

Myth Buster: Fiber vs. Fixed Wireless Access



Fiber is the holy grail for broadband connectivity, but some lawmakers believe that its too expensive and look to cheaper options to close the growing digital divide. To help dispel this myth, the Fiber Broadband Association performed a cost analysis to compare the total cost of ownership and address some common misconceptions.

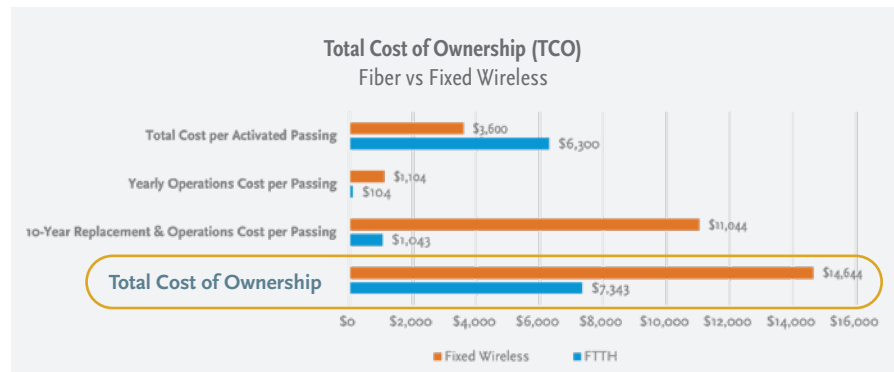
Why Fiber?

An optical fiber provides a noise-free environment for information to flow at the speed of light, providing nearly limitless bandwidth and capacity and low latency (no delay) to subscribers. When fiber is deployed as critical infrastructure, communities see immediate benefits:

- Gigabit broadband speeds and beyond
- Significant Economic Impact
- Jobs, economic diversification, education, healthcare
- Smart Grid modernization – 43% reduction in power outages¹
- Path to 5G (requires robust fiber infrastructure)

Fiber Costs Less In The Long Term²

The initial deployment cost for fiber is more expensive than Fixed Wireless (FWA) but the Total Cost of Ownership (TCO) demonstrates that fiber ends up being half the cost of FWA over time.



Fiber Delivers Gigabit Speeds Without Dependencies³

The FCC has awarded RDOF funding for FWA networks that promise to deliver 1Gbps/500Mbps speeds, but that performance can only be achieved under the following conditions:

Wireless networks designed based on mid-band spectrum cannot reliably provide RDOF Gigabit-Level Services.



The only band that would have enough capacity to accommodate even just a small handful of Gigabit users would be the 5 & 6 GHz unlicensed bands.



When using these bands, the wireless provider is not protected from interference from other wireless users and devices such as common home Wi-Fi routers.

Wireless networks designed based on millimeter wave (mmW) technologies can only satisfy Gigabit service if:



All customers are within 500 feet of their specific serving tower/antenna.



The capacity of the serving tower/ antenna must be adequate to accommodate the downstream and upstream capacities of all users served by that antenna or tower.



Each antenna and/or sector has adequate backhaul capacity with a reasonable oversubscription ratio such as 4:1*.



A congestion evaluation is performed.



All customers have clear line-of-sight to the serving tower/ antenna.

¹ Chattanooga Economic Impact Study – Professor Bento Lobo UT-Chattanooga
² Fiber Broadband Association

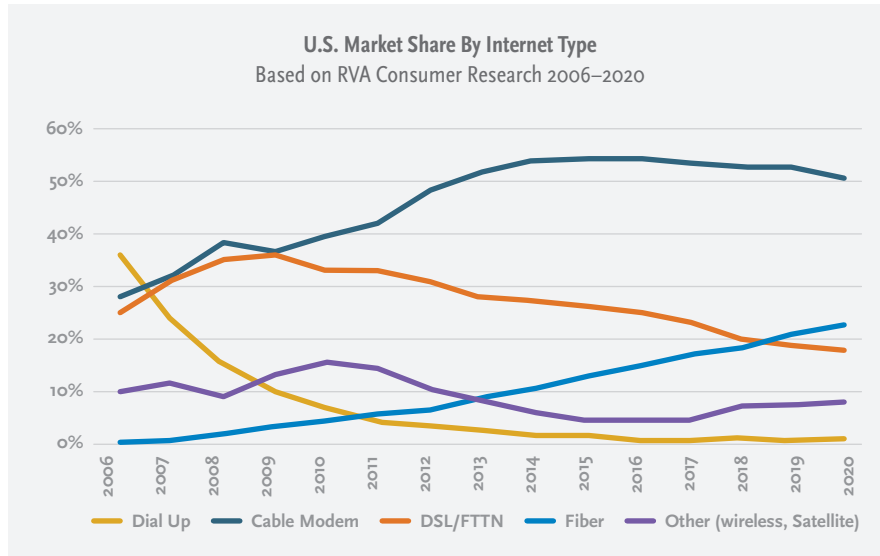
³ Larry Thompson, Vantage Point – FCC Filing

* In most instances this will require the towers/antennas to be served with a fiber network

Fixed Wireless Cost Doesn't Stop at Installation

Not only do fixed wireless networks include installation of several components that come at a cost, they are not environmentally friendly and require upgrading and ongoing maintenance. The typical lifespan of fixed wireless networks is approximately 5-8 years.

While the initial cost may be higher, the overall cost of using fiber is lower than fixed wireless access. Once installed, fiber cables require little (if any) maintenance as they immediately provide the promised speeds and resistant to corrosion, making their connection much more reliable. This makes fiber a preferred option in areas where other wires may be exposed to elements and require replacement over time.



State of the Market

Due to its favorable attributes, fiber continues to take share at the expense of other technologies. Consumers and communities increasingly understand the value of high performance, all-fiber networks and are demanding that service providers provide such access. By contrast, fixed wireless service serves a limited market.

The number of homes passed by all-fiber networks now exceeds 50.6 million; more than 22.5 million homes are connected to all-fiber networks for at least one service (Internet, television or telephone).

In Summary

The table below summarizes the key differences between fiber and fixed wireless. While some fixed wireless networks can be implemented in less time, the broadband service itself is provided at significantly lower speeds and an overall lower lifecycle cost.

	FIBER	FIXED WIRELESS
Broadband Data Speed 500 Mbps–10 Gbps 250 Mbps–100 Mbps 25 Mbps–100 Mbps	★★★★★	★
Latency	★★★★★	★★★★
Reliability	★★★★★	★★★★
Resiliency	★★★★	★★★★
Implementation	★★★	★★★★
Infrastructure Cost		
Short Term	★★	★★★★★
Long Term	★★★★★	★★
Life Cycle Costs	★★★★★	★★

Fiber

The turnkey design and construction costs of fiber including formulation and engineering, attachment fees and completion is typically between \$8 to \$25 per foot for aerial fiber and \$12 to \$50 per foot buried.

Fixed Wireless Access

The capital cost to construct and fully install a single antenna site with multi-sectored equipment on an existing structure in a fixed wireless system requires a capital investment in the range of \$100k-300k.

Excluding the cost of constructing the towers/antenna structures

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