Mobility Market Deep Dive

By: CostQuest Associates®

SECTION 1: INTRODUCTION

Broadband in America Report: Mobility Market Focus

Broadband in the United States is changing rapidly and understanding these market shifts is essential for strategic decision-making. The **Broadband in America Report** series delivers nationwide insights into broadband coverage, cost, competition and funding across all network technologies. It is published semiannually, with data source updates each spring and fall. Complementary regular reports provide deeper analysis of emerging technologies and trends shaping the telecommunications ecosystem.

This edition provides an in-depth analysis of the mobility market using the latest market intelligence available as of November 2025. It examines the latest trends in mobility coverage, economics, competition, and the evolving role of mobility within the broader broadband landscape.

The data referenced in this report is primarily based on Versions 5 and 6 of:

- FCC Broadband Data Collection (BDC) service availability data
- CostQuest's® Location Fabric of Broadband Serviceable Locations (BSLs)
- CostQuest's® network cost model data

About Fabric / BDC Version 5	About Fabric / BDC Version 6
The filing window opened on June 30, 2024, for this version of the Broadband Location Fabric. BDC Data Version 5 Vintage Nov 11, 2024.	The filing window opened on December 31, 2024, for this version of the Broadband Location Fabric. BDC Data Version 6 Vintage May 20, 2025

SECTION 2: METHODOLOGY & HEX CELL FRAMEWORK

A Brief Overview of Hex Cells (H3) and Their Role in the Mobility Market

Historically, broadband coverage analysis has leaned on political geographies – such as census blocks, counties and states – with irregular shapes and sizes. These boundaries are not ideal for mobility-focused insights or even basic coverage mapping.

To address this, Uber created H3, a geospatial indexing system that divides the Earth into uniform hexagonal cells. In our analysis, we center on H3 resolution 9 (h3_9), where each cell

covers about 0.1053 square kilometers (a little less than half a square mile), offering a neighborhood-scale lens.

Under the FCC Broadband Data Collection, mobile broadband coverage is reported at the H3_9 resolution. Each provider certifies coverage in h3_9 cells. A cell is marked as "served" if its centroid lies within the provider's raw coverage polygon. This standardized, gridded framework transforms irregular coverage boundaries into consistent, comparable units, making it much easier to analyze, compare and understand mobility coverage.

SECTION 3: INDUSTRY OVERVIEW & TOP CARRIERS

Evolution of the U.S. Mobility Market

The mobile telecommunications industry has undergone profound change over the past four decades, evolving from analog voice services into a sophisticated, data-driven connectivity ecosystem. The trajectory of mobile wireless technology reflects not only technical innovation but also regulatory developments and shifts in consumer behavior.

Mobile telecommunications began with 1G networks in the 1980s, enabling basic voice communication via analog signals. The transition to 3G in the early 2000s facilitated mobile internet access and multimedia applications, fueling the rise of mobile applications and social media. The 4G era in the 2010s delivered high-speed data and enabled real-time video communication, prompting the government to expand spectrum allocations through competitive auctions.

The advent of 5G in the late 2010s and early 2020s marked the latest major shift in mobile technology, offering ultra-low latency and greater bandwidth to support emerging uses, such as autonomous vehicles, smart cities and industrial automation. The industry continues to evolve, as seen in today's preparations for the eventual launch of 6G.

Current Mobility Market Overview

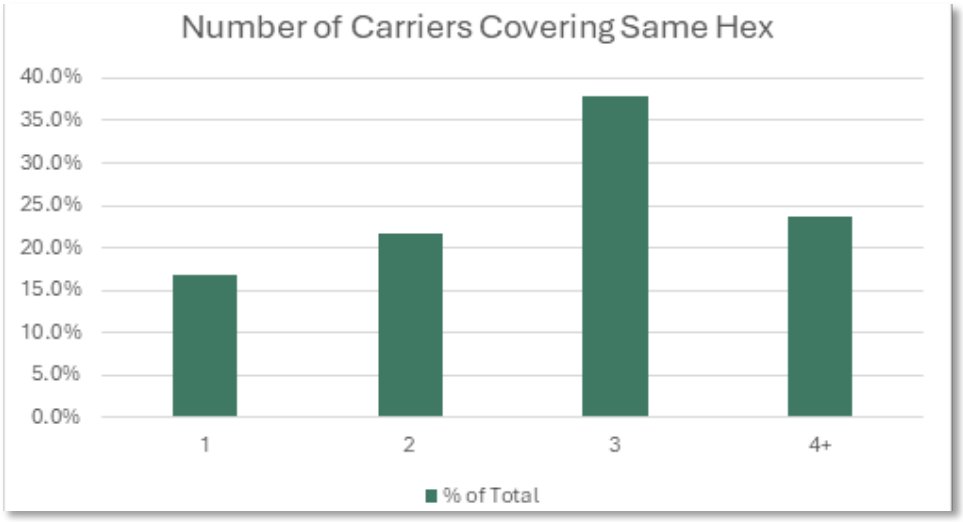
Top 10 Mobile Carriers by Hex Cell Coverage (Dec. 2024)

Brand	% of US Land Covered	Dec. 2024 Hex Cells
Verizon	58.78%	54,432,138
AT&T	57.99%	53,708,936
T-Mobile	43.96%	40,711,300
Project Genesis (Dish)	8.87%	8,213,439
UNITED STATES CELLULAR CORPORATION	6.91%	6,400,907
Union Telephone Company	1.95%	1,807,930

Viaero Wireless	1.84%	1,700,599
GCI Communication Corp.	1.55%	1,434,973
Southern Linc	1.30%	1,200,988
C Spire Wireless	1.03%	955,578

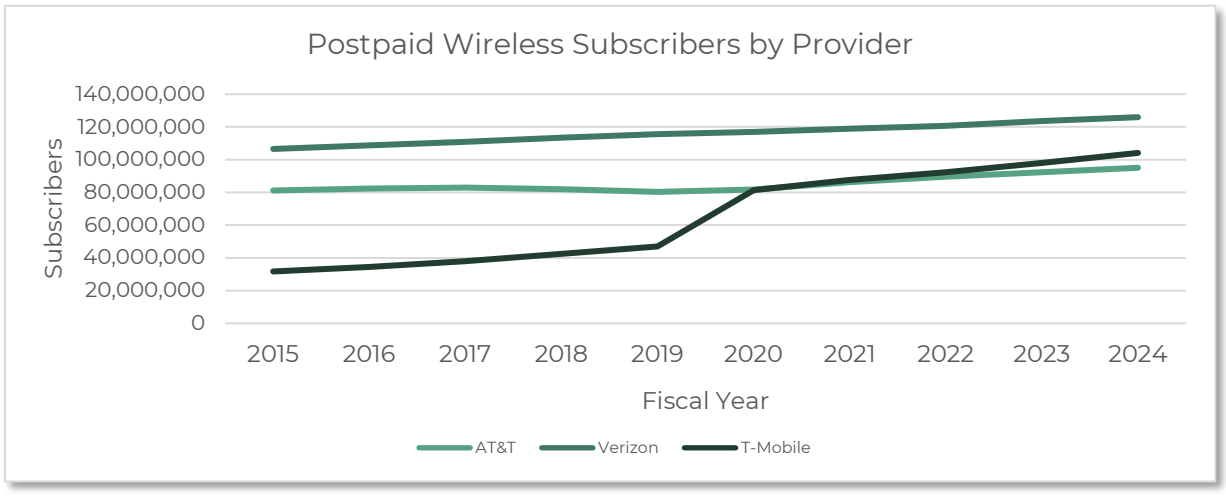
Competition in the Mobility Market

Where coverage exists, more than 61% of covered hex cells have three or more carriers serving that area, indicating a highly competitive market.



The Big Three – Verizon, AT&T and T-Mobile

Despite the competition in the mobility market, Verizon, AT&T and T-Mobile, the big three, hold the vast majority of market share as shown in the figure[1] below.



[1] *S&P Global – 10K-10Q Filings*

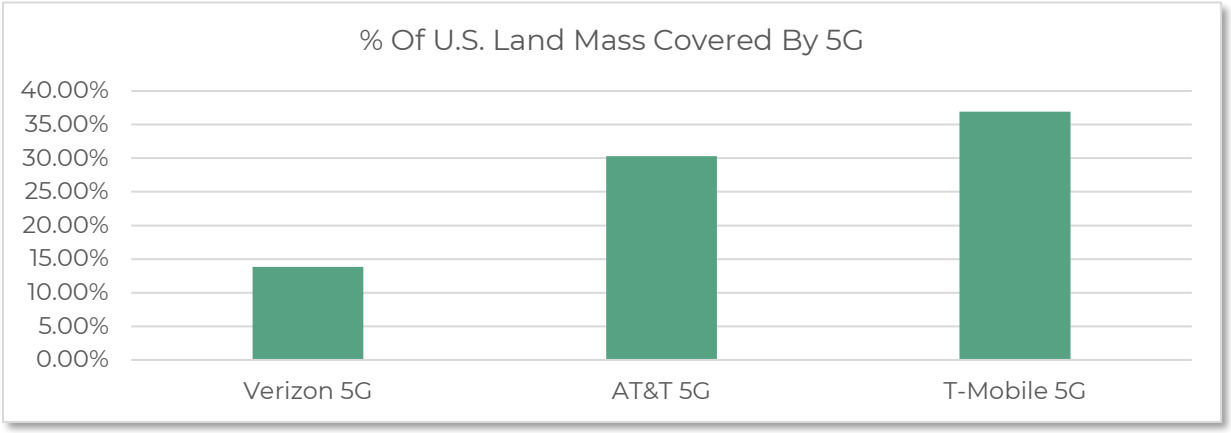
Big Three Overlap (Dec. 2024)

Unlike other telecommunications segments illustrating more geographically segmented footprints, dominance in the mobility market is national and coverage driven. There is significant overlap among the big three mobile carriers.

Carriers	Hexes	% of U.S. Land Covered
Verizon and AT&T	46,568,072	50.28%
Verizon and T-Mobile	37,339,919	40.32%
AT&T and T-Mobile	38,012,366	41.05%
Overlap of all three	35,479,349	38.31%

Mergers & Acquisitions Shaping Mobility Landscape

While the big three currently dominate the market, mergers and acquisitions over the past decade have helped define today's competitive landscape. In 2018, T-Mobile announced its merger with Sprint, gaining more than 50 million subscribers and valuable mid-band (2.5 GHz) and PCS (1.9 GHz) spectrum. This deal reduced the former "big four" to the current "big three" and enabled T-Mobile to become the leader in 5G, as shown in the figure below.



As a result of T-Mobile's Sprint acquisition, Dish became the fourth major wireless carrier by acquiring Boost Mobile, Virgin Mobile and Sprint's prepaid subscribers. Dish agreed to build a nationwide 5G network covering 70% of the population by June 2023, which it achieved, though its market share has since declined. This demonstrates that high barriers – such as spectrum, infrastructure and technology costs – continue to limit new competition in the mobility market, allowing the big three carriers to maintain dominance.

Cable & Satellite Partnerships

Though smaller carriers offer limited direct competition, partnerships with cable and satellite providers are changing the market. Cable firms like Comcast and Charter bundle broadband with mobile services through agreements with major carriers, mainly Verizon, often undercutting traditional pricing and capturing customers. The big three also collaborate with satellite providers to improve coverage where terrestrial towers are absent.

SECTION 4: COVERAGE ACROSS THE UNITED STATES

Current Mobility Coverage Landscape

Fast Facts from FCC BDC Version 6

- About 65 million h3_9 Cells are covered by the U.S. mobile network ecosystem, representing more than 70% of total U.S. land area.
    - Eighteen percent of covered h3_9 cells also include at least one Broadband Serviceable Location (BSL).
    - Thirty-eight percent of covered h3_9 cells also contain a road segment.
    - Ninety-two percent of road meters in the United States are covered by the mobile network ecosystem.
- Fifty-six mobile service providers report to the BDC.
- From Version 5 to Version 6, the number of hex cells with coverage grew 11% from about 58 million to 64 million.
- More than 61% of covered h3_9 cells have three or more companies reporting coverage in that cell, while 16.8% have only one company reporting coverage. More than 54% of covered hex cells include coverage by all three of the big three carriers.

Area, Roads and BSLs

More than 70% of U.S. land area is covered by the mobile network ecosystem. Deployment decisions are driven largely by roads and residential and business locations (BSLs):

- Where roads are present in a hex cell, 90% of those areas have mobile coverage.
- Where a BSL is present in a hex cell, 97% of those areas have mobile coverage.

Despite over 90% coverage for most BSLs and roads in the United States, a small gap remains. Satellite providers, through improved spectrum use and denser low Earth orbit (LEO) constellations, are partnering with the mobility providers to help bridge the gap.

Category	Hex Cells	Covered Hex Cells	% Covered
Hexes	92,609,817	64,891,687	70.1%
Hexes with Roads	27,425,684	24,651,637	90%
Hexes with BSLs	11,791,458	11,436,601	97%

Rural vs. Urban Mobile Coverage

As in other telecommunications markets, rural America has less coverage than urban areas. Nearly all urban hex cells are covered by the mobile network ecosystem, while rural areas have about 70% coverage.

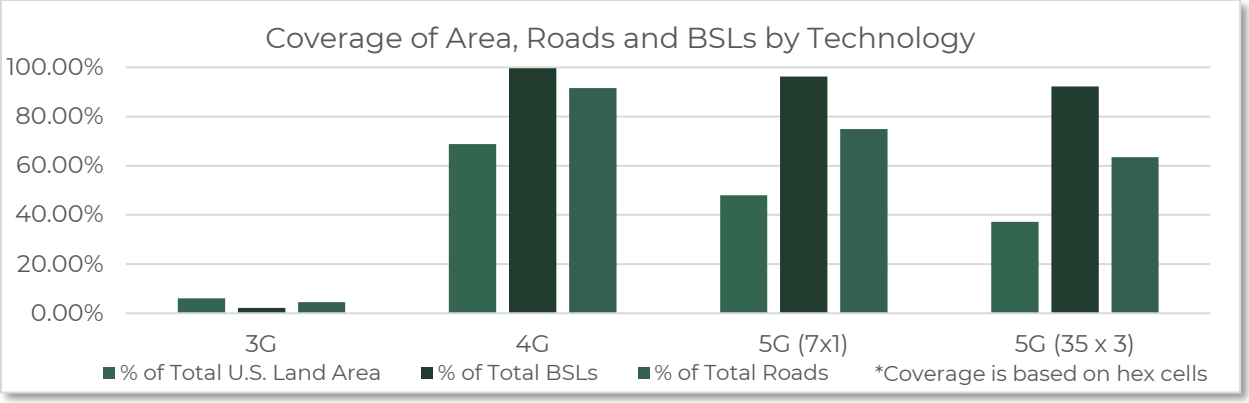
Category	Hex Cells	Covered Hex Cells	% Covered
Rural	89,949,841	62,232,215	69.19%
Urban	2,659,976	2,659,472	99.98%

Coverage by Mobile Technology (3G, 4G, 5G)

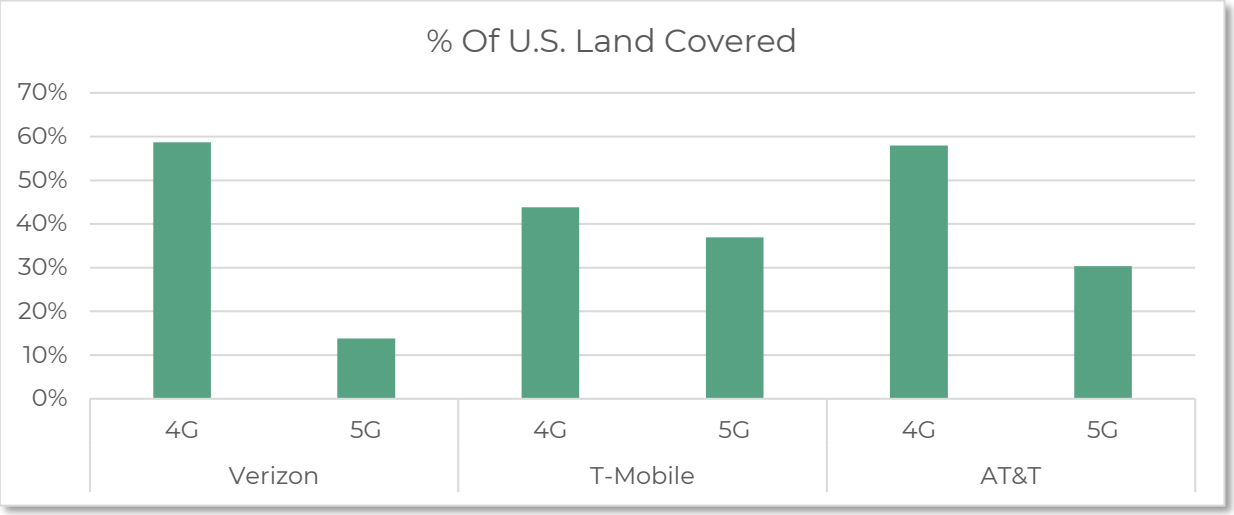
The current state of the U.S. mobile network ecosystem can be summarized by the table above. 3G is waning but remains in use providing limited geographic and location coverage. 4G is the most extensive technology in area, BSL and road coverage. 5G continues to expand, with lower speed 5G present in roughly 48% of the United States and higher speed 5G present in about 37% of the United States.

5G deployment is prioritized where BSLs exist (where people work and/or live) and then extended into more rural areas, subject to spectrum license protection and related deployment strategies.

The table below displays coverage by technology. The table below illustrates coverage as reported by the big three in the BDC. The latter offers a clearer view of the customer's real-world coverage experience with their selected carrier.



The Big Three: Coverage by Technology



Section 5: Road Mile Coverage & Signal Strength

Road Mile Mobile Coverage

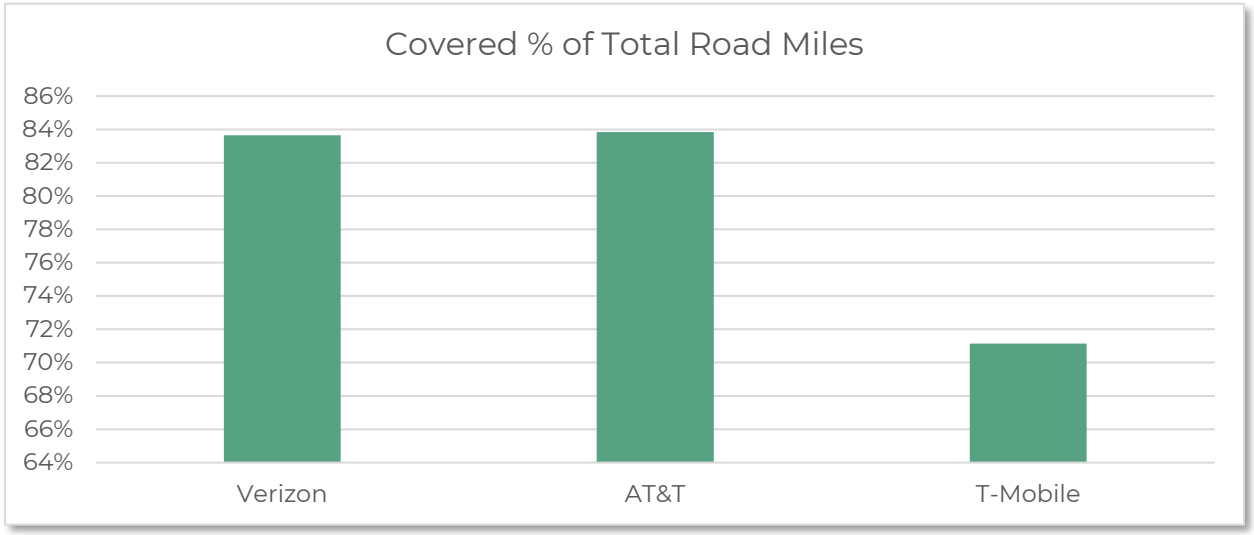
Road miles are a critical metric in mobility coverage because they reflect where connectivity is needed and used in motion. Road-mile coverage measures how well a network supports people traveling by vehicle, including call continuity, navigation, telematics and safety-of-life communications. This is especially important in rural America, where population density is low, but road networks are essential for commerce and connectivity. High road-mile coverage demonstrates the reach and resilience of a mobility network and is often a more realistic indicator of service availability than population or geographic coverage percentages alone.

Road Mile Coverage by Technology

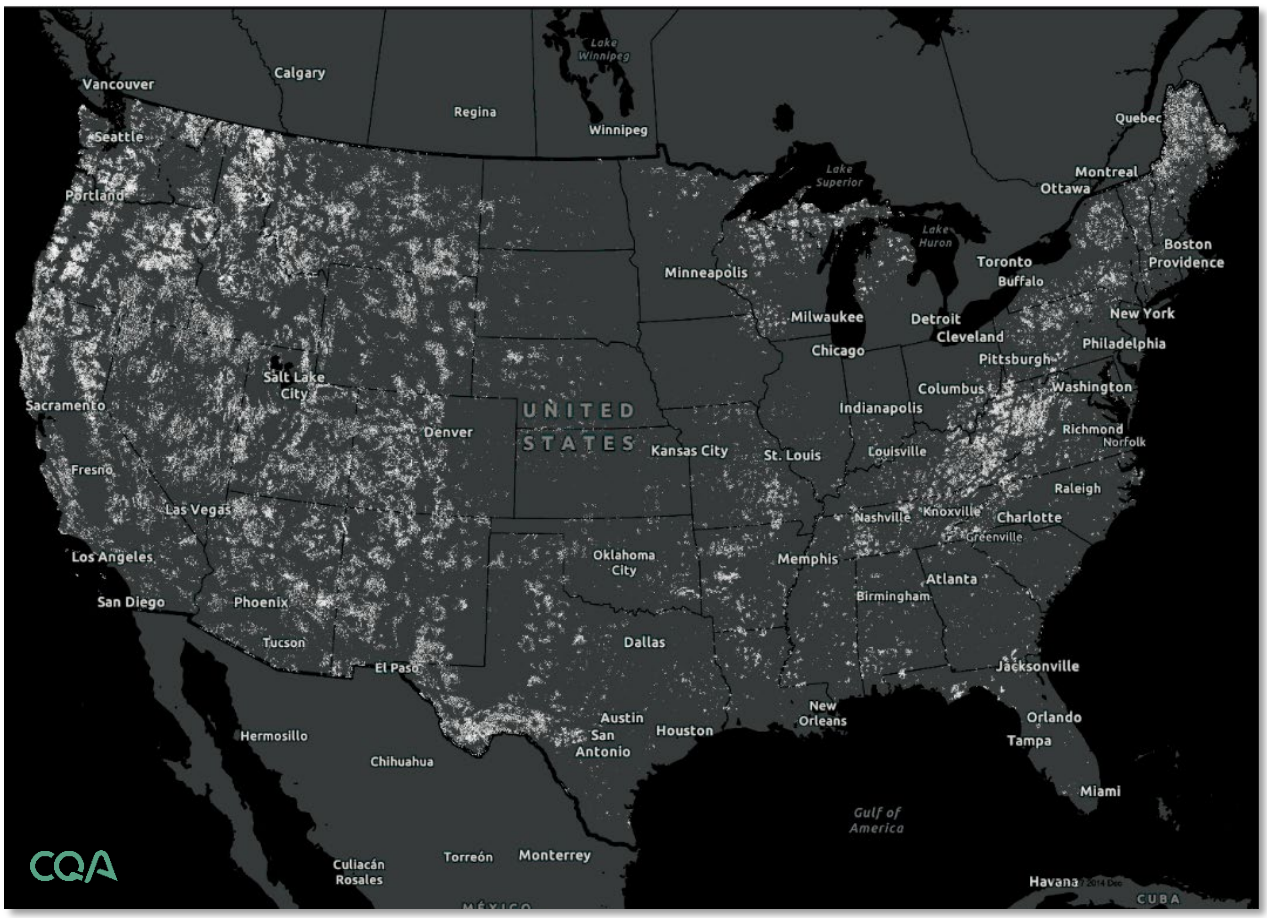
While most roads are covered by a carrier, the more important measure for a consumer is the road coverage provided by their carrier. The table below provides this insight for the big three.

Label	Rural	% of Rural Covered	Urban	% of Urban Covered
3G	282,610.19	5.0%	32,391.57	2.4%
4G	5,016,669.89	89.5%	1,347,086.56	100.0%
5G	3,865,643.18	69.0%	1,344,204.69	99.8%

Road Mile Coverage by Any Technology by Big Three



Map: Hex Cells in the US with Roads, but No Mobile Coverage

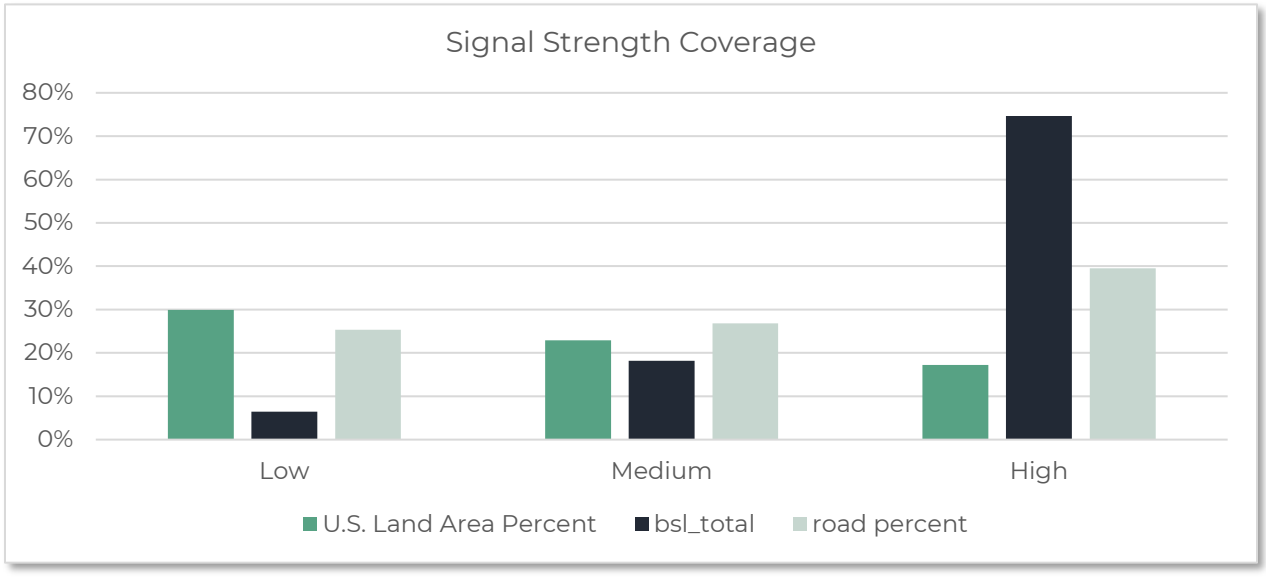


Mobile Signal Strength

While coverage by mobility is an important consideration, the quality of that coverage is even more critical. This section examines the reported signal strength associated with that coverage. For the analysis, signal strength (dBm loss) was categorized into low, medium and high.

Category	Range (dBm)	Description
Low	-120 dBm to -100 dBm	Weak to fair signal quality. May support basic tasks like calls and messaging, but with a higher risk of dropped calls, audio issues, and slow data transfer rates.
Medium	-99 dBm to -85 dBm	Good, reliable service supporting clear voice calls and stable connectivity. Data performance is generally solid, enabling smooth web browsing, app usage, and moderate to fast data transfer speeds.
High	> -84 dBm	Strong, consistent signal quality enabling very clear voice calls, reliable indoor/outdoor coverage, low latency, and fast data transfer performance.

Less than 20% of the U.S. land area is covered with high signal strength indicating that strong mobile coverage is not uniformly distributed nationwide. Similarly, only about 40% of roads are covered with high signal strength, pointing to roads being a higher coverage priority than general land mass. However, about 75% of BSLs benefit from high signal strength. This demonstrates that mobile networks prioritize delivering higher-quality coverage to populated and economically active areas.



High Mobile Signal Strength Primarily in Urban Areas

Urban areas have a higher share of strong signal coverage compared to rural areas which can be attributed to higher cell site density in urban areas. Consequently, in regions where cell-site densification is higher, mobile network providers are better positioned to target additional subscribers for fixed wireless broadband service. Beyond cell-site densification, the rollout of additional mid-band 5G spectrum provides further capacity to enable fixed wireless broadband. The stronger signal strength in urban areas aligns with longstanding trends indicating that urban regions benefit from more robust service than rural ones.

SECTION 6: THE FUTURE OF MOBILITY

The Path Forward for Mobile Connectivity

The U.S. mobile telecommunications market has reached a pivotal moment in its evolution, characterized by extensive coverage, intense competition and persistent coverage gaps that demand attention.

With more than 70% of U.S. land area and 92% of road miles now covered by mobile networks, the nation's mobility infrastructure has achieved remarkable reach. The transition from 1G analog networks in the 1980s to today's 5G ecosystem demonstrates decades of sustained innovation and investment. Yet coverage alone does not tell the complete story. While 97% of hex cells containing broadband serviceable locations have mobile coverage, fewer than 20% of the U.S. land area receives high signal strength, revealing a quality disparity.

Beyond a collective coverage analysis, the market's competitive landscape remains dominated by the big three carriers – Verizon, AT&T and T-Mobile – which collectively serve most subscribers. More than 61% of covered hex cells have three or more providers, suggesting robust competition. However, high spectrum and infrastructure costs have prevented meaningful market disruption despite efforts by a fourth major competitor to enter the market.

Satellite providers, leveraging improved spectrum utilization and denser low Earth orbit constellations, are positioned to bridge coverage gaps over time. Meanwhile, partnerships between cable companies and major carriers continue to reshape pricing dynamics, while collaborations with satellite providers extend voice and messaging services beyond traditional tower coverage.

And coming, the deployment of 6G technology will bring new capabilities, but success will depend on addressing current disparities in signal quality and geographic coverage across diverse communities.