



# TFI 2020 Conference Federal & State Broadband Activities

James W. Stegeman, President/CEO CQA  
1/23/2020

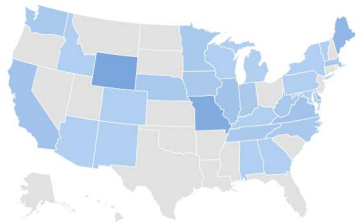


# State Efforts

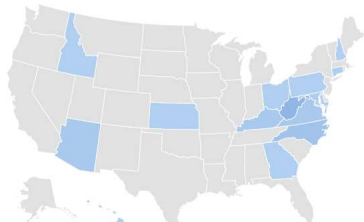
# State Broadband Programs

- State Programs:
  - The following maps summarize the current activity in states:

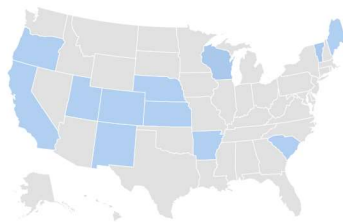
Fund specific to Broadband



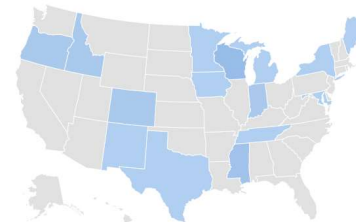
Fund can be used for Broadband



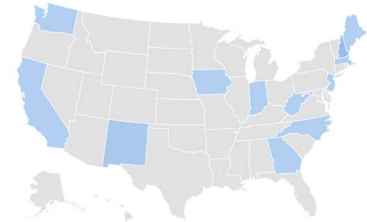
USF Program



Tax Incentives



Provides Financing



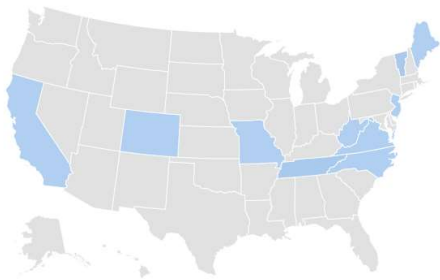
- For a detail on each state, see <https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2019/state-broadband-policy-explorer>
  - Examples:
    - NY State auction 500B in a reverse auction – preferred solutions offering 100mb
    - PA State incentive auction – coincided with FCC CAF II auction – encouraged bidders in PA
- For a summary on each state, see [https://www.pewtrusts.org/-/media/assets/2019/07/bri\\_agencies\\_v1.pdf](https://www.pewtrusts.org/-/media/assets/2019/07/bri_agencies_v1.pdf)

New York		
Office	State Broadband Program Office	<a href="https://nysbroadband.ny.gov">https://nysbroadband.ny.gov</a>
Goal	The New NY Broadband Program seeks to drive statewide broadband access, at download speeds of 100 megabits per second in most places and 25 Mbps in the most remote and rural areas.	<a href="https://nysbroadband.ny.gov/about">https://nysbroadband.ny.gov/about</a>
Agency	Empire State Development	<a href="https://esd.ny.gov/milestones-reached-toward-broadband-all">https://esd.ny.gov/milestones-reached-toward-broadband-all</a>
Fund	New NY Broadband Program	<a href="https://nysbroadband.ny.gov/about">https://nysbroadband.ny.gov/about</a>

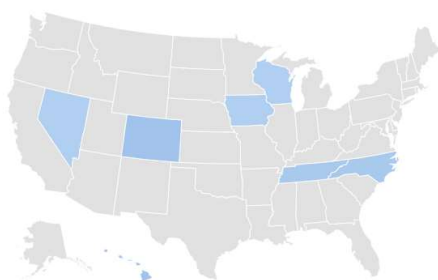
# State Broadband Programs

- In addition to financial support, states have also instituted programs to assist in infrastructure access for broadband
  - The maps below provide a summary of programs

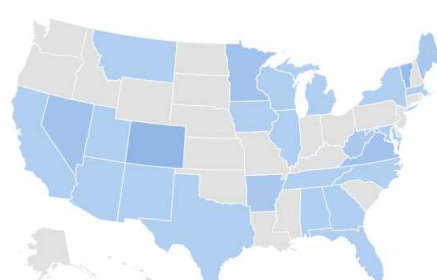
Pole Attachment



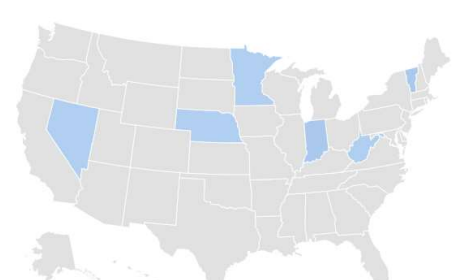
Permitting



Right of Way



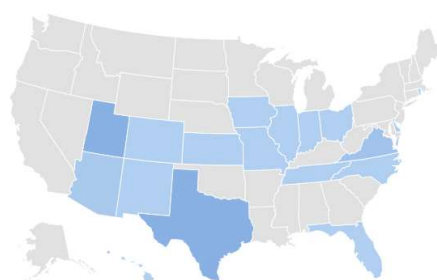
Other, Including MicroTrench



Wireless Facilities



Small Cell Facilities



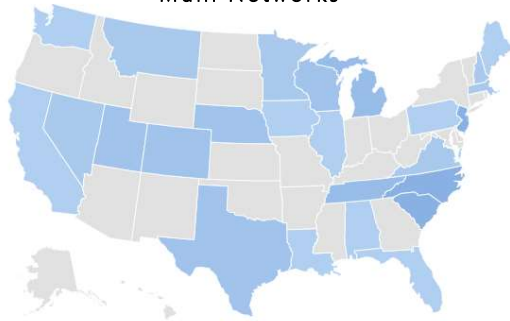
Open Access



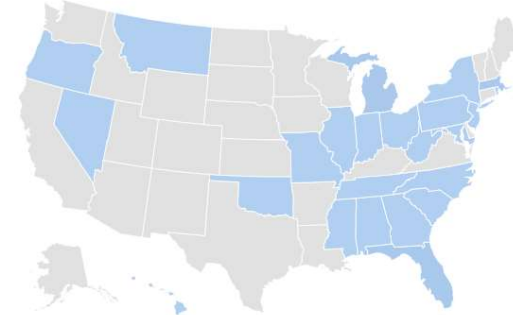
# State Broadband Programs

- Finally, states have addressed specific items of competition and regulation

Muni Networks



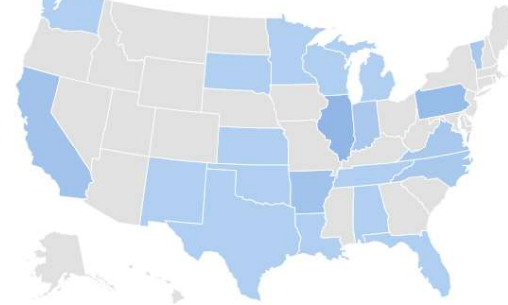
Regulatory Authority



Coops



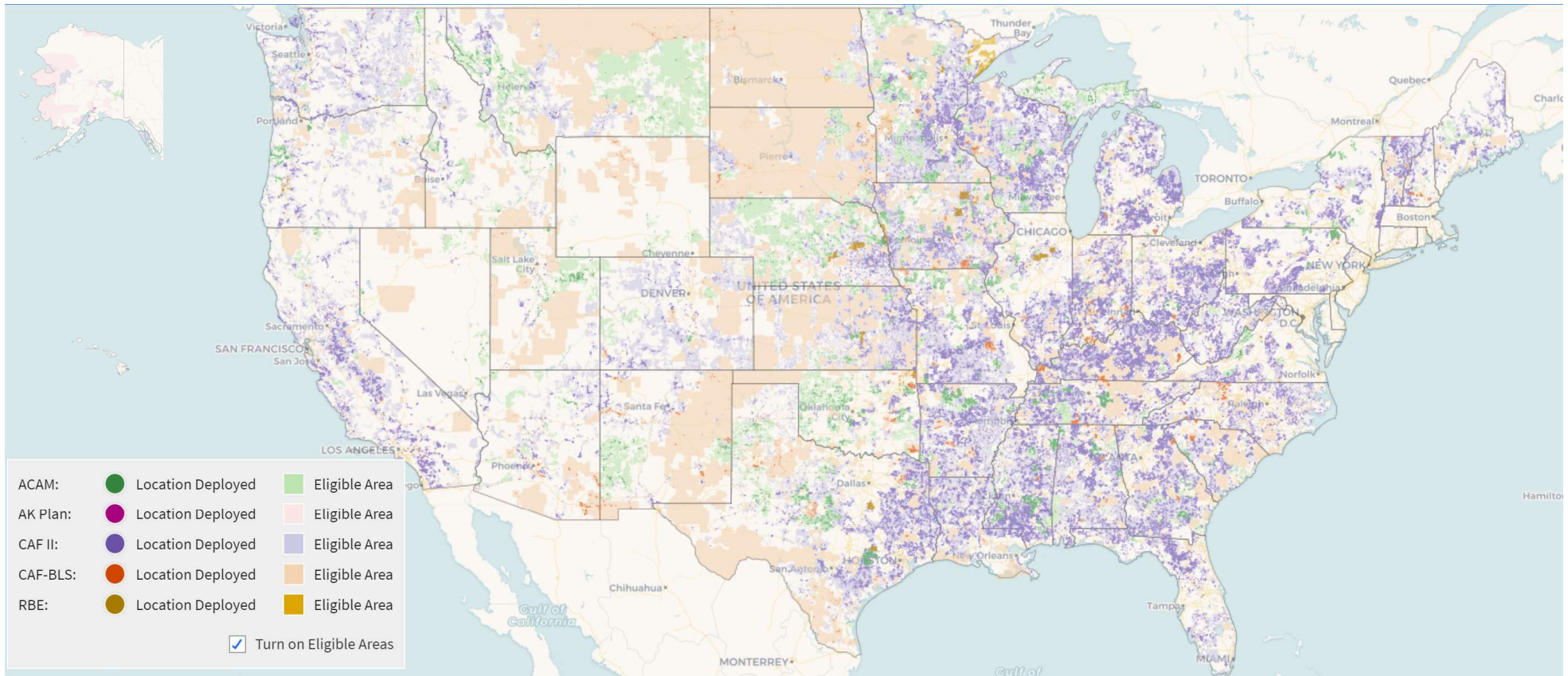
Other Elements of Service Provisioning



# Federal Efforts



# FCC High Cost Support



# FCC High Cost Support – Cumulative through 2018

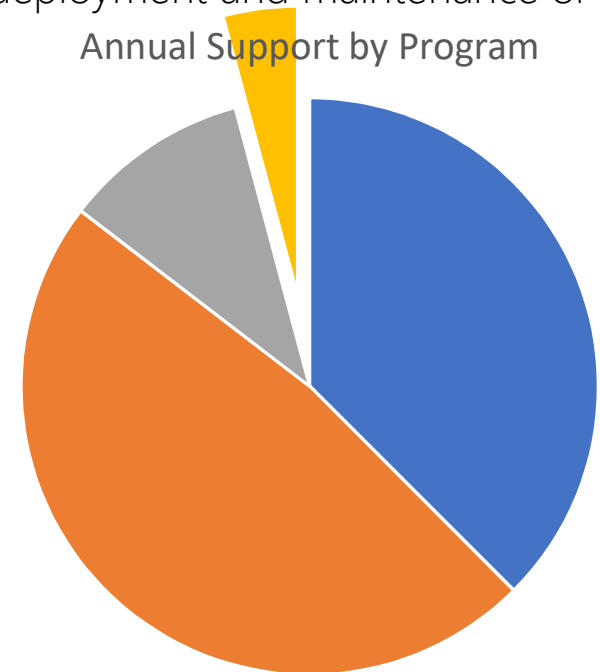
Company/Fund	ACAM	AK Plan	CAF II	CAF-BLS	RBE	Grand Total
ACAM	1,133,463,781					1,133,463,781
AK Plan		100,167,804				100,167,804
ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.			44,319,321			44,319,321
AT&T INC.			1,315,679,016			1,315,679,016
CAF-BLS				293,082,961		293,082,961
CENTURYLINK, INC.			1,942,217,448			1,942,217,448
CINCINNATI BELL INC.			8,467,567			8,467,567
CONSOLIDATED COMMUNICATIONS HOLDINGS, INC.			9,472,191			9,472,191
CONSOLIDATED COMMUNICATIONS INC			23,373,802			23,373,802
CONSOLIDATED COMMUNICATIONS INC.			124,645,911			124,645,911
CONSOLIDATED COMMUNICATIONS, INC.			53,353,724			53,353,724
FRONTIER COMMUNICATIONS CORP.			1,607,934			1,607,934
FRONTIER COMMUNICATIONS CORPORATION			1,269,869,212			1,269,869,212
HAWAIIAN TELCOM COMMUNICATIONS, INC.			16,548,790			16,548,790
MUTUAL TELEPHONE COMPANY (IA)			7,333,715			7,333,715
PTI PACIFICA INC.			7,881,516			7,881,516
RBE					10,484,512	10,484,512
WINDSTREAM HOLDINGS, INC.			691,995,961			691,995,961
WINNEBAGO COOPERATIVE TELECOM ASSOCIATION			470,637			470,637
<b>Grand Total</b>	<b>1,133,463,781</b>	<b>100,167,804</b>	<b>5,517,236,745</b>	<b>293,082,961</b>	<b>10,484,512</b>	<b>7,054,435,803</b>



# Connect America Fund Programs

- The purpose of the Connect America Fund is to ensure that advanced telecommunications services in rural, insular and high-cost areas are “reasonably comparable” to those in urban areas.
- CAF provides over \$4.5 billion in annual subsidies to support the deployment and maintenance of broadband-capable networks, including mobile networks.
- 4 CAF Programs
  - Price Cap Carriers (\$1.8B per year through 2020)
  - Rate of Return/Small Telcos (\$2.3B per year through 2026)
  - Mobility Fund (\$0.5B per year through 2028)
    - 5G Fund was announced as a replacement – maybe 2021
  - CAFII Auction (\$2B total, \$0.2B per year through 2028)

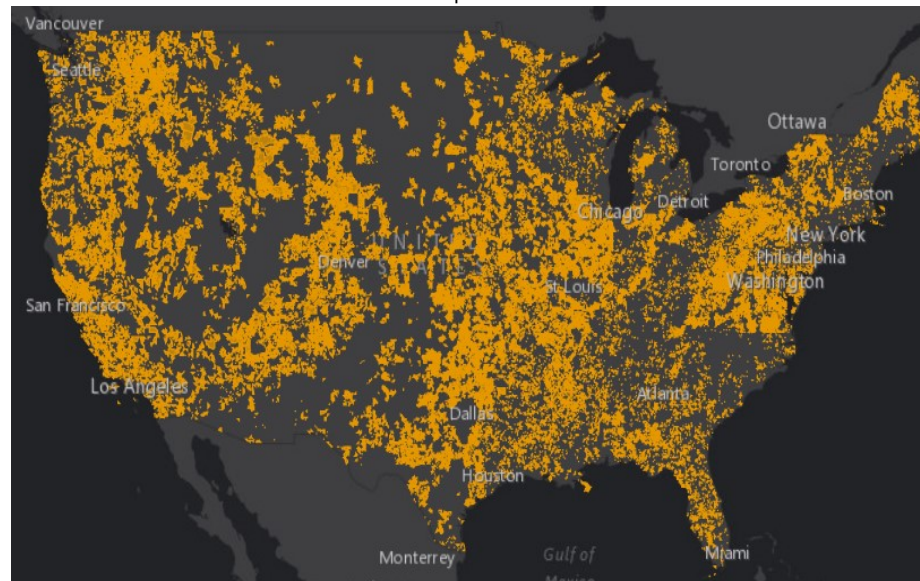
Annual Support by Program



# CAFII Auction: Geographic Areas

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- List included over 300,000 census blocks and 1.4M locations
- Three Geographic Areas:
  - Where Price Cap carriers (e.g., AT&T, Verizon) rejected the FCC's offer of support
  - "Extremely high cost" areas according the FCC cost model
    - the most expensive 1% of the population in the country to serve with fiber
  - Areas that received bids in the Rural Broadband Experiment auction



# CAFII Auction: Design and Bidding Process

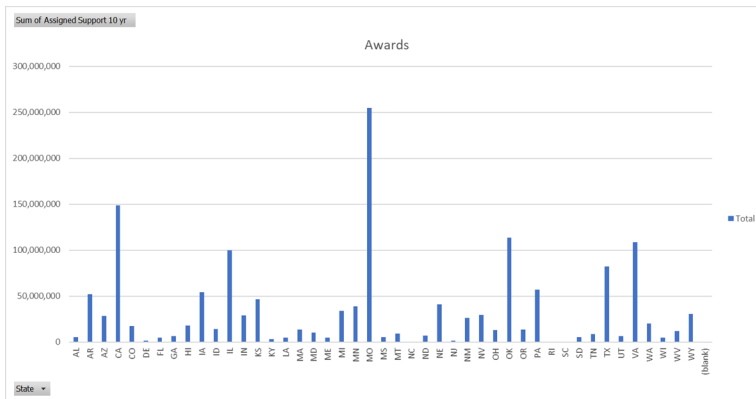
- Reverse Auction
  - Multiple round, descending clock auction
  - Two stages: geographic independent stage until budget sufficiency followed by head-to-head bidding
- Weighting of the Tiers
  - FCC adopted “weights” for various speed and latency combinations to account for consumer preference for high-speed, low-latency service
  - Support reduced by tier weights:
    - $\text{Support} \approx (B/R - W)/100 * R$ 
      - B = Bid Amount
      - R = Reserve Price
      - W = Weights for Speed + Latency

TIER	SPEED	MONTHLY CAPACITY	WEIGHT
<b>Gigabit</b>	1 Gbps/500 Mbps	$\geq 2$ TB	0
<b>Above-Baseline</b>	100 Mbps/20 Mbps	$\geq 2$ TB	15
<b>Baseline</b>	25 Mbps/3 Mbps	Higher of 150 GB or U.S. median	45
<b>Minimum</b>	10 Mbps/1 Mbps	150 GB	65
<b>Latency</b>	For each tier, providers must commit to either low latency ( $\leq 100$ ms) or high latency ( $\leq 750$ ms) and a Mean Opinion Score (“MOS”) of $\geq 4$		25

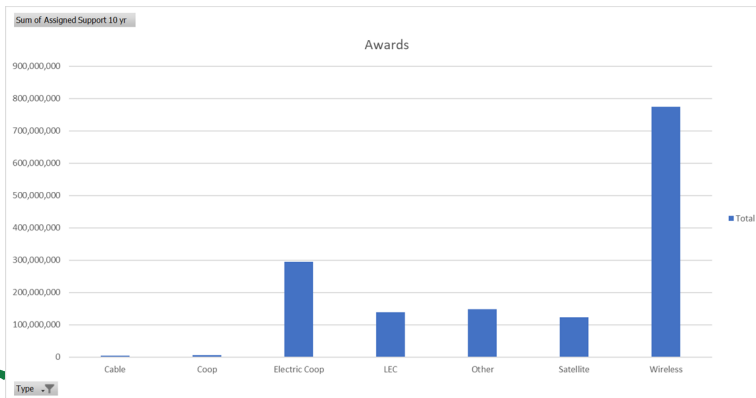
# CAF II Auction: Results

- CAFII Awards

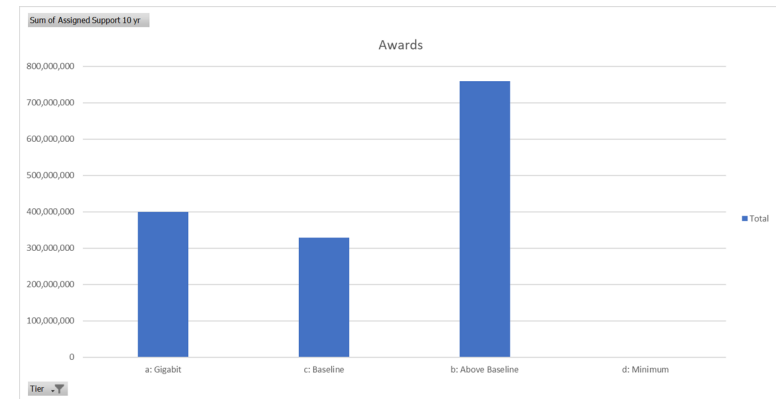
By State



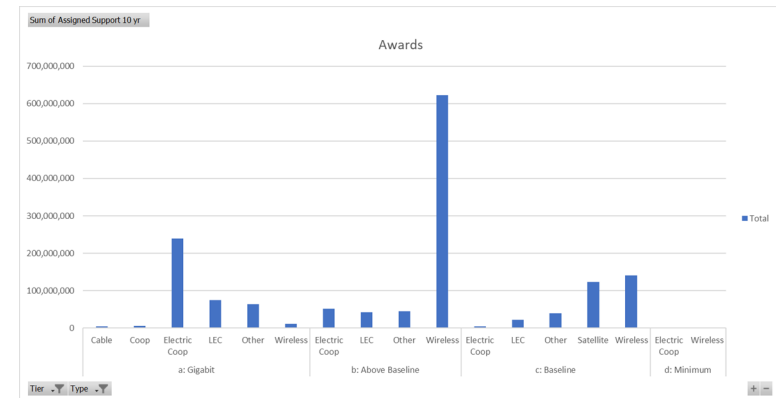
By Carrier Type



By Speed Tier



By Carrier Type and Speed Tier



# Net Neutrality

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- Net Neutrality
  - Court agreed with FCC's roll back on Net Neutrality at the Federal level
  - Left the door open for potential application at the State level

# RDOF

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- Remote Digital Opportunity Fund ("RDOF")
  - Replacement for CAF funding in Price Cap areas
  - Two phase auction
    - Phase 1: Likely late summer 2020
      - \$16B, over 10years
      - Census Blocks that are reported as wholly unserved in latest 477
    - Phase 2: Post DODC
      - \$4B (+ funds not used in Phase 1), over 10 years
      - Census Blocks that are partially unserved, as identified in new DODC efforts
  - Phase 1 eligible areas include
    - CBs not receiving 25/3 Broadband
    - Those CBs currently receiving CAF funding
    - CBs not funded previously where the average cost to serve is above 40\$ in the FCC's CACM
      - Except in Native American areas and areas not receiving 10/1 service or greater – benchmark will be \$30
  - Process similar to CAFII Auction
    - Reverse Auction
    - Reserve set using CACM (CQA) model
    - Lowest allowable speed tier raised to 25/3, added 50/5 speed tier
    - Clearing round modified – highest speed, if only one, wins



# RDOF

- RDOF Reverse Auction Weights

## Performance Tiers, Latency, and Weights

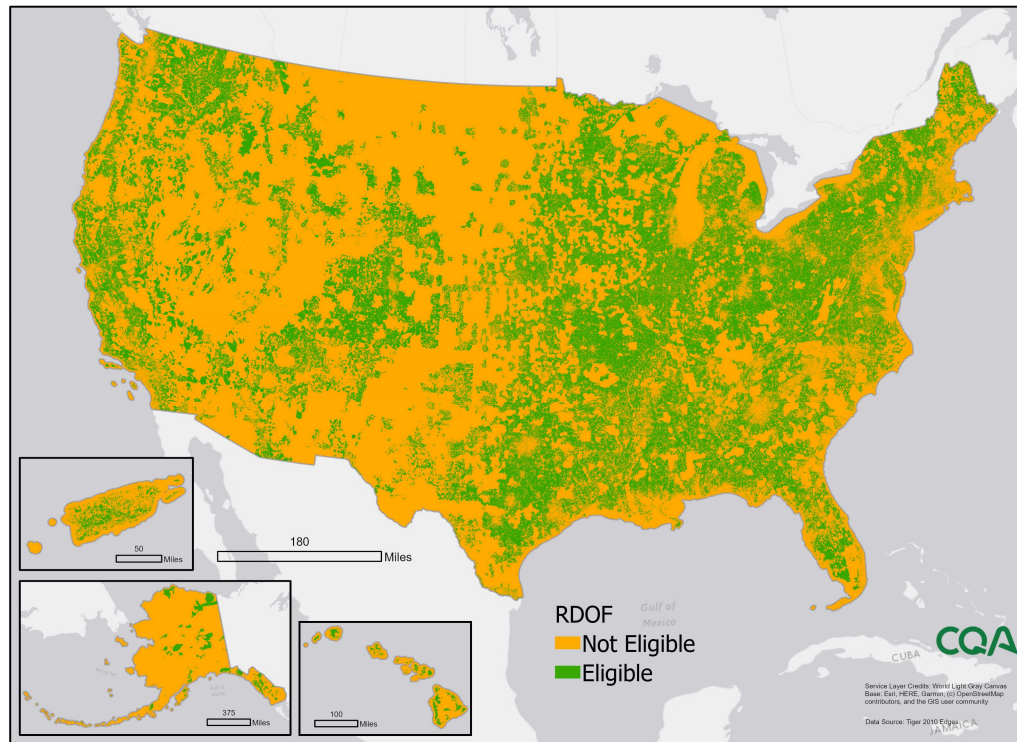
Performance Tier	Speed	Monthly Usage Allowance	Weight
<b>Minimum</b>	$\geq 25/3$ Mbps	$\geq 250$ GB or U.S. average, whichever is higher	50
<b>Baseline</b>	$\geq 50/5$ Mbps	$\geq 250$ GB or U.S. average, whichever is higher	35
<b>Above Baseline</b>	$\geq 100/20$ Mbps	$\geq 2$ TB	20
<b>Gigabit</b>	$\geq 1$ Gbps/500 Mbps	$\geq 2$ TB	0

Latency	Requirement	Weight
<b>Low Latency</b>	$\leq 100$ ms	0
<b>High Latency</b>	$\leq 750$ ms & MOS $\geq 4$	40

# RDOF

- FCC estimates ~6M locations will be in the Phase 1 Auction
  - Map is our early estimate of areas

**Rural Digital Opportunity Fund Eligible Area**



State	Bid-Eligible Locations
Alabama	211,000
Arizona	147,000
Arkansas	222,000
California	421,000
Colorado	99,000
Connecticut	4,000
Delaware	8,000
Florida	143,000
Georgia	197,000
Hawaii	17,000
Idaho	76,000
Illinois	246,000
Indiana	202,000
Iowa	68,000
Kansas	63,000
Kentucky	108,000
Louisiana	188,000
Maine	35,000
Maryland	49,000
Massachusetts	34,000
Michigan	286,000
Minnesota	134,000
Mississippi	231,000
Missouri	236,000

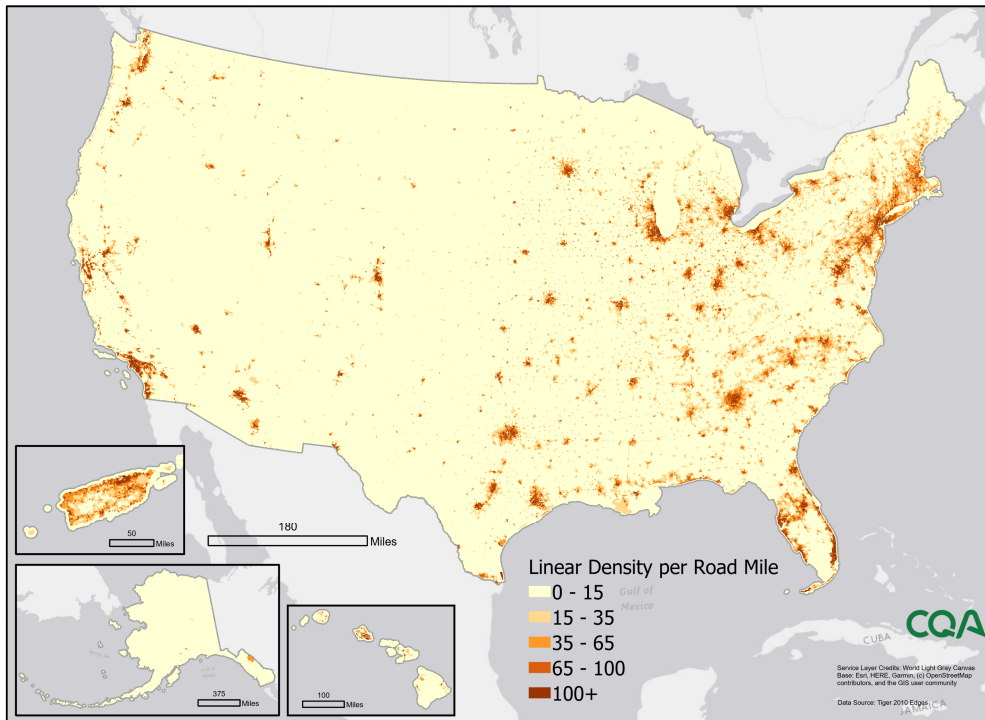
State	Bid-Eligible Locations
Montana	50,000
Nebraska	54,000
Nevada	34,000
New Hampshire	21,000
New Jersey	14,000
New Mexico	74,000
North Carolina	169,000
North Dakota	5,000
Ohio	215,000
Oklahoma	162,000
Oregon	91,000
Pennsylvania	197,000
Rhode Island	5,000
South Carolina	120,000
South Dakota	14,000
Tennessee	182,000
Texas	381,000
Utah	16,000
Vermont	26,000
Virginia	217,000
Wisconsin	271,000
Washington	115,000
West Virginia	130,000
Wyoming	21,000

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# RDOF

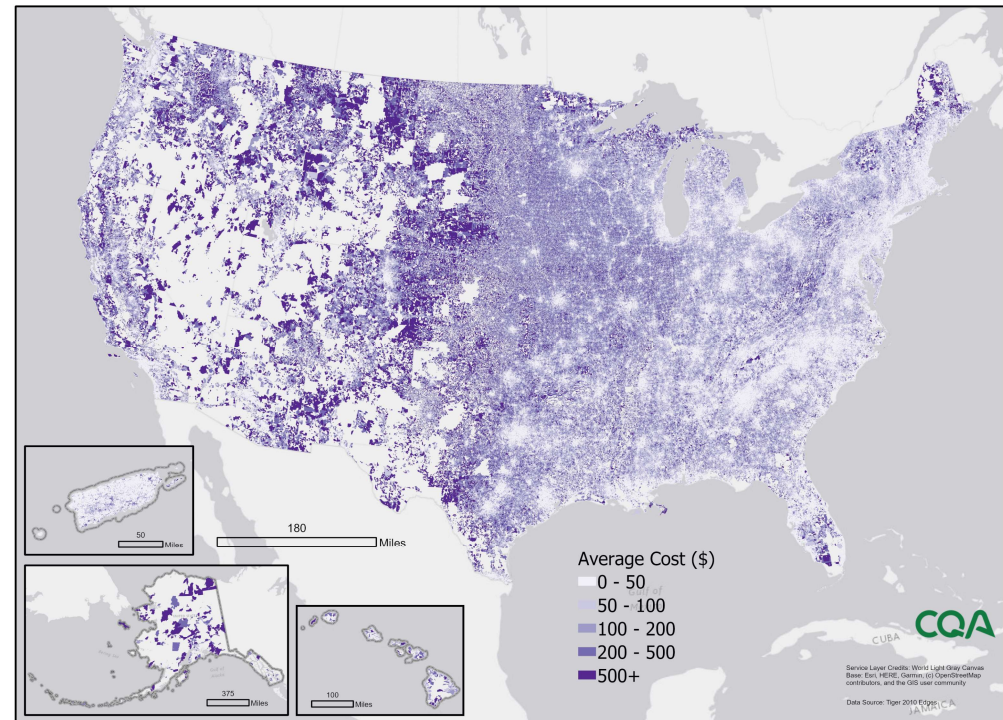
- RDOF Areas – Issues with Cost/Capital requirements

Linear Density



Model • Measure • Manage

Fiber to the Perm Average Monthly Service Cost



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# DODC

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- Digital Opportunity Data Collection ("DODC")
  - Potential replacement of the FCC 477 reporting
  - Move from carriers filing at the CB level to sub CB (e.g., coverage polygons)
  - Will be used for Phase 2 of the RDOF auction
  - Potential tie to the Broadband Serviceable Location Fabric
    - Lat/Lon of every broadband location in the country

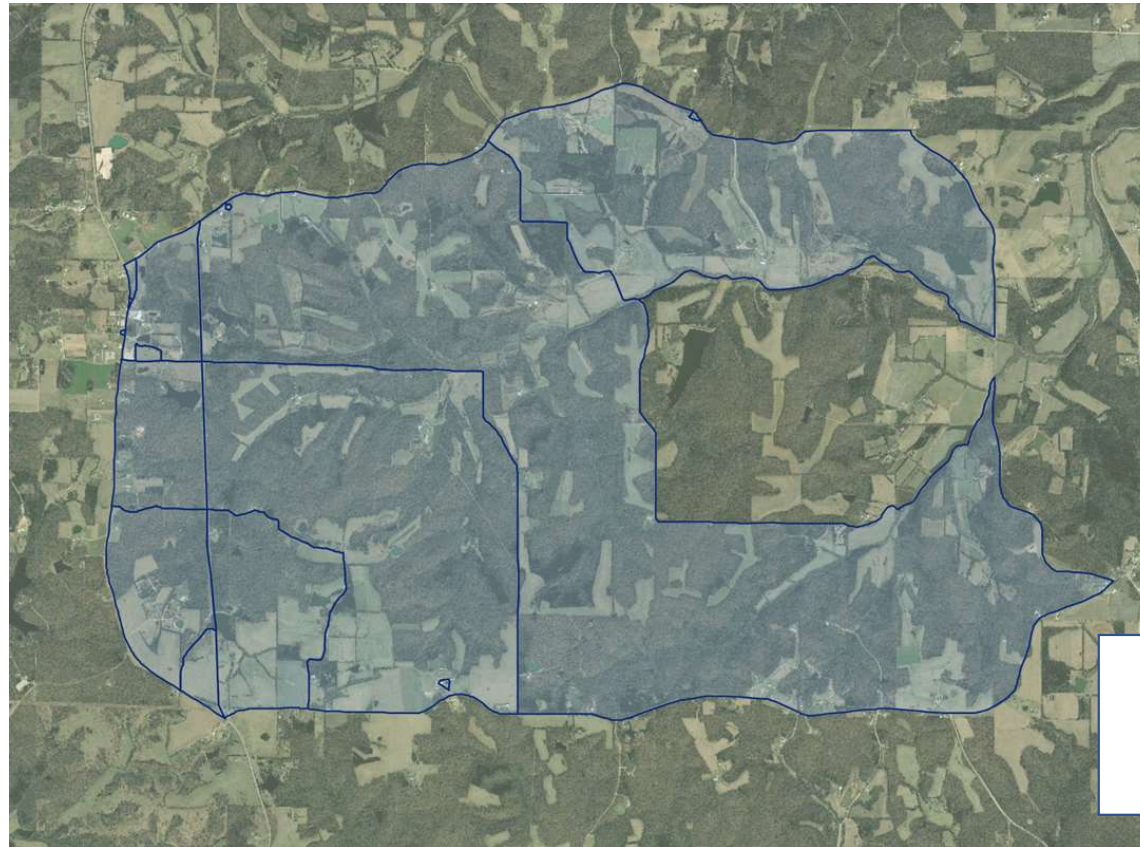


# DODC Coverage

~10 Census Blocks  
in MO that would  
be identified as  
SERVED in today's  
477

"One-served,  
All-served"

*Blue shaded area  
represents the  
coverage of the 10  
Census Blocks*



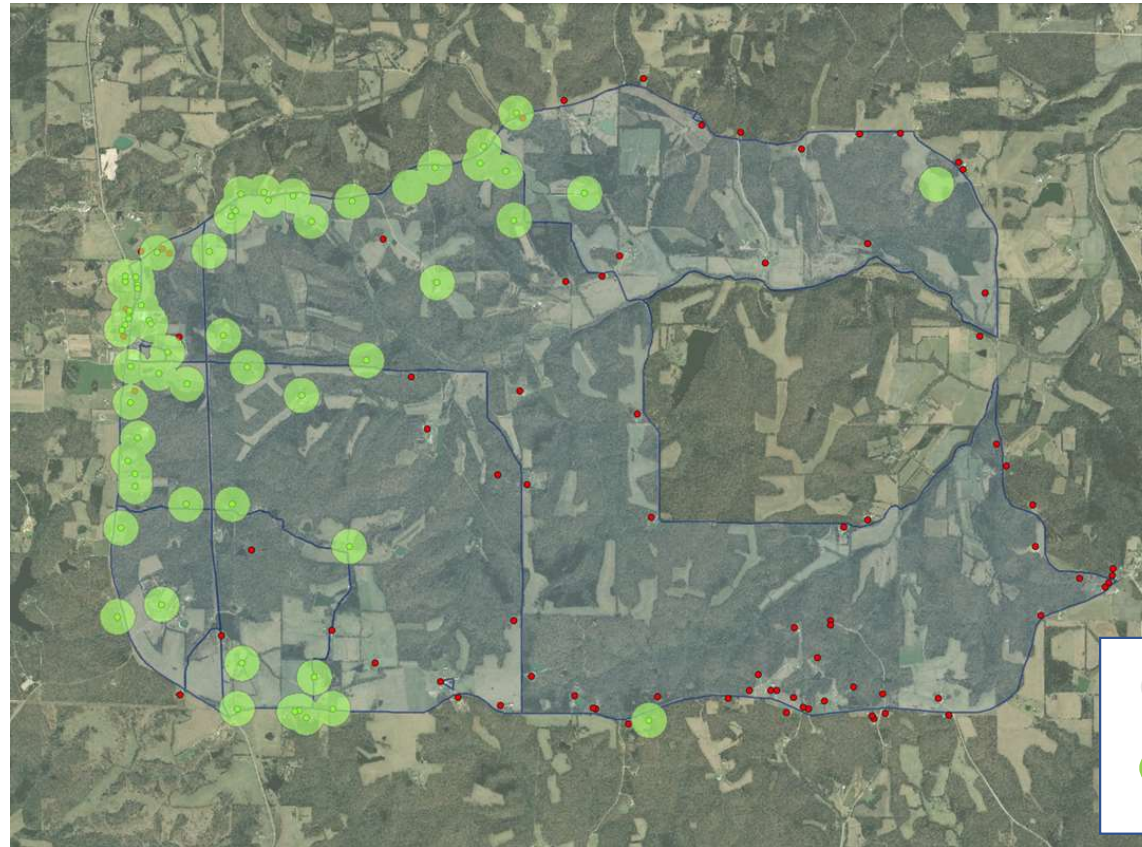
Coverage Area: ~10  
Census Blocks



# DODC Polygons

The FCC's DODC order will required carriers to file polygons representing served areas. However, methods and basis have not been settled.

Polygons Based on:

- Served Fabric locations
- 150ft buffers about the latitude and longitude of the Fabric point



-  Coverage Area: 10 Census Blocks
-  Coverage Polygons: Pearls Based on Location Points

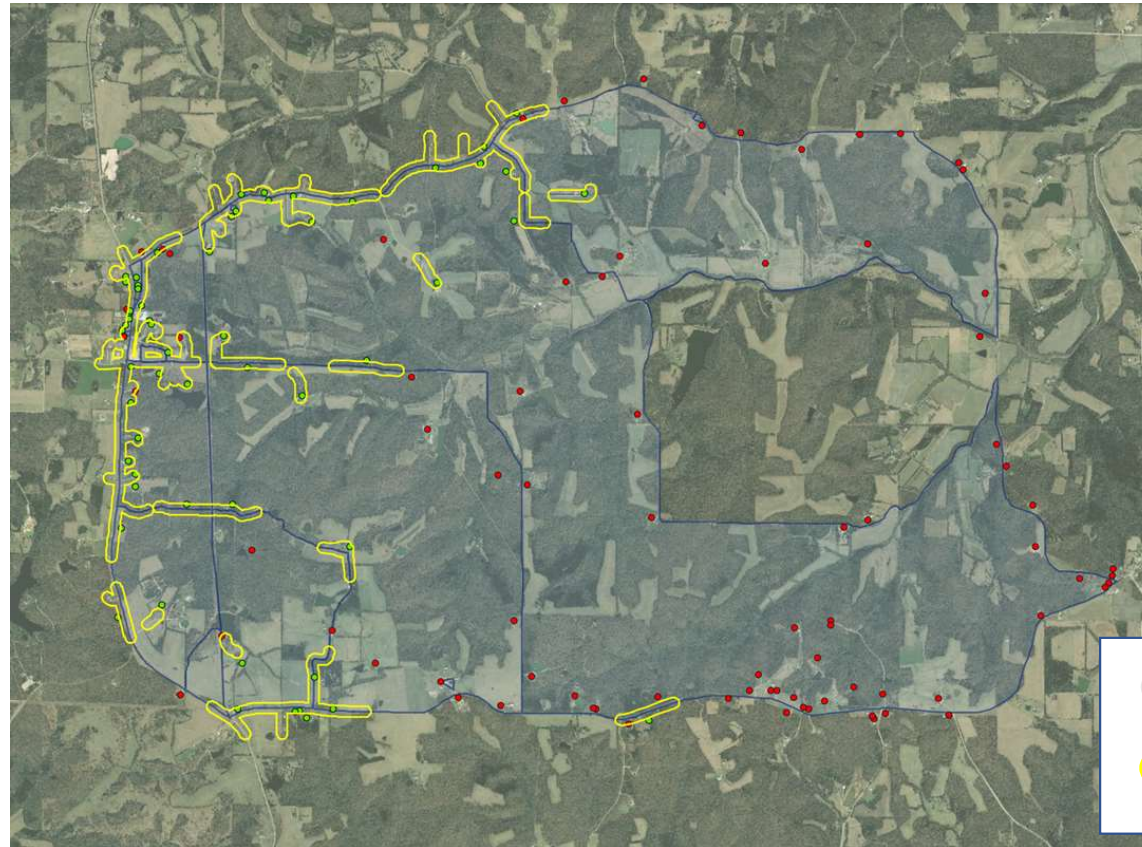




# DODC Polygons

The FCC's DODC order will required carriers to file polygons representing served areas. However, methods and basis have not been settled.

Polygons based on:

- Served Fabric locations
- 150ft buffers about road segments touched by a Fabric point



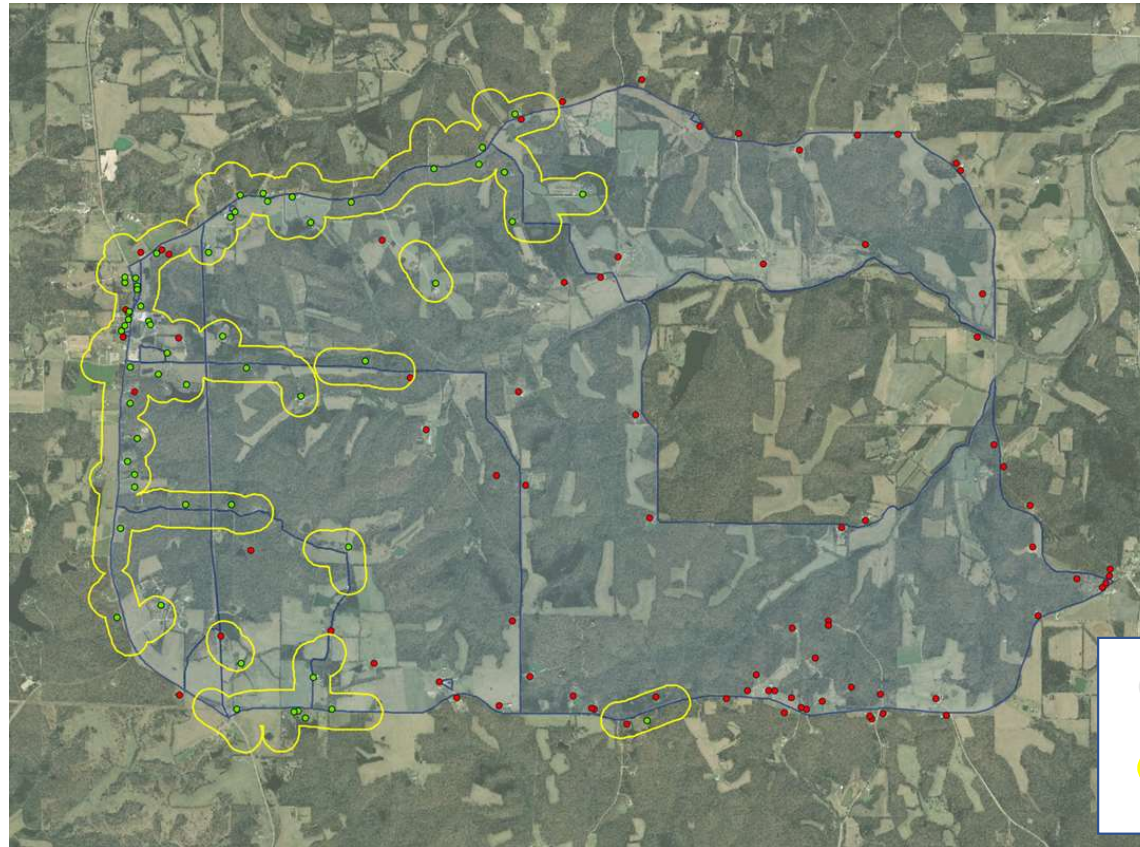
-  Coverage Area:  
10 Census Blocks
-  Coverage Polygons:  
Segments Based on  
Location Points



# DODC Polygons

The FCC's DODC order will required carriers to file polygons representing served areas. However, methods and basis have not been settled.

Polygons Based on:

- Served Fabric locations
- 500ft buffers about road segments touched by a Fabric point



-  Coverage Area:  
10 Census Blocks
-  Coverage Polygons:  
Segments Based on  
Location Points

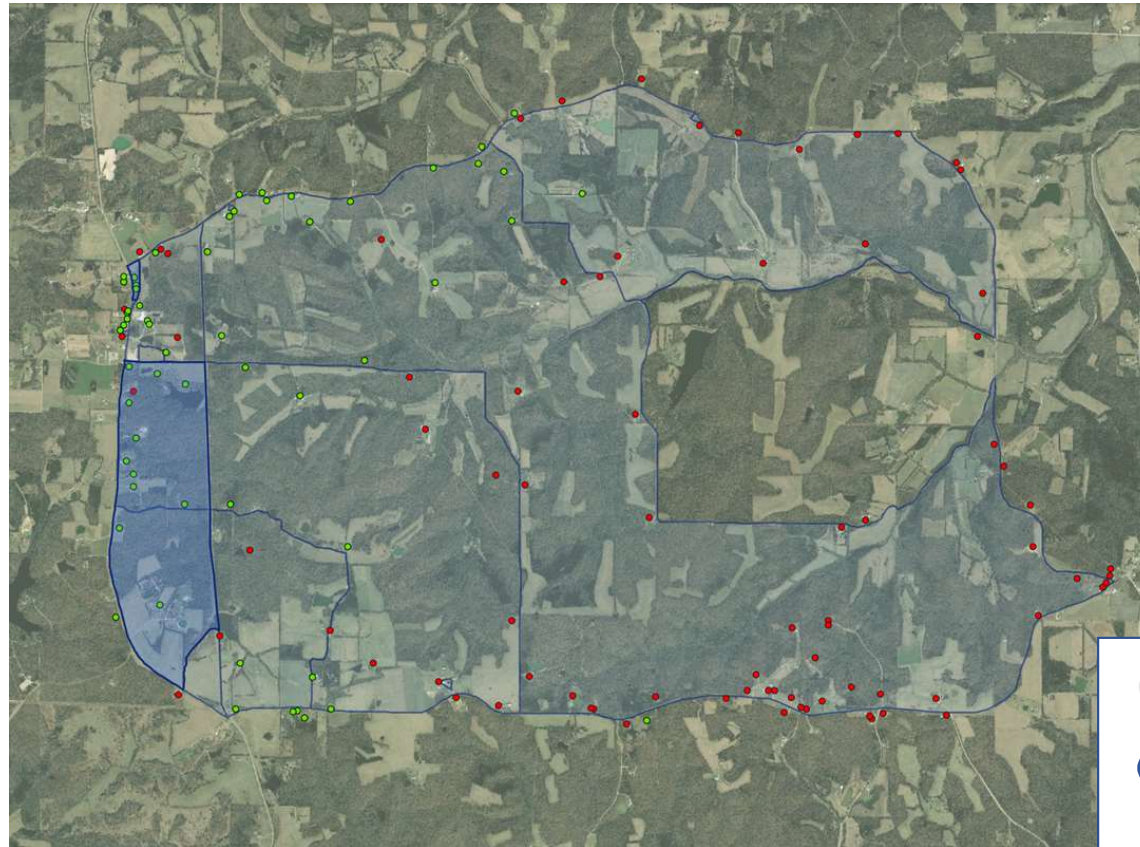




# DODC Polygons

The FCC's DODC order will required carriers to file polygons representing served areas. However, methods and basis have not been settled.

Polygons Based on:

- Served Fabric locations
- Census Blocks with more than 80% of Fabric points served



-  Coverage Area:  
10 Census Blocks
-  Coverage Polygons:  
Based on Census Blocks  
with 80% coverage of  
Location Points

# Additional Federal Efforts

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- USDA
  - ~700M annually for rural RUS efforts (typically in Farm bill)
  - 600M additional allotted in 2019 for Reconnect grants for broadband deployment in rural areas
- US Congress
  - Bill is ready to pass to require improvement in broadband mapping and create national fabric

# Regulatory Constraints

# Regulatory Constraints 2020

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- Service Obligations:
  - Federal obligations
    - ETC:
      - ILECs have been relieved in non-CAF areas, as such carrier is not required to provide voice or lifeline service in the vast majority of its footprint
    - Section 214
      - Under the FCC's Section 214 service discontinuance process, LEC cannot turn off POTS service without notice and approval and must offer POTS service in their footprint to anyone who requests
  - State
    - COLR – Carrier of Last Resort
      - Requirement to provide voice access has been removed in many states, for example in AT&T's 21 states, only two maintain COLR
    - ETC – Eligible Telecommunication Carrier – must provide VOICE service to anyone who request
      - ILECs have ETC requirements similar to federal requirements, some ILECs have been relieved
- CAF, CAFII and RDOF
  - Funding recipient is considered ETC in area
  - Carrier is typically relieved of ETC in
    - Non-CAF areas
    - CAF areas awarded to others
  - Carrier is not relieved of Section 214



# ILEC 2020

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## Regulatory Review

- ETC obligations - Federal
  - From the 903 results PN <<https://docs.fcc.gov/public/attachments/DA-19-539A1.pdf>>
  - Price Cap Carrier Obligations. Price cap carriers that serve the census blocks where an Auction 903 long-form applicant that is not the incumbent price cap carrier has been authorized to receive support will no longer have a federal high-cost ETC obligation to continue to offer voice service in those census blocks pursuant to the forbearance granted in the December 2014 Connect America Order. <38>
  - <38> In the first month that support is disbursed to an authorized Auction 903 support recipient that is not the incumbent price cap carrier, the incumbent price cap carrier will be immediately relieved of its federal high-cost ETC obligation to offer voice telephony in those specific census blocks. December 2014 Connect America Fund Order, 29 FCC Rcd at 15663–71, paras. 50–70; see also 47 CFR § 54.201(d)(3). We will remove these census blocks from the list of census blocks where price cap carriers continue to have the federal high-cost ETC obligation to provide voice service. The “List of Census Blocks Subject to Federal High-Cost Voice Obligations” is available at <https://www.fcc.gov/encyclopedia/price-cap-resources>.