

# FCC Commits to Better Broadband Data Collection

There's evidence, but no promise, that a usable National Broadband Map is on the way. It will be awhile. We're watching – and using artificial intelligence (AI) software to check.

By Steven S. Ross / *Broadband Communities*

**A** new National Broadband Map may be on the way. It will be awhile, and it's not guaranteed that new data will even find its way into a user-accessible map. The need is critical, if the broadband industry is to spend money wisely on rural broadband or on connections to economically disadvantaged communities.

My studies over the past five years have attributed at least a quarter and as much as half of all rural population loss since 2010 to lack of broadband access. I can be sure about the one-quarter as a minimum because zero access means zero access, no matter how the map is drawn. Because the Federal Communications Commission (FCC) counts entire census blocks as having access even if only one customer in the block can access broadband, we can be far less sure about whether the population loss caused by poor broadband is greater than one-quarter. Block population typically ranges from 500 to 3,000 people. Here's what's going on and what I have been doing lately with the data I have.

In early August, the FCC directed several of its bureaus to develop a new portal that would accept broadband coverage maps (polygons) from providers of fixed broadband services in a format compatible with geographic information systems. The Universal Service Administrative Company, under the oversight of the FCC's Office of Economics and Analytics, the Wireline Competition Bureau, Wireless Telecommunications Bureau and the International Bureau are charged with the directive. The directive also calls for crowdsourcing – individual residents and businesses will be able tell the FCC how much broadband access they have, if any.

There is an expectation, but no promise, that the data will find its way into a revitalized National Broadband Map. The existing map is derived from data submitted by reporting carriers on FCC Form 477. If even one premises within a

census block is served, the whole census block is considered served. Nothing in the new directive changes anything on Form 477, at least not yet. Nothing in the directive applies to cellular access.

The directive applies to “fixed” providers, which includes those providing fixed wireless and satellite connections. A polygon can count a network as “available” to a premises only if the provider “has a current broadband [customer] connection or it could provide such a connection within 10 business days of a customer request, without an extraordinary commitment of resources, and without construction charges or fees exceeding an ordinary service activation fee.”

That is, the network provider “must be able to establish a connection within this time frame to every end-user location contained in the reported broadband coverage polygon ... for example, we expect a residence would be included only if the utility pole or conduit on the right of way adjacent to the residence is already wired and awaiting just a drop cable,” or if an existing wireless distribution point has the coverage and capacity to serve a premises.

I have argued that providers simply supply the addresses they serve now and the locations where their trunk lines supporting that service exist. Providers treat this information as a trade secret. But they *must* know that their competitors on the ground already have the information!

## AI TO THE RESCUE?

In fact, **BROADBAND COMMUNITIES** seems to have much of it as well. Our picture is still fuzzy, and it is not pretty. The FCC's Eighth Broadband Progress Report says “In rural areas, nearly one-fourth of the population – 14.5 million people – lack access. ... In tribal areas, nearly one-third of the population

Don't miss my financial modeling workshop at the **BROADBAND COMMUNITIES Driving America's Growth 2019** in Washington, October 31, at 3 p.m. This workshop is a near-zero-cost way to see if you're close enough to making a business case to hire a consultant. I'll show you how to do the basic calculations, using our free, robust, easily modified financial models. I'll also provide attendees with a thumb drive containing all the models, documentation and economic studies.

lacks access." I'm reasonably sure that the generally stated number of premises not able to access fixed broadband – 19 to 21 million – is too low. The real number seems to include a million more unserved premises, or about 2 million more unserved people. I'll explain.

The FCC data is odd. For example, there are about 42 million residents in counties the U.S. Department of Agriculture considers "rural," so 14.5 million people would be more than one-third, not one-fourth, of the rural population.

Where did we get the extra million? Using a powerful artificial intelligence tool called a random forest algorithm, I've been running data from all 1.7 million census blocks that are rural and populated (half the nation's 11-plus million census blocks have no population – they are mainly water or wilderness). The results are unstable. That is, small changes in the starting assumptions can change the results greatly. But carriers, local activists, local officials and electricity providers often know the access patterns for their areas because they know their own customers or have surveyed locally.

I have noticed something else, however. The U.S. Census Bureau likes to use railroad rights of way and roads as boundaries for census blocks. Carriers like to use these same features to locate trunk lines. So, a segment of a single trunk line, especially in rural areas, often serves at least two side-by-side census blocks! The AI software follows roads up through multiple blocks, known local points of presence (especially cell towers with fiber backhaul), and fixed wireless points (some bands are totally unregulated, others require a notice of location to the FCC). That can lead

to Form 477 misreporting, and more-reported but barely real block coverage for a given trunk.

In my published studies, I have been very conservative in reporting data. Because I use massive amounts of it (all 3,144 counties, all census blocks and so forth), the results are pretty much guaranteed to be statistically significant. But I never stop there. I have sliced data into smaller and smaller samples (all counties with a certain dominant economic activity, for instance). I report different results side by side when different calculation methods give different results. I use Bayesian statistics (with both known and "synthetic" average priors) as well as "conventional" statistical approaches. Bayesian methods apply known or "guessable, prior" probabilities to statistical problems.

The motivation is simple. This magazine does not want to bankrupt readers with bad or incomplete advice. At the same time, we realize that most carriers do not have access to expert statisticians.

I see our reports as opening new potential business opportunities by identifying potentially unserved areas. We believe there is a moral issue – today, almost everyone needs broadband access to participate in the national and world economy. But we also don't want to waste subscribers' money and time on a fool's errand.

We applaud the FCC for finally starting to pay attention. We will be watching as the methodology it has set in motion winds through a bureaucracy well known for listening too much to carriers and not enough to customers. ❖

Contact the Hawk at [steve@bbcmag.com](mailto:steve@bbcmag.com).

## Flexible Fiber Distribution Solutions



### CFDP Fiber Distribution Points

Closed architecture buried distribution pedestals with either a one-piece interior dome or inner security doors for superior 2-stage environmental protection of FTTP fiber distribution points



### CMPH Multi-Purpose Housings

Versatile OSP closures designed for both new provisioning installations as well as rehabilitation of existing fiber and copper access points housed in metallic enclosures



### CFBT Indoor Fiber Hubs

Ideal for MDU fiber deployment, CFBT Hubs are available in sizes supporting 48, 96, 144 or 384 SC/APC connectors with splice trays and splitters

**Charles**

INNOVATIVE ENCLOSED SOLUTIONS™

[charlesindustries.com](http://charlesindustries.com) • An Amphenol Company