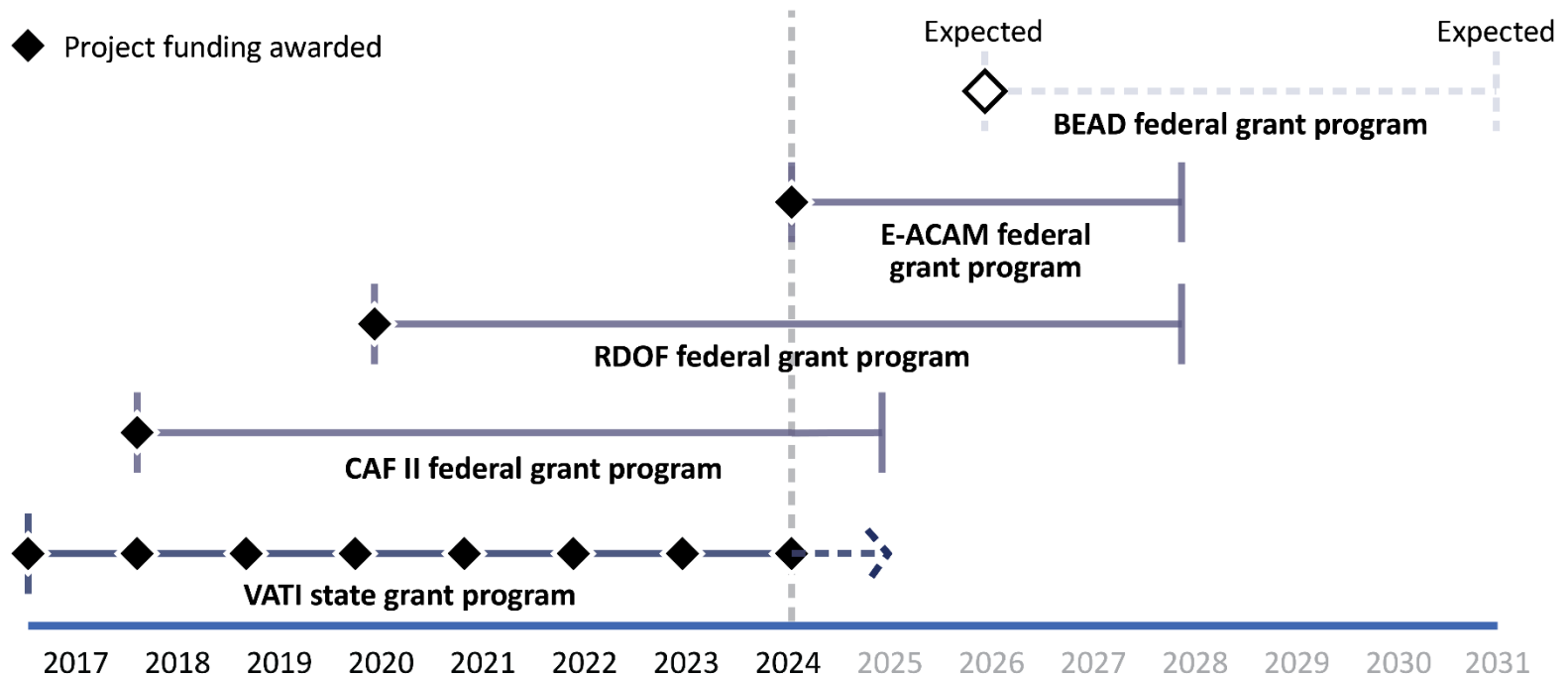
4-8 months

4-8 months

2-3 months

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.

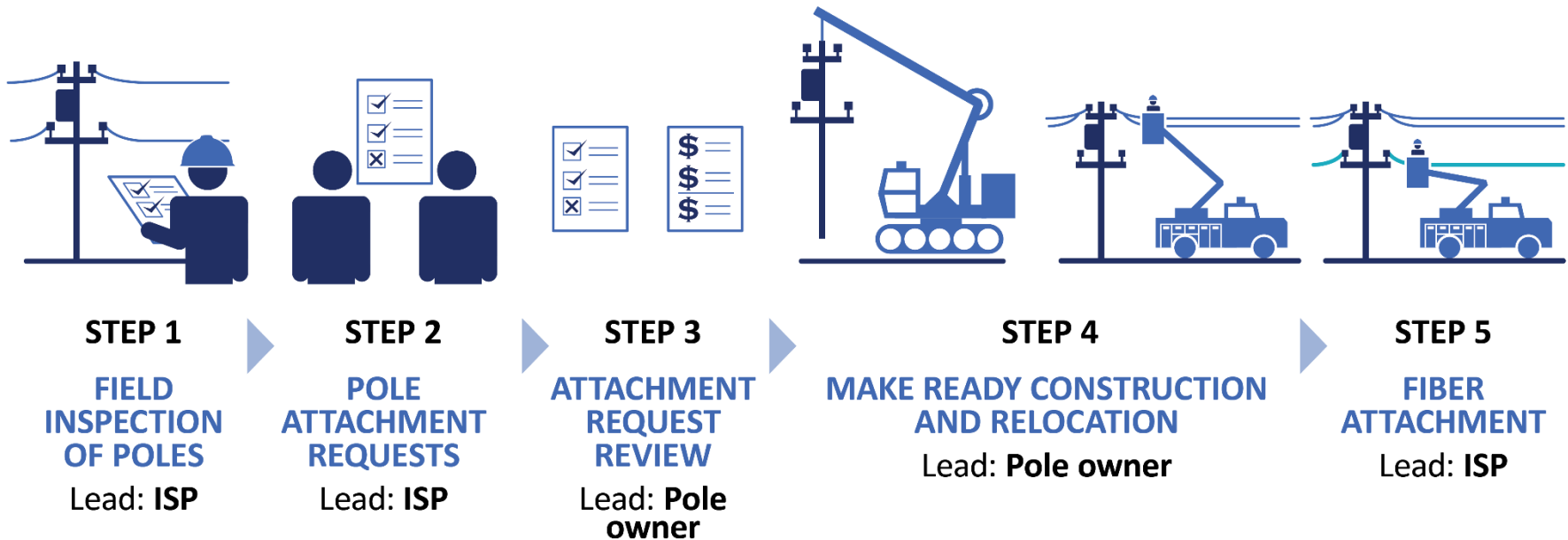
Project delays may impact funding and have frustrated citizens, businesses, and community institutions

- 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



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 a 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		Project B	
ISP estimated make ready costs	~ \$14,500 per mile	ISP estimated make ready costs	~ \$10,000 to \$15,000 per mile
Actual make ready costs	~ \$43,800 per mile	Actual make ready costs	~ \$50,000 to \$100,000 per mile
Impact to project	Delayed network construction by more than a year while network was redesigned to use underground deployment	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.

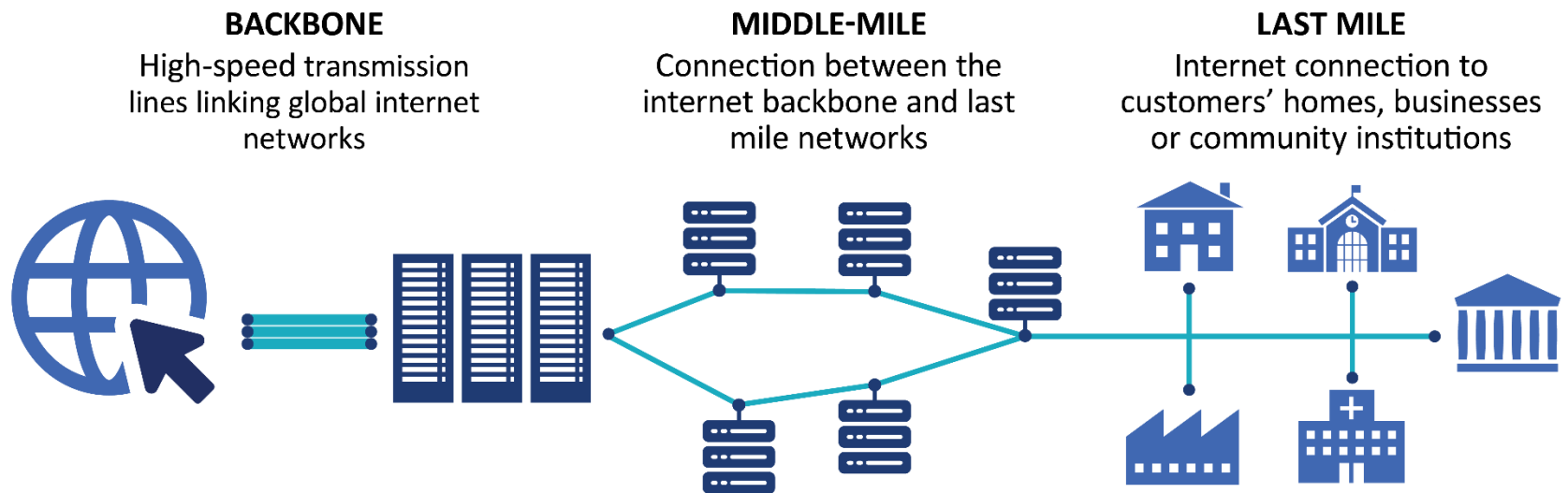
Recent legislative action aims to address some “make ready” challenges; too early to tell impact

- 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.

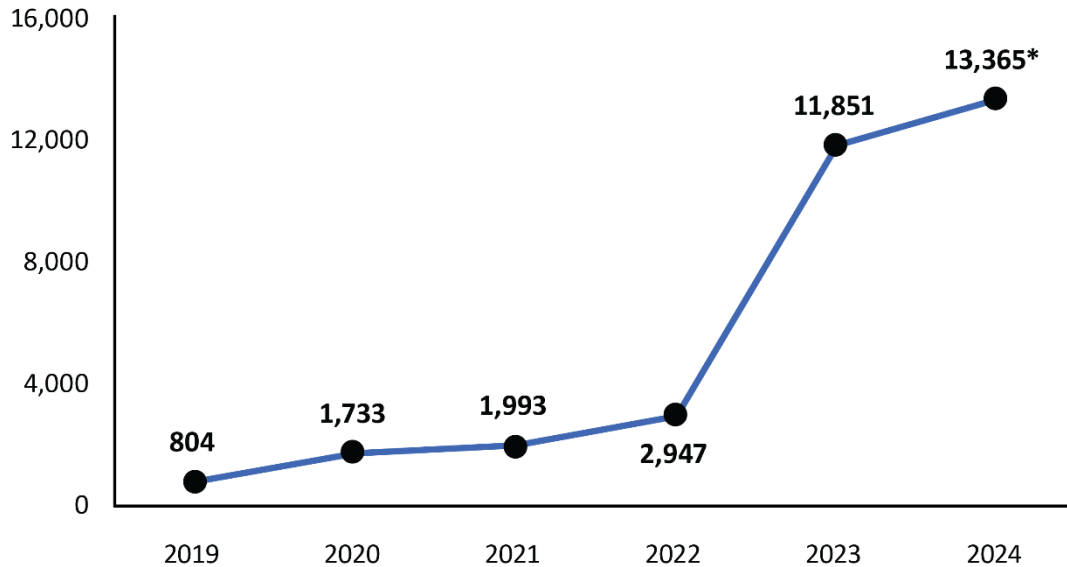
Slow response by utility locating services has delayed broadband deployment

- 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

Number of "no shows" for fiber-related locate requests increased substantially, 2019-2024



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.

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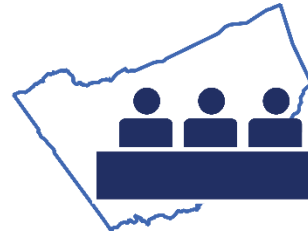
Localities manage VATI projects, but DHCD controls state funding and monitors performance and compliance



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

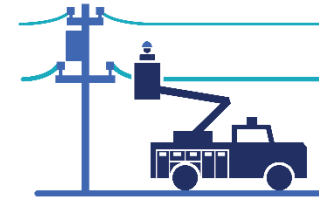


LOCAL ENTITY

(localities, planning district commissions, etc.)

ROLES:

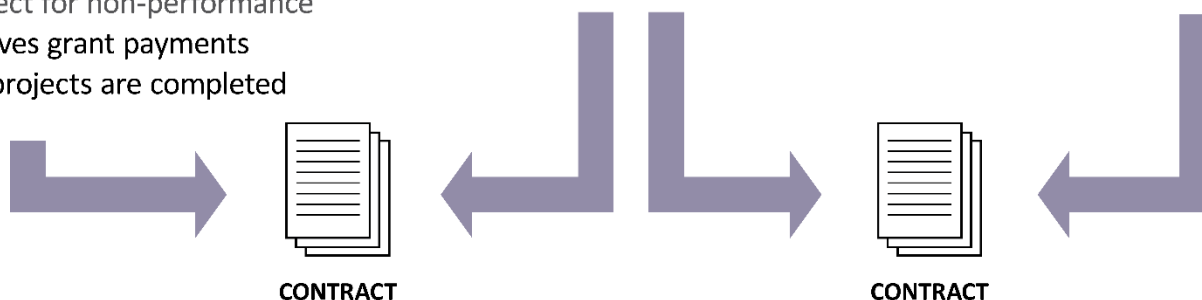
- Procures and signs contract with ISP for VATI project
- Day-to-day management of project performance and ISP
 - *Can terminate contract/switch ISP for non-performance



PRIVATE INTERNET SERVICE PROVIDERS (ISPs)

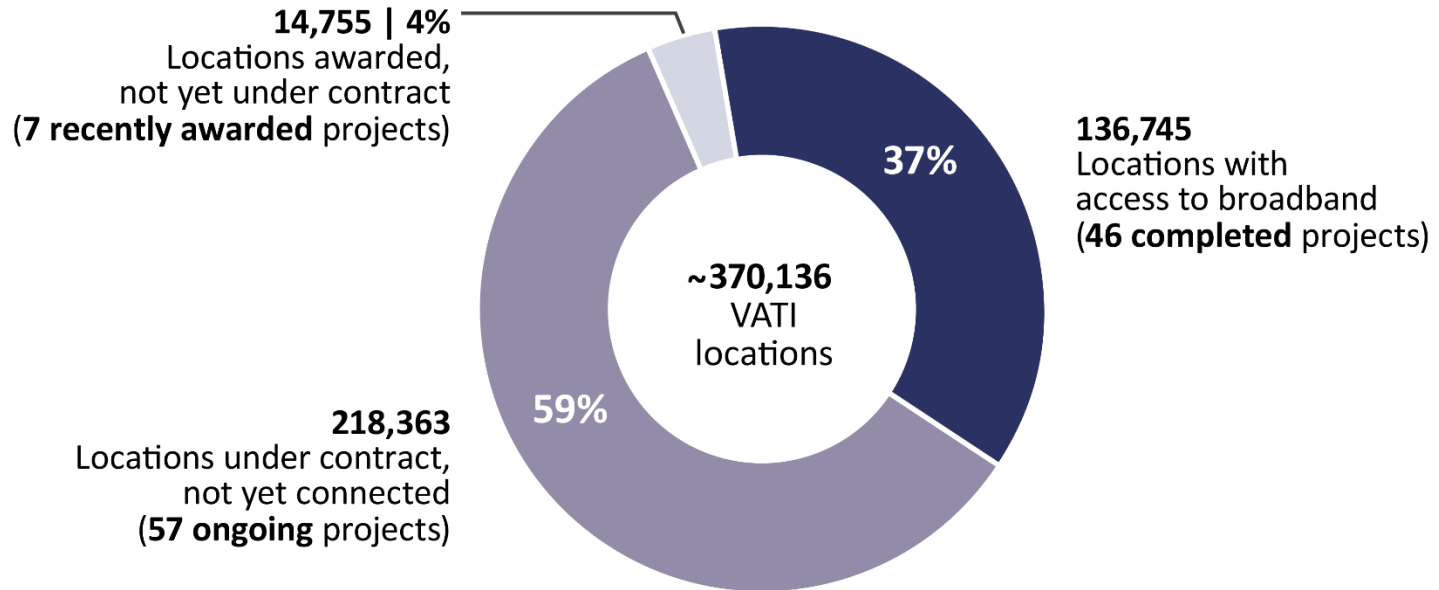
ROLES:

- 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

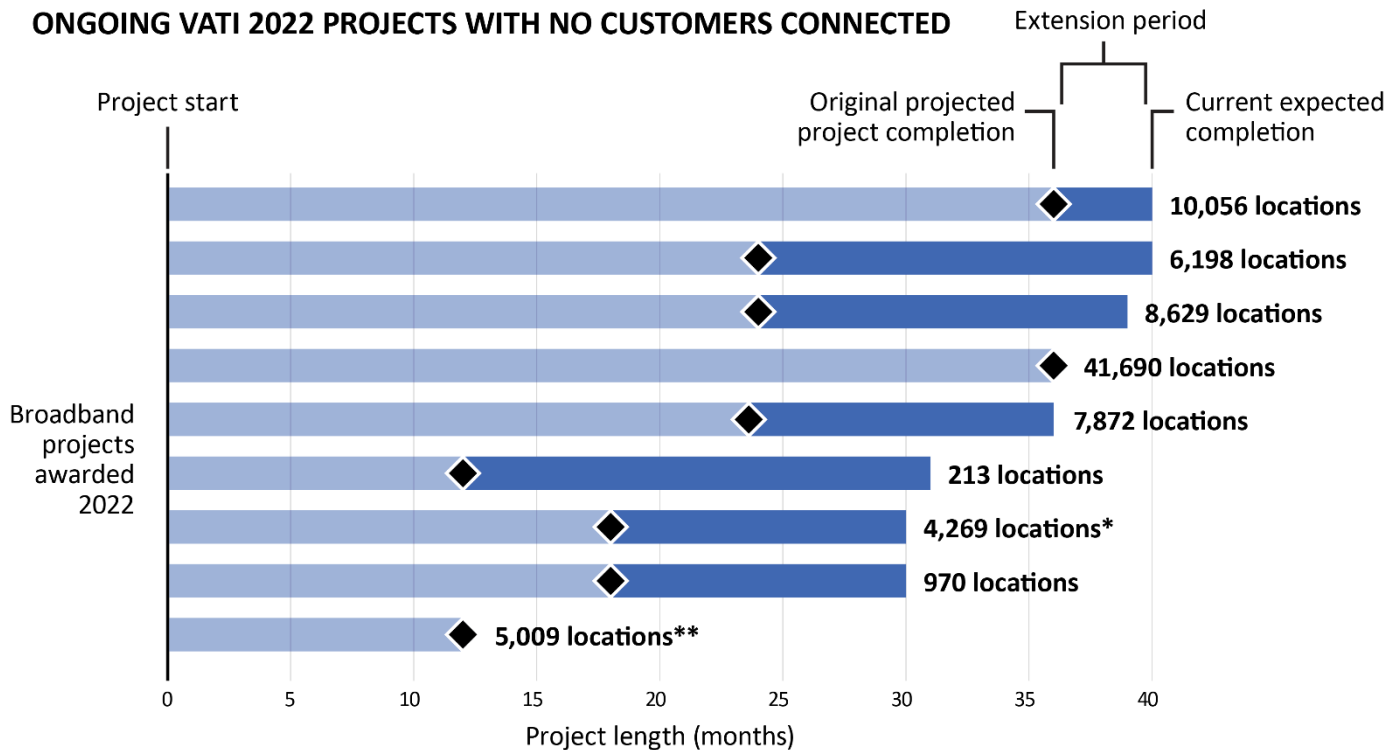
The VATI program has expanded broadband access in Virginia, but many ongoing VATI projects are behind their original schedules, and some large projects have made very little progress.

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 incompleteness 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 incompleteness by Dec 2026 and to issue corrective action plans
- In July, DHCD determined 23 projects were at risk of incompleteness 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

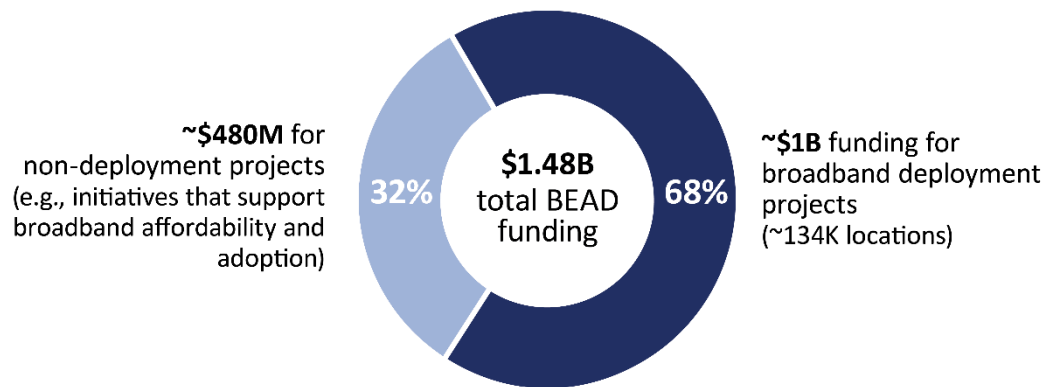
Affordability of broadband

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 Appendix 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

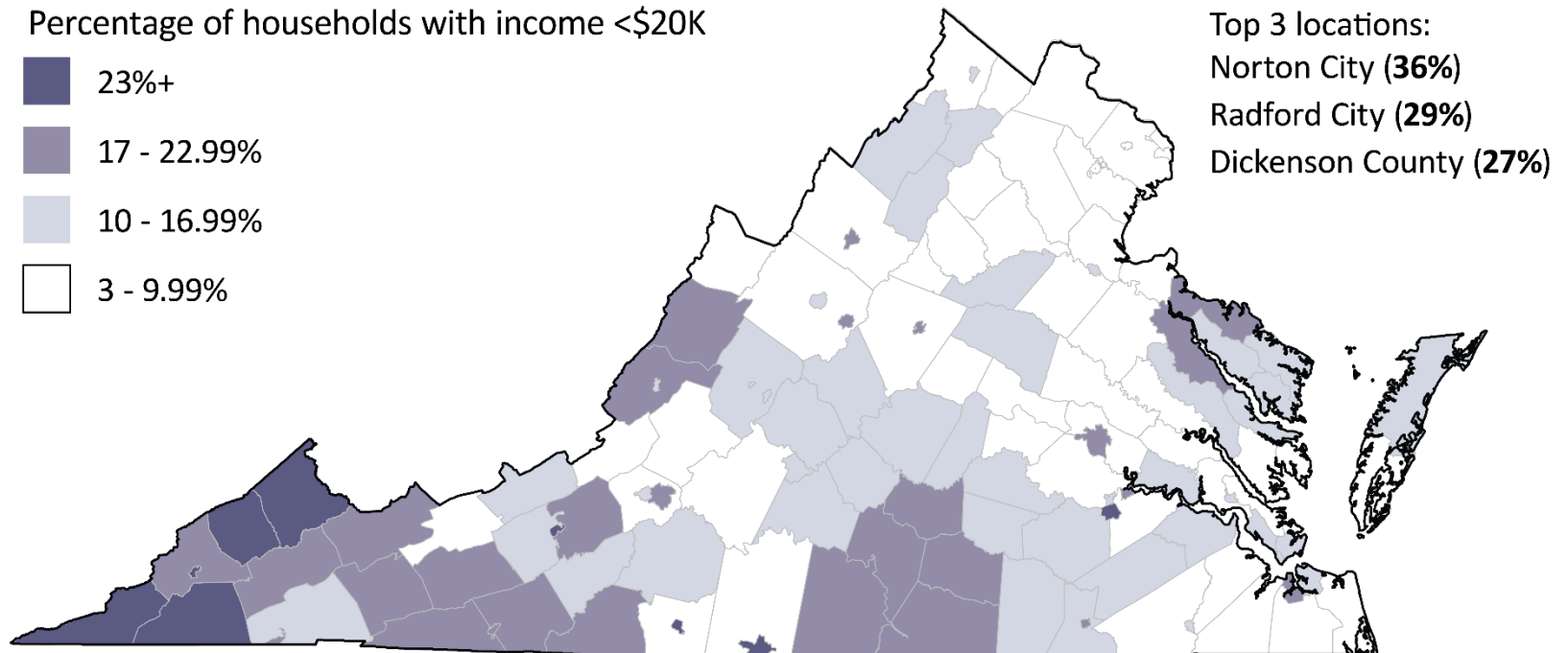
*Affordable Connectivity Program.

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)

Appendixes, cont.

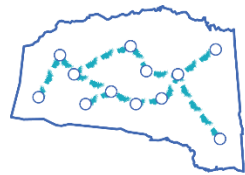
Additional online appendixes

- 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

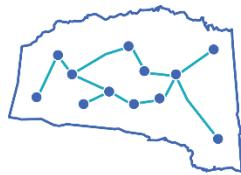
Appendix I – Largest state and federal broadband deployment programs in Virginia

- **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 through 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 through 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)



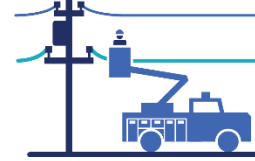
PRELIMINARY NETWORK DESIGN AND ENGINEERING



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

Entities involved:
ISPs
Localities

Estimated timeframe:
3-6 months

Entities involved:
ISPs
Pole owners
Localities

Estimated timeframe:
4-8 months

Entities involved:
ISPs
Pole owners
Localities
VDOT
Private landowners

Estimated timeframe:
4-8 months

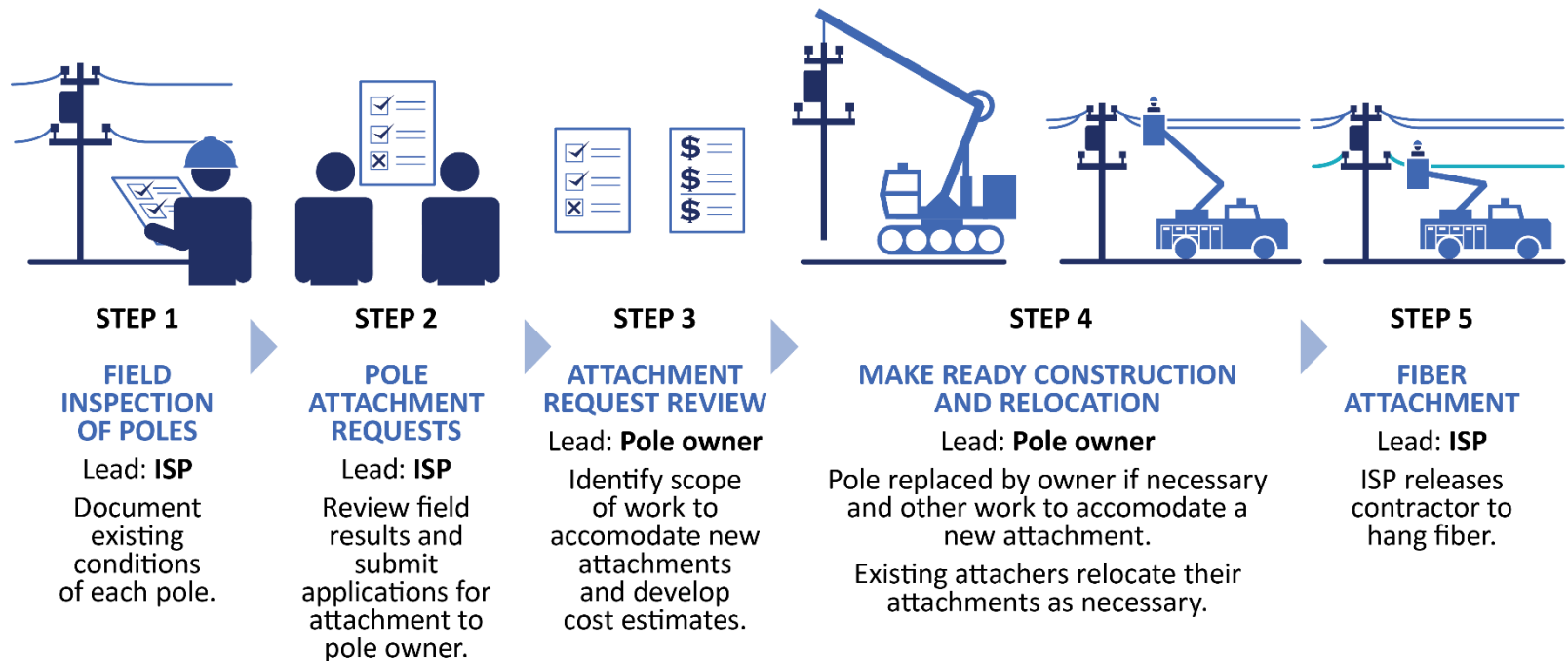
Entities involved:
ISPs

Estimated timeframe:
2-3 months

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)

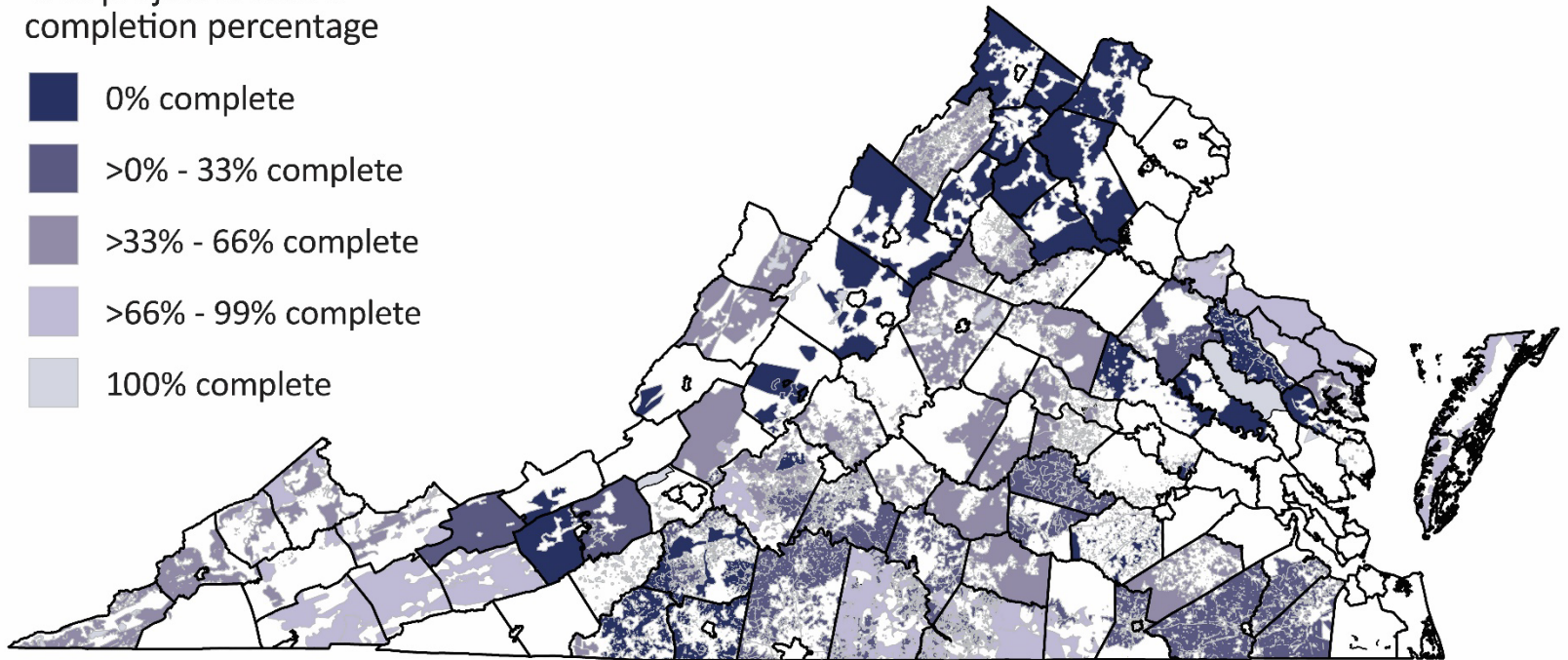


Source: JLARC staff interviews with broadband stakeholders and review of broadband deployment process documents.

Appendix IV – Locations receiving broadband through VATI projects

VATI project location completion percentage

- 0% complete
- >0% - 33% complete
- >33% - 66% complete
- >66% - 99% complete
- 100% complete



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

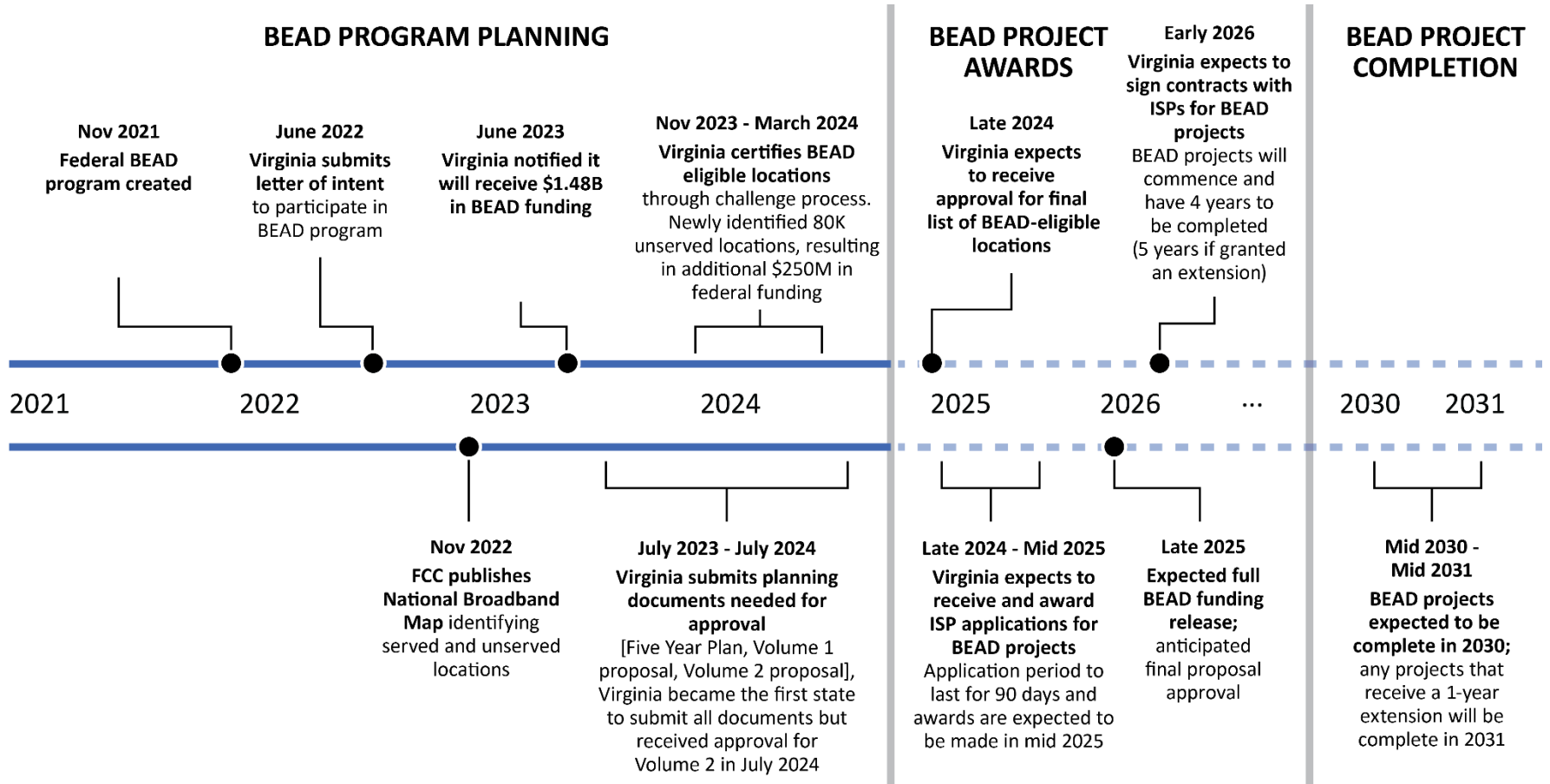
- DHCD developed the following risk categories to characterize VATI 2022 projects in response to language in the 2024 Appropriation Act:
 - **No risk**: Grantee has not requested a timeline extension beyond original contract date; grantee is not significantly behind their current approved milestone timeline; 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.