

The digital divide is alive and well, particularly in rural America. At least twenty-four million Americans still lack access to adequate broadband, 19 million in rural areas. [1] The rural broadband gap hits America's heartland the hardest. Lack of competition, high cost of deployment, sparse population density, and uncoordinated infrastructure efforts have hindered broadband expansion into rural markets.

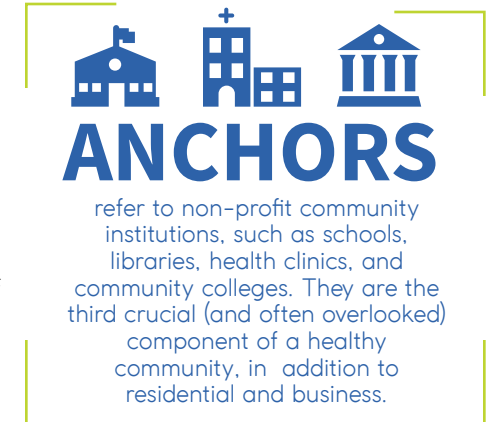
## A Community Strategy: Deploy To and Through Anchors

The Schools, Health & Libraries Broadband (SHLB) Coalition believes **anchor institutions**, such as schools, libraries, healthcare providers, community colleges, public safety and others, are the key to solving this rural broadband gap. Deploying high-speed broadband **“to and through anchors”** is valuable because they can serve as “anchor tenants” that make the entire network more economically viable. Anchor institutions not only provide Internet access to populations most impacted by the digital divide (low-income families, job seekers, students, and seniors), they also provide “jumping off” points to extend additional broadband deployment to surrounding residential and business customers.

With forward-looking policies, a broadband connection to an anchor institution can provide enough bandwidth to serve the needs of the institution AND surrounding residents. If the broadband networks built to serve anchor institutions are open to interconnection and shared use, the anchor can act as a “gateway” to the community.

Deploying the most cost-effective rural broadband also depends upon having an open, competitive application process that encourages the use of the most efficient technology, whether fiber, fixed wireless, WiFi or TV White Spaces. Because each geographic location has its own unique characteristics, fiber and fixed wireless technologies should be evaluated market-by-market to determine what combination of technologies will provide the most cost-effective solution. The best broadband solution may consist of a blend of wireline and wireless solutions. Promoting an open, competitive bidding process also will incentivize the most efficient service provider and avoid picking winners and losers.

Thus, by capitalizing on a combination of landline and wireless technologies, the efficiencies of competitive innovative companies, and an open interconnection policy, the “to and through anchors” approach has the potential to solve the digital divide for millions of rural Americans.

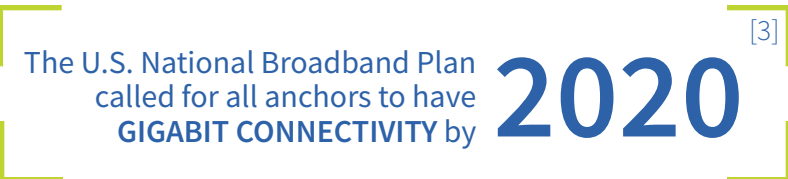


## Building Fiber to the Anchors

New findings by the CTC Technology and Energy [2] for the SHLB Coalition conclude that the total cost of connecting all unconnected anchors in the continental U.S. and Hawaii to fiber could be between **\$13 billion and \$19 billion, if connected in a coordinated and timely manner**. CTC first estimates the percentage of U.S. anchors that do not currently have fiber connections and then uses a cost model that reflects six different geographic typologies. It recognizes that different geographic regions require different infrastructure approaches.

This CTC cost estimate sheds light on the following:

- Connecting anchors would **bring 95% of the U.S. population within the zip code of an anchor institution's broadband**, making last mile deployment to residential consumers more feasible.

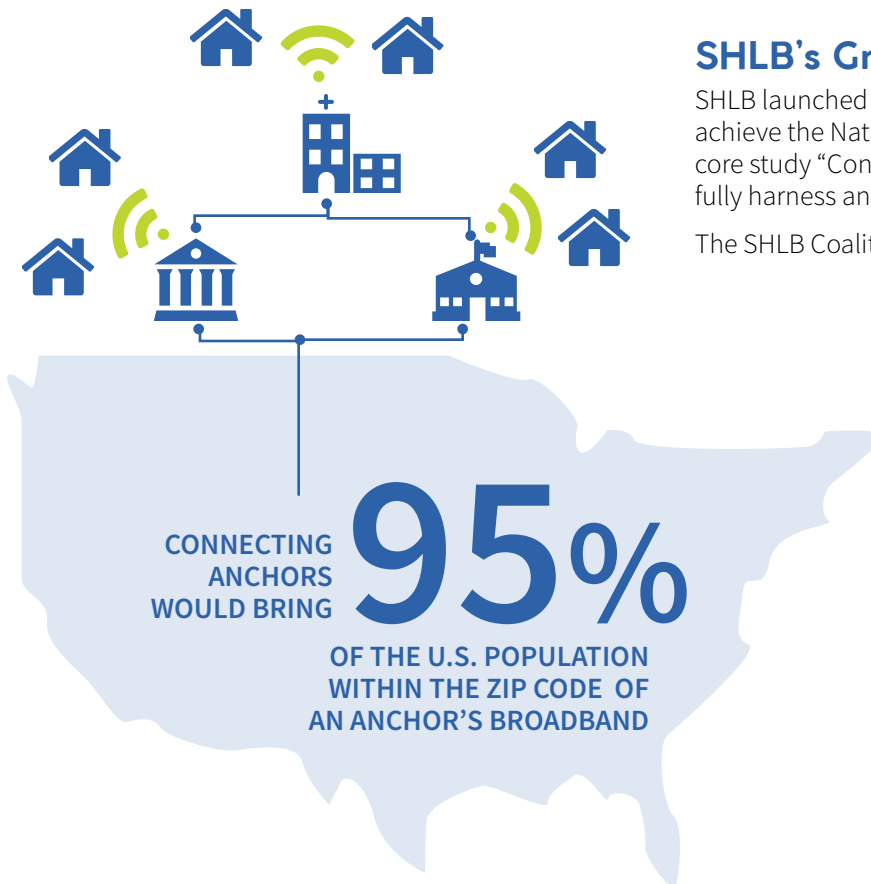


- This cost estimate could be lower if there is a significant and coordinated national effort.
- A staged national buildout planned for five to seven years would likely be short enough to enable efficiencies and maximize benefits while not causing labor and materials costs to spike as different regions of the country compete for resources.
- Broadband data collection could be improved with greater granularity and more consistency in data collection methods.

## Fixed Wireless

Fixed wireless technologies also provide high-speed broadband access via radio waves and can serve as an alternative to direct fiber connections. By using antennas, towers, and express line of sight to transmit point-to-point signals, fixed wireless technology can offer speeds comparable to fiber that can be deployed more rapidly and often for a fraction of the cost.

- Fixed wireless technologies have been successfully utilized to provide enterprise-level, high-speed broadband connections to anchor institutions in extremely rural parts of the country.
- These connections offer gigabit+ speeds to areas where traditional broadband technologies are not viable options due to topography challenges and a lack of fiber backhaul.
- This technology utilizes a variety of spectrum bands depending on transmission distance, topography, population density, etc. to ensure signal redundancy and network reliability.



## TV WhiteSpace

TV WhiteSpace (TVWS), also called “Super WiFi,” technology leverages the unused spectrum in the TV bands (below 800 MHz) to provide wireless Internet. Due to its lower radio frequency, it can deliver broadband to hotspots miles away and even pass through obstructions, such as trees and buildings.

- Base stations can transmit TV WhiteSpaces signals up to 10 miles in rural areas.
- A recent study concluded that TV white spaces is the best approach to efficiently connect about 80 percent of rural America, especially areas with a population density between two and 200 people per square mile.[4]
- There are many case studies of schools and libraries deploying TV WhiteSpaces connecting communities. For instance, Microsoft partnered with Mid-Atlantic Broadband Communities, B2X, and the Tobacco Region Revitalization Commission to build the “Homework Network.” [5] Local schools in underserved Charlotte and Halifax Counties extend their wireless networks to students’ homes using TVWS. Libraries that received grants through the “Beyond the Walls” program are now deploying TVWS services to their communities.[6]

## SHLB’s Grow2Gig+ Initiative & Policy Recommendations

SHLB launched its Grow2Gig+ campaign [7] in 2016 to connect all anchors to at least a gigabit connection. To achieve the National Broadband Plan Goal of gigabit connectivity by the year 2020, the SHLB Coalition released its core study “Connecting Anchor Institutions: A Broadband Action Plan”, which outlines policies and best practices to fully harness and promote this “to and through” model.

The SHLB Coalition also recommends:

- Fiber builds should take place in a **coordinated deployment** that leverages other infrastructure builds such as highways and tunnels (“dig once”).
- The FCC must allocate **sufficient spectrum below 800 MHz** for unlicensed TV Whitespace.
- The FCC should allow schools, libraries, and health providers to **extend their networks to nearby residents under the E-rate program and Rural Health Care programs** (though E-rate and RHC programs should not fund these extensions).
- Federal and state governments should **collect more accurate and granular data** about the broadband used by anchor institutions.
- Networks built with government support should have an **open interconnection policy** that will allow others to build off of those investments to serve the surrounding community.
- Applicants for E-rate and RHC funding and other USF programs should be able to submit a **single application** to make the most efficient use of all the USF funding programs.
- The White House and Congress must specifically include **dedicated broadband funding** in upcoming infrastructure legislation.