Fiber Technology Deep Dive

Part of the Broadband in America Series

By: CostQuest Associates®

SECTION 1: INTRODUCTION

Broadband in America Report: Fiber Focus

As part of the Broadband in America Report series, focused reports will provide a deeper analysis of emerging technology trends shaping the telecommunications industry. This report focuses on variances within each technology type – specifically within the fiber optic market – from the initial buildout phases to lasting economic impact. The data referenced in this report is the FCC's Broadband Data Collection (BDC) Service Availability Data in combination with CostQuest's® Location Fabric and National Cost Model Data.

This report is focused on the fiber broadband technology sector, analyzing the trends between Version 5 (June 2024) and Version 6 (December 2024) of the Location Fabric and FCC BDC data. The first release of the BDC data was in June 2022.

Fabric / BDC Version 5

The filing window opened on June 30, 2024, for this version of the Broadband Location Fabric.

BDC Data Version 5 Vintage Nov 11, 2024

Fabric / BDC Version 6

The filing window opened on December 31, 2024, for this version of the Broadband Location Fabric.

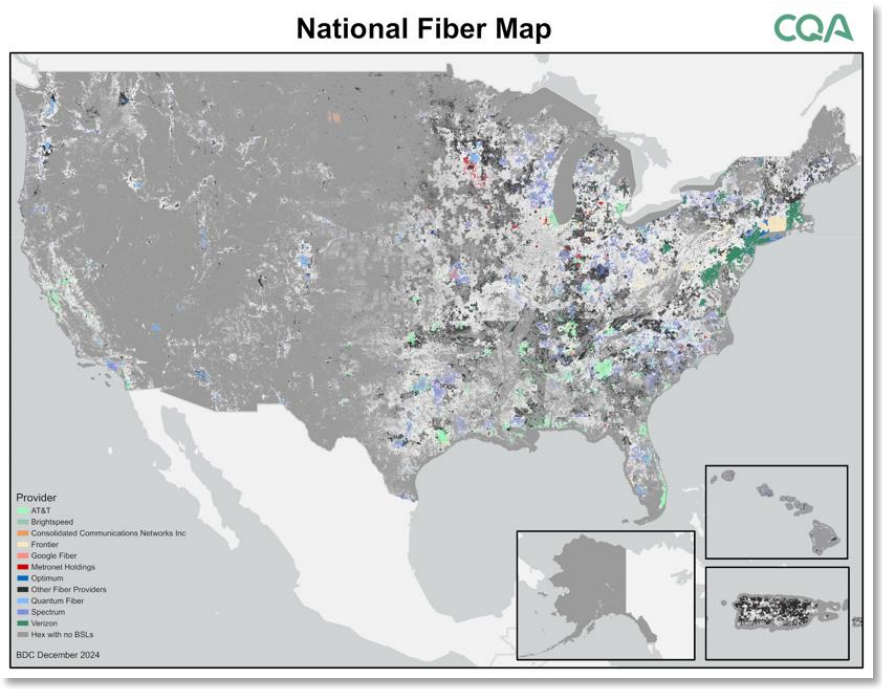
BDC Data Version 5 Vintage May 20, 2025

SECTION 2: FIBER LANDSCAPE

Steady Fiber Growth

35.7% Increase in Three Years

Beginning in the early 2000s, fiber emerged as a consumer broadband option, but high deployment costs and limited commercial advantages compared to upgrades of existing copper and coax networks slowed its adoption. Over time, however, improvements in speed, low latency, high reliability, reduced operating costs, and its recognition as a future-proof technology – combined with declining deployment costs – drove rapid growth. Today, fiber services are available to more than half of all Broadband Serviceable Locations (BSLs) in the United States. The map below illustrates where fiber has grown recently and the gaps that remain (white areas). Gray areas indicate unpopulated areas of the country.



With each release of the FCC's Broadband Coverage Map (BDC), the number of locations without reported fiber coverage continues to get smaller. From V1 of the BDC data (June 2022) to the most recent V6 data, there has been a **35.7%** nationwide increase in BSLs reached by fiber at any speed. In the last six months alone, **from the release of BDC V5 to V6, there has been a 6.9% nationwide increase in fiber-connected BSLs.**

Rural census blocks saw an even larger fiber coverage increase in the last release at **9.8%**. While the increase in fiber buildouts has been the result of the growing need for reliable high-speed internet coverage, federal funds have played a role in expanding deployment by covering a portion of the investment for these fiber expansion projects.

Federal funds were associated with 12% of the increase in fiber-served BSLs nationwide, with a **31% increase in rural [1] BSLs.**

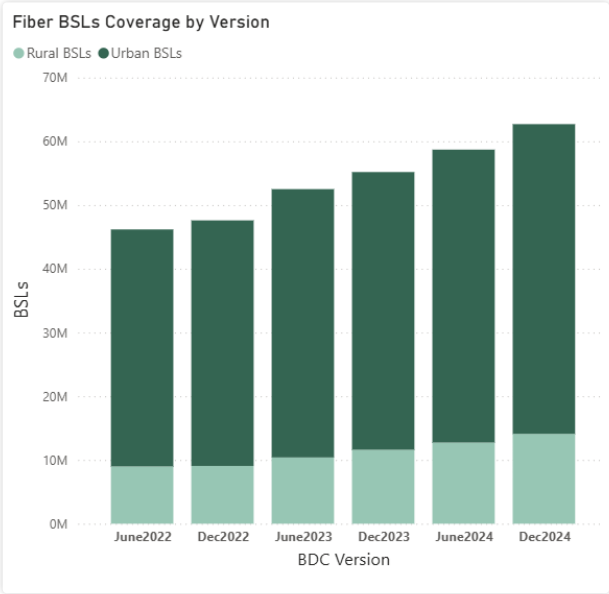
V6 Fast Facts

- 4.6 million new BSLs reached
- 1.5 million new BSLs reached in rural areas
- 1,589 fiber providers
- 67 new fiber providers
- 75 providers more than doubled their footprint
- Cable TV of East Alabama – now known as BEAM Broadband – and EverFast Fiber Networks saw notable growth of more than 700% in locations served
- AT&T remains the largest provider of fiber, serving nearly 15% of all BSLs

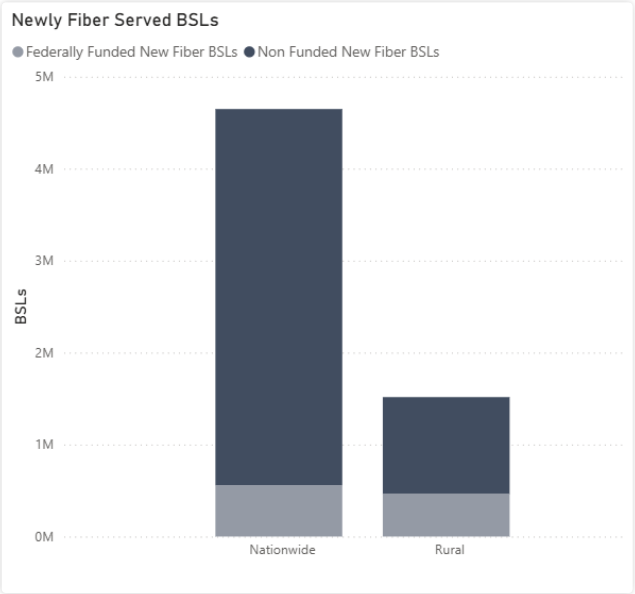
[1] *Rural: As defined by the 2020 US Census Bureau – all geographic areas not classified as urban.*

States and Territories with the Most Fiber Growth:

State/Territory	Growth V5 to V6
VI	387.3%
WY	28.1%
GU	24.4%
AZ	21.0%
ME	20.8%
VT	18.8%
WA	16.9%
LA	15.6%
NV	13.2%



Growth in fiber coverage from BDC V1 to V6 and comparing growth trends between rural and urban BSLs



Comparison of the share of federal funding versus private investment that helped serve BSLs with fiber

SECTION 3: FIBER ECONOMICS

Impact of Investment Beyond Fiber

The National Impact of Buildout

The investment in fiber buildouts goes beyond connecting homes with the internet; it is building a foundation that expands economic development opportunities. The 6.8% growth in fiber access from V5 to V6 means nearly 4.6 million homes now have greater access to digital opportunities they may not have had previously – opportunities such as online education, telehealth, remote work, workforce development and AI advancements.

In addition to access, an estimated $8.1 billion was invested in local economies, with 65% of that investment impacting rural areas. To complete the buildout to these homes across the country, approximately 105,000 full-time employees – 66,000 in rural America – were employed on fiber projects over the last six months.

The momentum behind fiber deployment highlights its role as both a foundation of digital infrastructure and a driver of economic opportunity. With each version of the BDC, we see progress in internet access, impacts on jobs, and investment in community growth – particularly across rural America.

The data makes it clear: fiber is no longer an emerging option but an essential component to power the nation's broadband future.

Counties with the Most Growth in Fiber Access:

County	Total Fiber BSLs	New Fiber BSLs	New Fiber BSLs with Fed Funds	Estimated Investment	Est. FTE [2]	Fiber BSL Growth V5 V6
Villalba, PR	11,996	10,835	10,835	18,933,424.00	202	961%
Clinton, IL	13,599	12,052	83	13,679,997.19	183	762%
Assumption, LA	13,669	11,130	7,447	24,847,413.97	292	472%
Camuy, PR	15,056	11,673	11,673	17,286,850.49	197	346%
Dorado, PR	13,325	10,225	10,225	12,334,826.57	133	330%
Grand Isle, VT	10,219	7,399	3,215	21,566,179.15	284	267%
Starke, IN	11,689	8,571	106	18,899,793.90	241	264%
Randolph, AL	23,730	16,621	551	24,018,799.37	385	239%
Rincón, PR	17,998	12,173	12,173	17,208,671.88	188	209%
Tompkins, NY	16,338	10,561	-	11,547,666.90	138	180%

[2] *FTE: Full Time Employee*