West Virginia University
Bridge Initiative for Science and Technology Policy, Leadership, and Communications

Legislative Science and Technology Note

Satellite Broadband Accessibility in West Virginia

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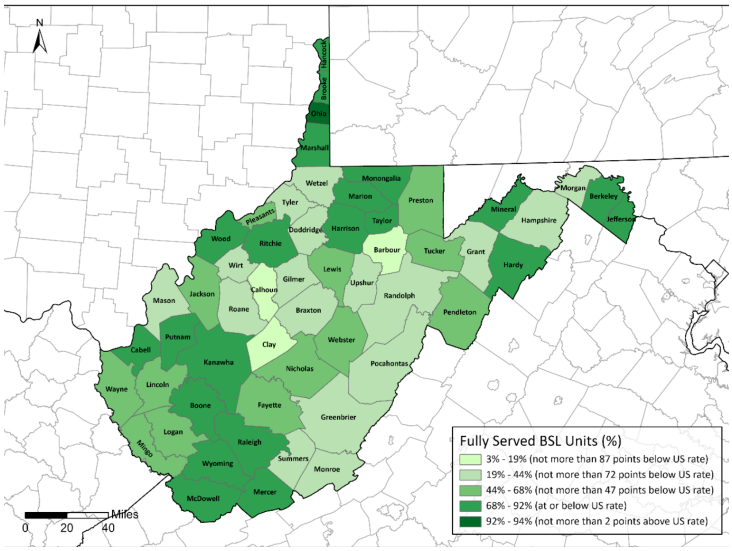
This Science and Technology Note covers the availability of satellite broadband in West Virginia and offers policy options for expanding West Virginians' access to satellite-based internet service.

Satellite broadband is a rapidly expanding market aimed at providing internet accessibility to remote areas. Similar to satellite TV access, internet service providers route signals through low- or high-Earth orbit satellites, and that signal is transmitted to customers via a receiving dish. As a result, internet service does not require new or existing local infrastructure (cables, telephone lines, etc.), works independent of physical barriers to fiber access such as mountains, and, in most cases, can be installed without professional assistance. However, satellite broadband does require a clear view of the sky, meaning that poor weather or use in densely wooded areas may interrupt service.



Broadband serviceable locations (BSLs) are business or residential sites where broadband can be installed. To be considered fully served under this survey, BSLs must have access to download speeds >100Mbps and upload speeds >20Mbps.

Source: Calculated using December 31, 2022, National Broadband Data Collection Availability Data provided by the Federal Communications Commission

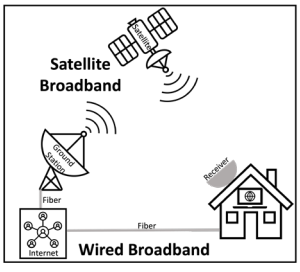
Research Highlights

- West Virginia ranks 50th in internet coverage, speed, and availability. To improve connectivity, the state received over $1.2 billion in Broadband Equity, Access, and Deployment (BEAD) funding.
- Satellite broadband offers internet connectivity in remote areas that do not have access to conventional fiber broadband infrastructure, but there are concerns about speed, data limitations, and prohibitive costs.
- Financial support to expand satellite broadband access could be provided through multiple policy options, including public-private partnerships, grants and subsidies for satellite broadband providers, and grants/tax credits for West Virginians who utilize satellite broadband.

Current Satellite Broadband Access in West Virginia

Based on Federal Communications Commission (FCC) data, West Virginia ranks 50th in internet coverage, speed, and availability. While 74% of the broadband serviceable locations (BSLs) in the state have adequate internet connectivity, up to 57% of West Virginians may find broadband services unaffordable. Despite being available throughout all of West Virginia, approximately 15% of West Virginians currently have satellite broadband. This could be due to a number of factors, including cost, lagging speed, or limited data plans.

The most frequently cited barrier to satellite broadband access is the prohibitory cost. The national Affordable Connectivity Program (ACP) offered a discount of up to $30 off an internet bill for qualifying households, but is set to expire in April 2024. Over 103,000 West Virginia households are enrolled in the ACP.



Broadband Equity, Access, and Deployment Funding in West Virginia

In June 2023, West Virginia was awarded $1.2 billion in Broadband Equity, Access, and Deployment (BEAD) funding from the National Telecommunications Information Administration (NTIA) to support universal broadband access in the state. As satellite broadband does not meet the Reliable Broadband Service Standard (>100/20Mbps, <100ms latency), NTIA does not consider satellite connectivity as "fully serviced" when counting broadband access sites. However, the NTIA has stated that satellite connectivity is not to be excluded from use of BEAD funds and acknowledged that a "significant portion" of funds will likely go toward satellite implementation where fiber is cost-prohibitive.

Comparison of Major Satellite Broadband Providers (SBPs) in West Virginia

Company	High-Speed/ Priority Data	Download Speed (Mbps)	Upload Speed (Mbps)	Average Latency (ms)	Monthly Cost	Equipment Cost
Starlink	None	34-92	9-18	52-76	$120	$599 one time
	40GB	40-220	8-25	25-60	$140	$2500 one time
Viasat	60GB	≤25	3	630	$69.99	$15/month
	100GB	≤50	3	630	$99.99	$15/month
Hughes Net	100GB	≤50	5	650	$74.99	$299.99 one time to own or $99.99 one time + $14.99/month to lease
	200GB	≤100	5	650	$89.99	$299.99 one time to own or $99.99 one time + $14.99/month to lease
Average Cable-based ISP in WV	Unlimited	400-500	10-35	11-40	$35-45	$10-15/month
	Unlimited	100	10-35	11-40	$60-70	$10-15/month

Table includes two lowest tier services offered for each internet service provider (ISP-and associated statistics) as of January 2024. High-speed/priority data plans offer faster connections up to the listed limit, at which point download and upload speeds may drop or be limited by the provider (data throttling). Latency is the communication time on the network (e.g., the time between clicking a link and the page appearing).

Policy Options to Expand Satellite Broadband Access in West Virginia

One approach to promote satellite broadband accessibility for West Virginians is to provide financial aid to unserved and underserved BSLs. As access to broadband is critical for remote work, education, and telemedicine, a collaborative initiative to fund access could be beneficial for multiple sectors. Aid could be temporary while wire extension projects are underway or more long-term when wired broadband is not feasible. This approach does not address the speed or data limitations of satellite broadband, but it allows internet access as the SBPs improve. Financial aid could be implemented through multiple policy options, including:

- Public-private partnerships between the West Virginia government and SBPs

In 2021, the state of Ohio partnered with Starlink to generate a satellite broadband pilot program that provided connectivity to 90 homes and 10 small businesses at no cost for one year. Given the unique geographical challenges presented by West Virginia's mountains and dense forests, a pilot program with a SBP may provide valuable development opportunities for companies looking to demonstrate their abilities.

- Grants and subsidies for SBPs

In addition to public-private partnerships, legislators could offer grants or subsidies for SBP to build and install ground stations or manufacture satellites in exchange for lower rates for West Virginians without fiber access. Traditionally, SBPs have been excluded from state and federal subsidies aimed at ISPs due to lack of reliable high-speed connection. The West Virginia Economic Development Authority currently offers the Broadband Loan Insurance Program (BLINS), which can insure up to 80% or $10 million of a loan to provide 25/3 Mbps internet service to unserved or underserved areas. It is unclear if BLINS can be applied to SBPs at this time, but similar programs could increase satellite broadband utilization across the state.

- Subsidies and/or tax credits for West Virginians who depend on satellite broadband

As ACP funding ends, 39% of West Virginian households will lose access to discounted internet services. To compensate for this loss, a similar state-level program for unserved and underserved BSLs (as proposed in Iowa in 2022) could be enacted to make satellite broadband connectivity more affordable. The ACP model provides a monthly service discount, as well as a one-time discount on equipment. In the case of satellite broadband, the one time subsidy could be applied to the receiver necessary for service.

This Science & Technology Legislative Note was written by Kensey Bergdorf-Smith, PhD, West Virginia Science and Technology Policy Fellow on behalf of West Virginia University's Bridge Initiative for Science and Technology Policy, Leadership, and Communications. The Bridge Initiative provides nonpartisan research information to members of the West Virginia Legislature upon request. This Science and Technology Legislative Note is intended for informational purposes and does not indicate support or opposition to a particular bill or policy approach. Please see https://scitechpolicy.wvu.edu/ or contact scitechpolicy@mail.wvu.edu for more information.