# Co-ops Connect FYI

By Jonathan Chambers ● Oct 14, 2022

Smart Brevity® count: 5 mins... 1261 words

Updates and insights for electric cooperatives considering or operating rural broadband networks.

## Fiber to Every Rural Home: BEAD is More Than Enough



The level of BEAD funding is far more than adequate to complete the work started under the CAF II Auction and continued under CARES, RDOF and ARPA.

**The national goal is simple:** Fiber-optic networks connecting every rural home.

**How we got here:**

**In 2010,** the consultants working on the National Broadband Plan estimated that the cost to build fiber to every rural home would exceed $300 billion.

- That estimate, as much as any other factor, drove the federal government's view that rural fiber was prohibitively expensive.

- The FCC effectively decided *not* to close the digital divide and instead pursue "good enough" solutions, including DSL, fixed wireless and satellite.

- Over the decade to follow, the FCC committed nearly $50 billion to non-fiber solutions while the divide grew.

**The big question:** What's next?

**As a nation, will we make that mistake again?**

- Will exaggerated costs to build fiber networks divert public resources to sub-optimal technologies?

- Or will we commit to close the digital divide with fiber optic networks to every rural community?
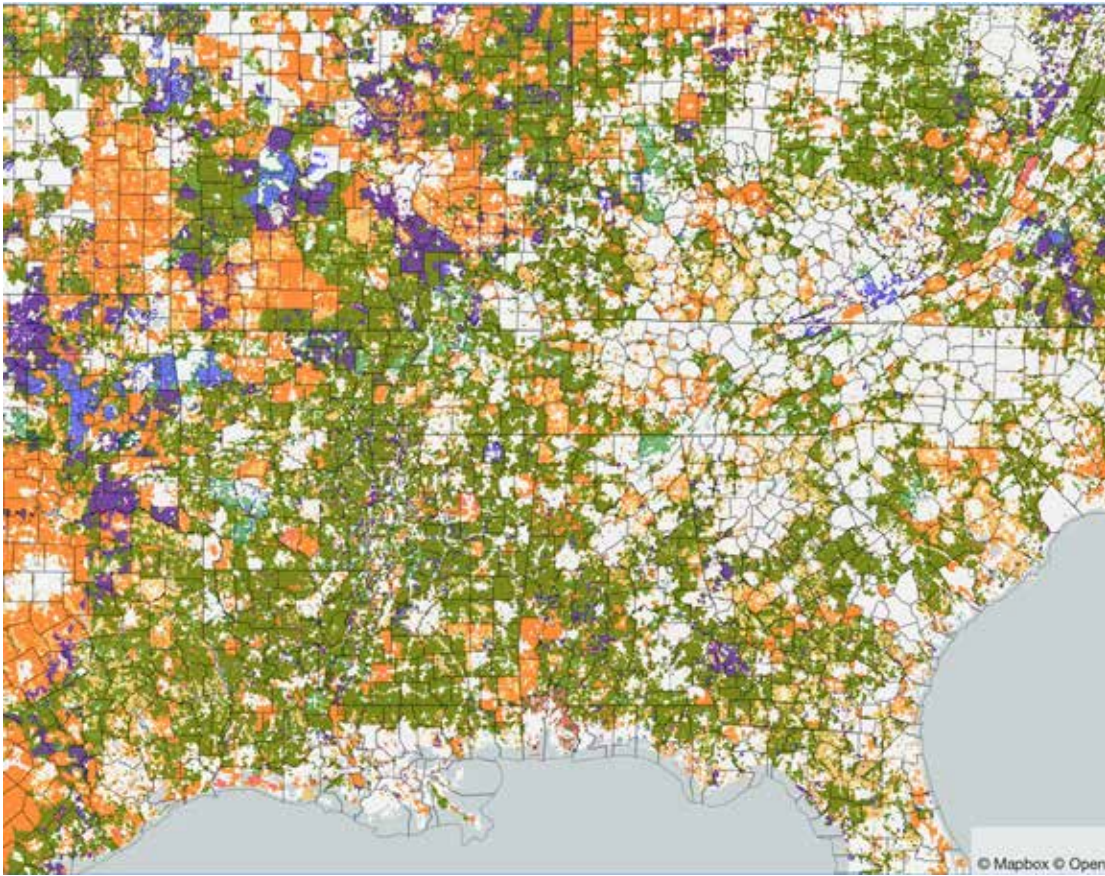
# By the Numbers, Part 1

**To determine whether BEAD ($42.45 billion) is sufficient** for fiber to every rural home, we looked at the numbers in two ways.

**First question:** What is the cost of constructing fiber networks to unserved and underserved locations in each state and each county?

- **For cost,** we created a regression analysis based on our costs of construction.

  — Conexon is currently managing the construction of over 1,000 miles a week on projects that cover approximately 10% of nation's geography.

  — We have modeled over 20% of the nation's geography.

  — We have a high degree of confidence in our modeling in parts of the country where we construct the most, such as the southeast, and less confidence in other areas of the country, such as the west coast.

- **For the count of unserved and underserved locations,** we have used the latest publicly available data from the FCC.

  — When the FCC publishes new data, we will update our maps and models.

- **We have also calculated the BEAD allocation to every state.** The country is still waiting on the FCC and NTIA to publish maps and allocations, but we are tired of waiting.



**Our conclusion:**

$42.45 billion is enough *to construct* fiber to every unserved and underserved location if the construction is done efficiently.

The amount of public funding needed, of course, would be far less.

# By the Numbers, Part 2

**Next question:** How much public funding is needed?

**To calculate,** we looked at state and federal broadband programs launched over the past decade.

**Programs fall into two categories:**

1. Model-based

2. Competitive bidding

Among the recommendations contained in the National Broadband Plan was a proposal to use competitive bidding mechanisms for the FCC's rural universal service spending.

- It took the FCC 8 years prepare and run a medium-sized auction, the Connect America Auction, and two more years to run a larger auction, the Rural Digital Opportunity Fund Auction.

- Prior to those auctions, the FCC used a model-based approach to determine the amount of subsidies offered to the telecommunications industry.

- Three models, actually:

1. **Connect America Cost Model (CAM)**

2. **Alternative Connect America Model (ACAM)**

3. **ACAM II**

The amounts offered were as follows:

## CAF II Right of First Refusal (2015)

- Offer to large price cap carriers ($10 billion)

- Based on Connect America Cost Model (CAM)

- $411 per location per year average (6 years)

- 10/1 Mbps obligation

## Alternative Connect America Model I (2016)

- Offer to rate of return carriers ($12 billion)

- $840 per location per year average (10 years)

- 4/1 Mbps, 10/1 Mbps, 25/3 Mbps obligation

## ACAM II (2019)

- Offer to rate of return carriers ($4.9 billion)

- $1,079 per location per year average (10 years)

- 4/1 Mbps, 25/3 Mbps obligation

The FCC offered $2,466 per location, then $8,400 per location, then $10,079 per location to telephone companies to provide DSL service.

**Then came auctions and other competitive funding programs.**

And what a difference these programs made.

- *Instead of DSL service at 25/3 Mbps, bidders and applicants committed to Gigabit services.*

- *Instead of $10,000 per location, bidders and applicants on average accepted $2,000 per location.*

These competitive bidding programs included:

- **State appropriations, such as:**

  — New York: $487 million, 256K homes (2016)

  — Virginia: $846 million, 429K homes (2021)

- **Connect America Fund II Auction (2018)**

  — $1.5 billion, 700K location, 25% Gigabit

  (Of note: The Rural Electric Cooperative Consortium was the largest winning bidder at the Gigabit tier, received $2,000 per location on average, and has already completed much of the fiber construction.)

- **ReConnect (2019)**

- **CARES Act (2020)**

  (Of note: Mississippi electric power associations together received $74 million and over the course of just a few months constructed several thousand miles, passing tens of thousands of previously unserved locations.)

- **RDOF (2020)**

  — $7 billion, 4 million locations, 95% Gigabit

  (Of note: The RDOF areas were comprised of the exact same areas funded under the CAF on a non-competitive basis.  The FCC spent $10 billion for 10/1 Mbps service covering just under 4 million

locations. Then, the auction produced a $7 billion commitment for Gigabit service to the same 4 million locations.)

- **ARPA Phase 1 & 2 (2022 & 2023)**

  — $10 billion, most states currently (see the Georgia example below)

- **BEAD (2023)**

  — *$42.45 billion*

**Why it matters:**

**By injecting competition** into the programs run by different federal agencies and states:

1. **The amount of funding per location significantly decreased.**

2. **The level of service significantly increased.**

**The bottom line:**

On average, the amount of public funding needed for Gigabit services in rural areas has consistently been approximately **$2,000 per location**.

- In less dense unserved areas, the amount needed may be $5,000 to $10,000 per location.

- In denser underserved areas, the amount may be closer to $1,000 per location.

**But over and over again,** the economics of competitive bidding have revealed the average broadband grant level to be $2,000 per location.
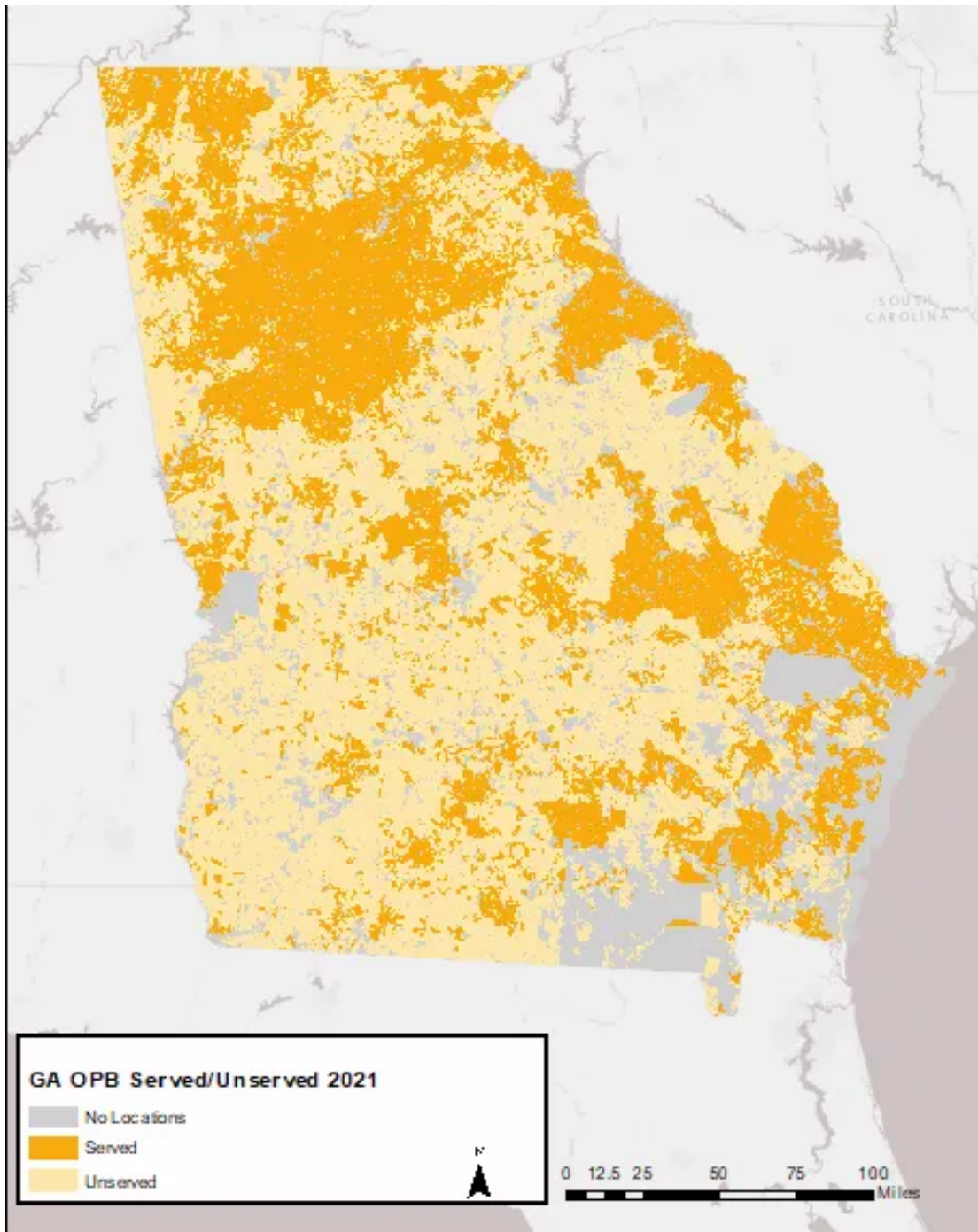
## The Big Picture

We should have an indication from the FCC by year's end as to the number of locations deemed unserved or underserved.

- The cable broadband industry repeatedly claims to cover 90% of all homes with DOCSIS 3.1, which would leave approximately 13 million homes unserved.

- Earlier this year, the FCC's principal mapping consultant suggested that the figure may be 22 or 23 million locations.

- CARES, ReConnect, RDOF and ARPA funded areas will not be covered by BEAD. Thus, whatever number is produced by the FCC or state maps, you must subtract from that figure the locations that are receiving funds.

- This will reduce the BEAD-eligible number by 5-10 million.
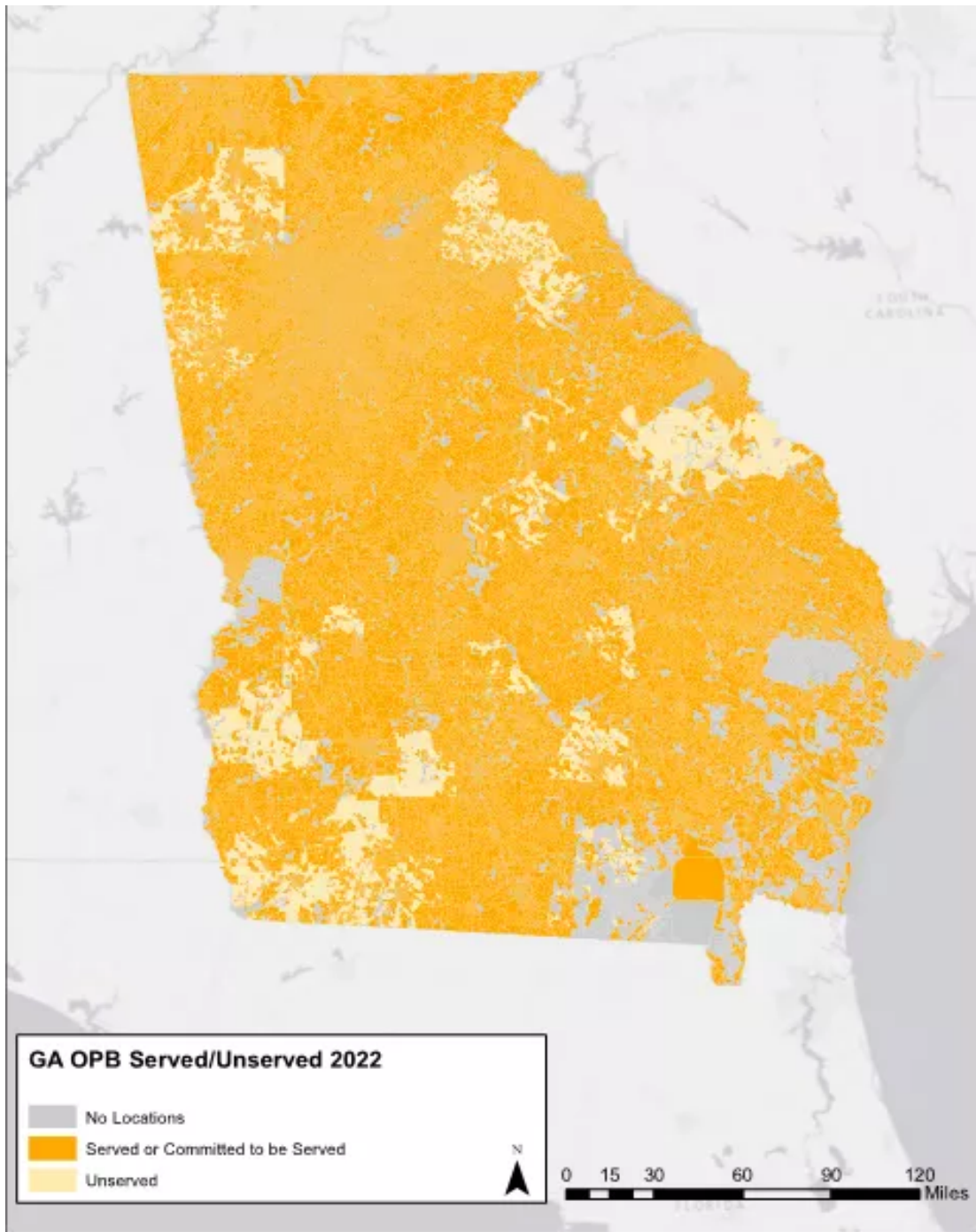
- In short, BEAD will be more than enough.

**In fact, BEAD may be so much more than enough** that states will struggle to use the funds available.

**Take, for example, Georgia,** which has completed its first phase and begun its second phase of ARPA.

Below is a map of Georgia *prior to funding from Phase 1*.



**GA OPB Served/Unserved 2021**

| | |
|---|---|
| No Locations | |
| Served | |
| Unserved | |

0  12.5  25    50    75    100 Miles

**Compare this** to the map *prior to Phase 2.*

**GA OPB Served/Unserved 2022**

- No Locations
- Served or Committed to be Served
- Unserved

0   15   30        60        90        120
                                    Miles

**Why it matters:**

**I expect** there will be *fewer than 10,000 locations left unserved* following Georgia's current round of funding.

- **Yes, but:** We calculate that Georgia will be allocated $1.1 billion from BEAD.

**What's next:**

**It may seem premature** to discuss how to spend the excess funds, but it should be a component of state broadband plans.

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