

How to overcome challenges when delivering broadband funding to rural communities



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The Appalachia Digital Accelerator

Supporting communities across rural Appalachia to set a vision for their digital future and build a roadmap to get there



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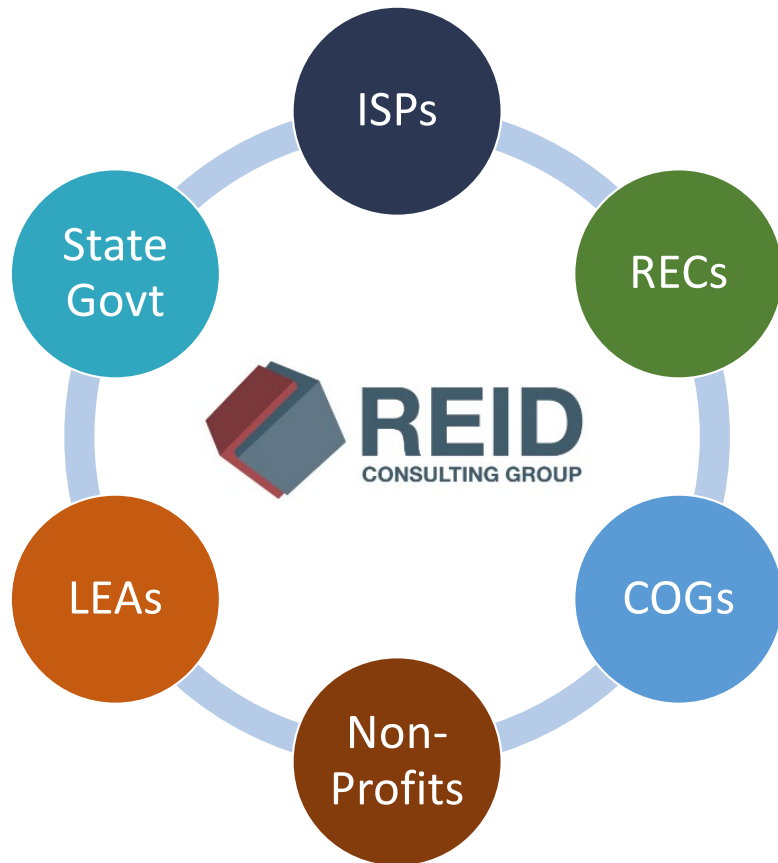
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360 View of Broadband



- a. Solving the availability “mystery”
- b. Reducing BEAD deployment risks
- c. Remembering long-term perspective

**Actual Extent of Unserved
and Underserved**



ISP claims, without proof,
It's already there



ISP claims, without proof,
We'll build it soon



and

*Don't worry, there is a public challenge
process
(Overly complex and unfunded)*



Speed Tests Work: Debunking Myths

Myth A: People in that area only subscribe to the low-speed packages

Reality: 25% to 33% of subscribers opt for the top speed offered.

Myth B: Bad tests are because of poor Wi-Fi

Reality: We drop speed tests with poor Wi-Fi signal strength. We also included tests from GPS-enabled wired devices.

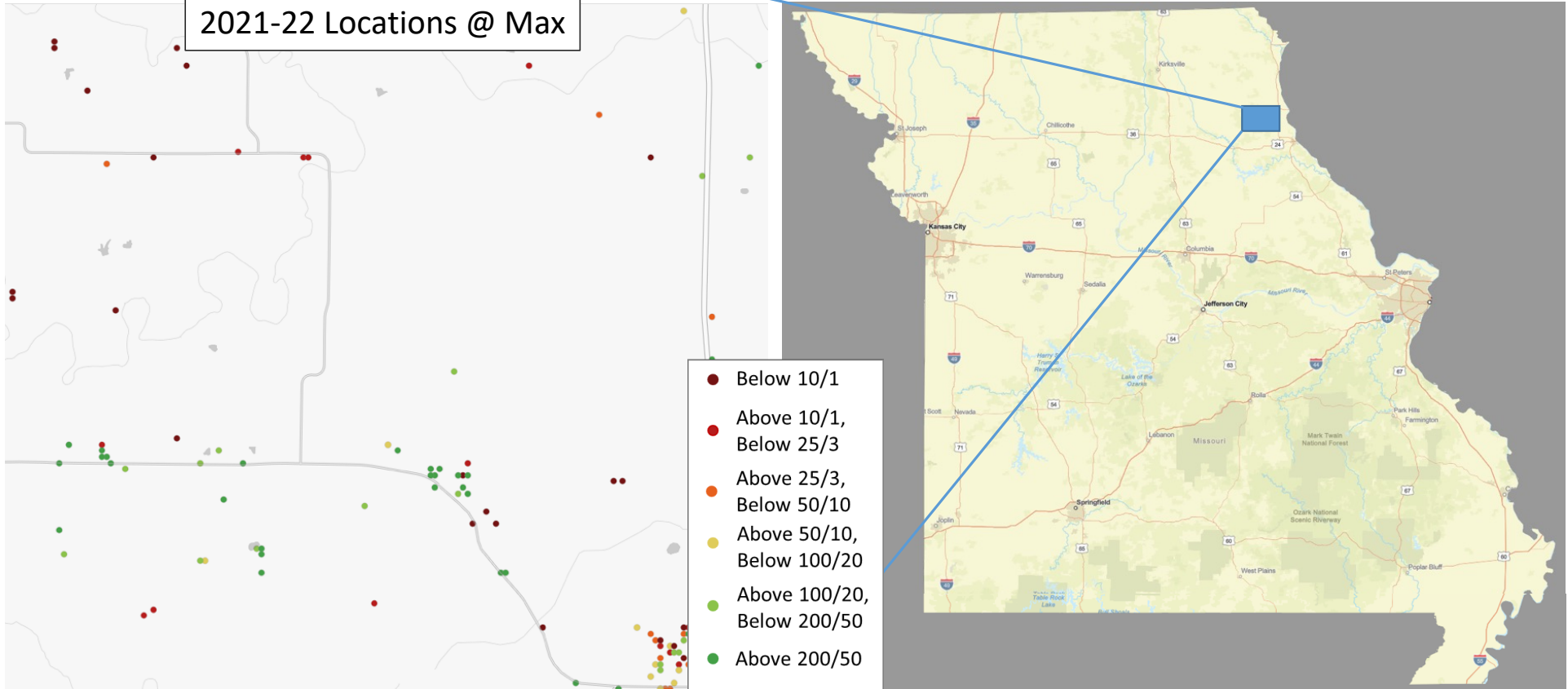
Myth C: People only run a test when there is a problem

Reality: We focus on the **maximum** speed tests. Network problems do prompt tests, as do resolutions of problems.

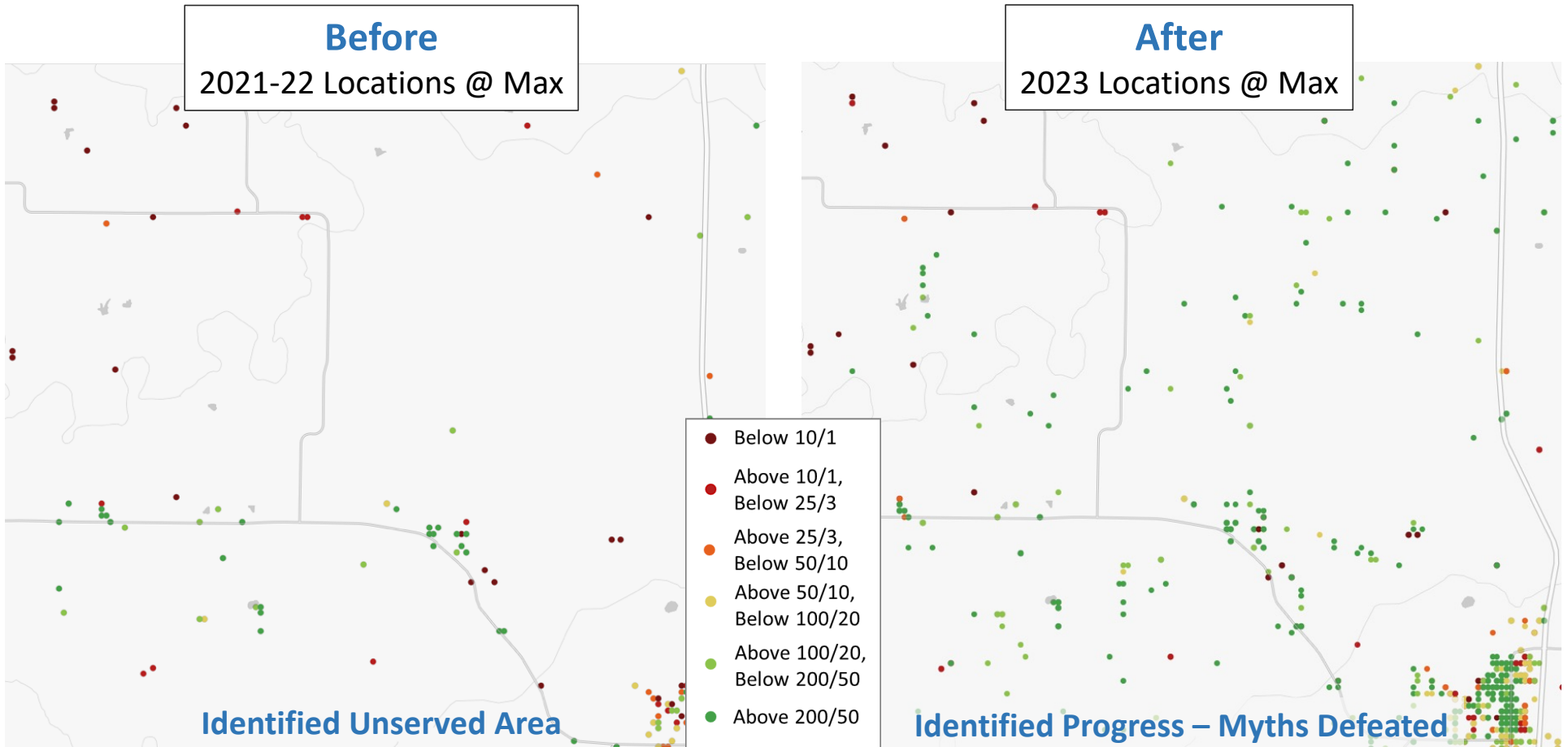


Ookla Locations – Palmyra Area

Before
2021-22 Locations @ Max

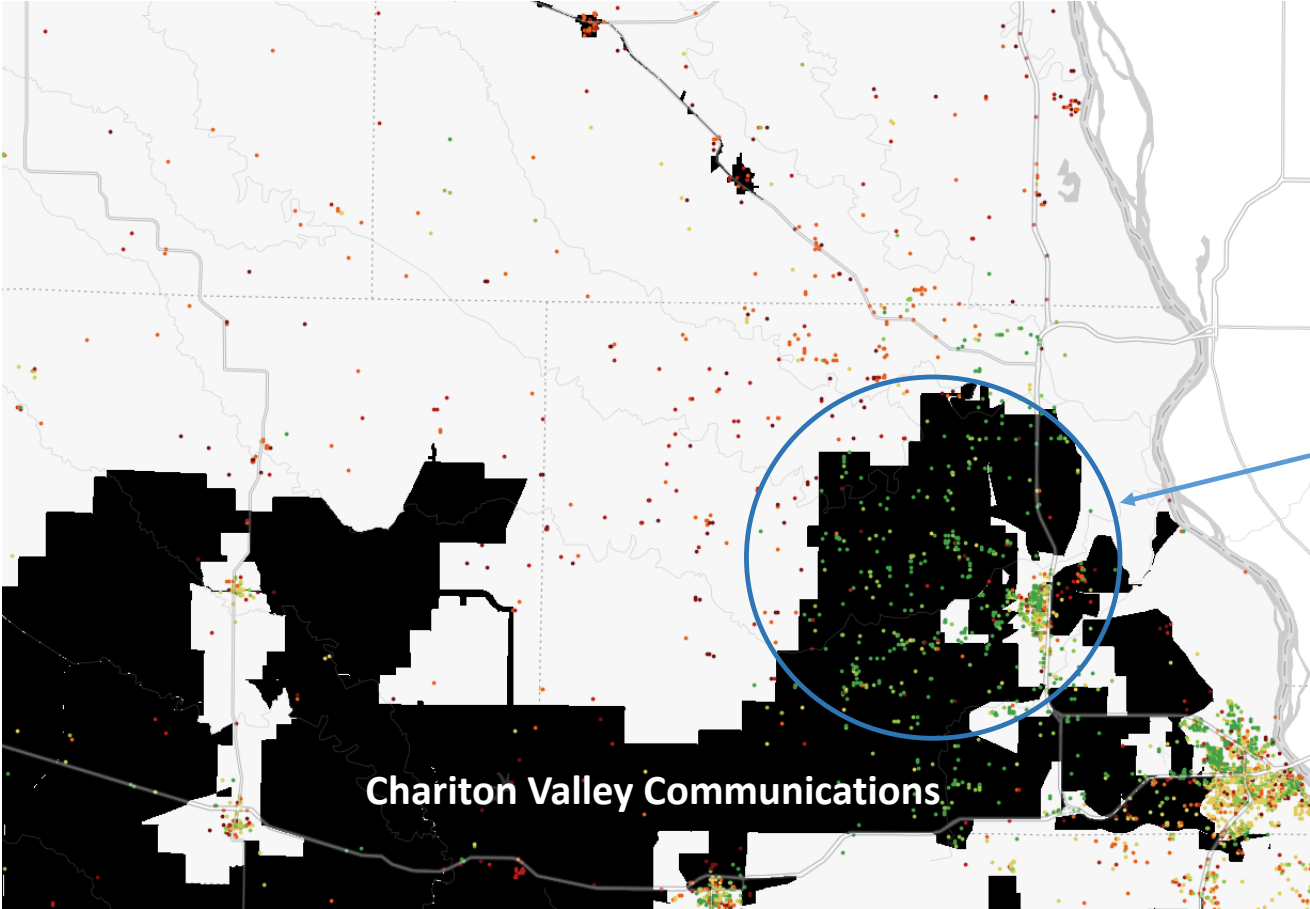
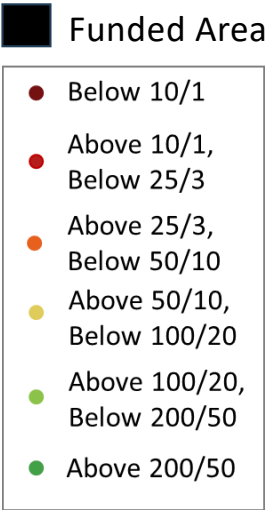


Ookla Locations – Palmyra Area



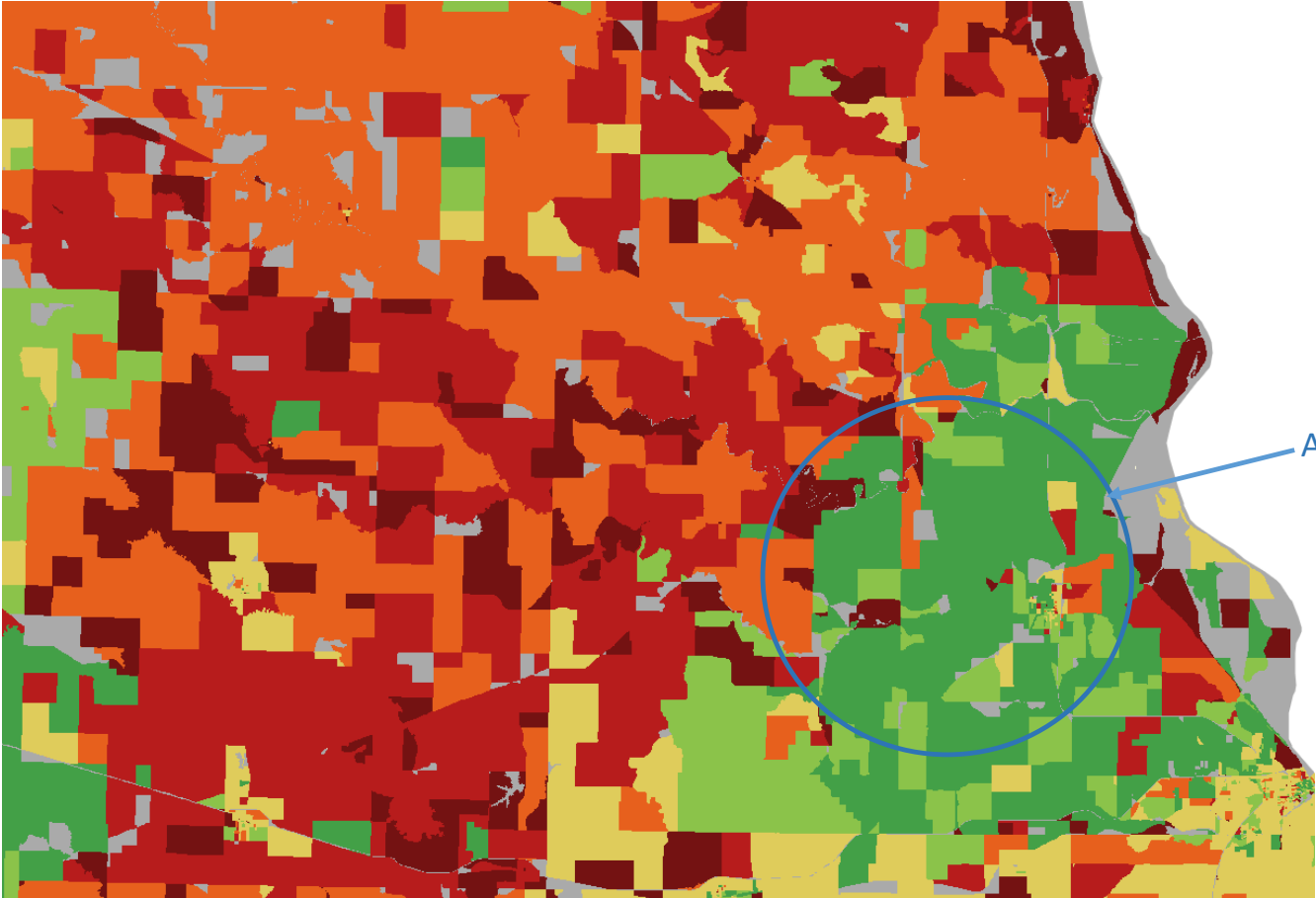
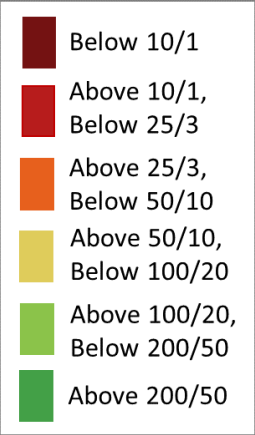
Clear Impact of the Funding

Excellent progress, much remains to build



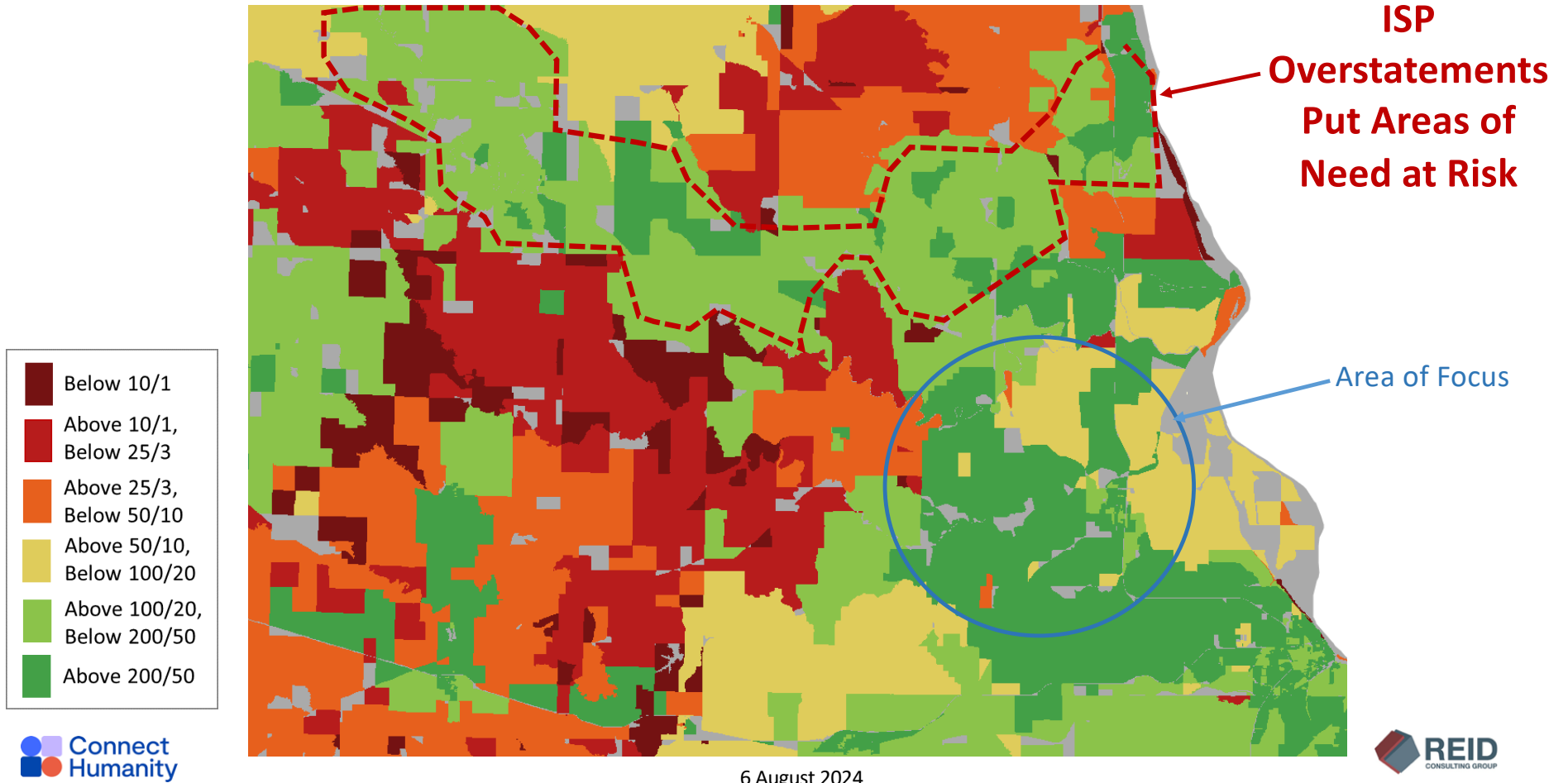
Area of Focus

Ratings Change Also Clear Indication of Progress



Area of Focus

Makes ISP Claims All the Less Believable



Reverse the Burden of Proof

Crowdsourced speed tests deliver:

- a. Concrete availability maps
- b. Progress tracking for accountability

Preponderance of evidence based on millions of test results

Require ISPs to prove their capabilities



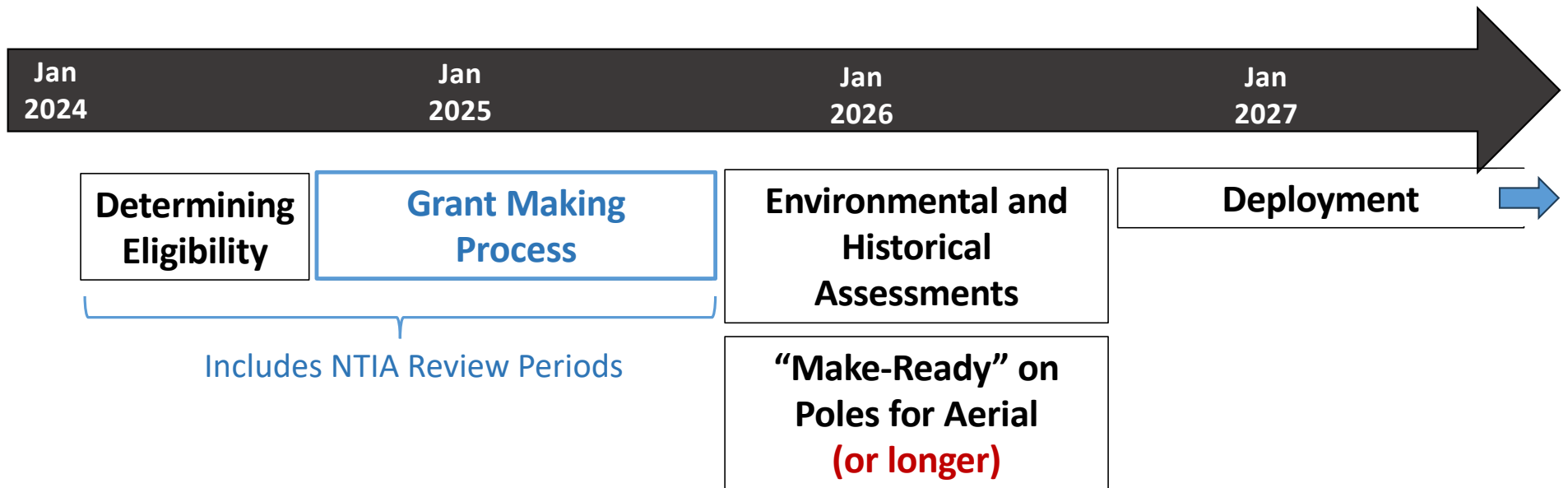
OOKLA[®] Ookla[®] Speedtest Intelligence[®] for Fixed Networks

 Connect
Humanity

6 August 2024

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BEAD Timeline: Estimated



- Deployment will extend into the early 2030's
- Will reach a portion of the unserved and underserved locations
- Regrettably, **millions** of unserved and underserved households will remain after BEAD

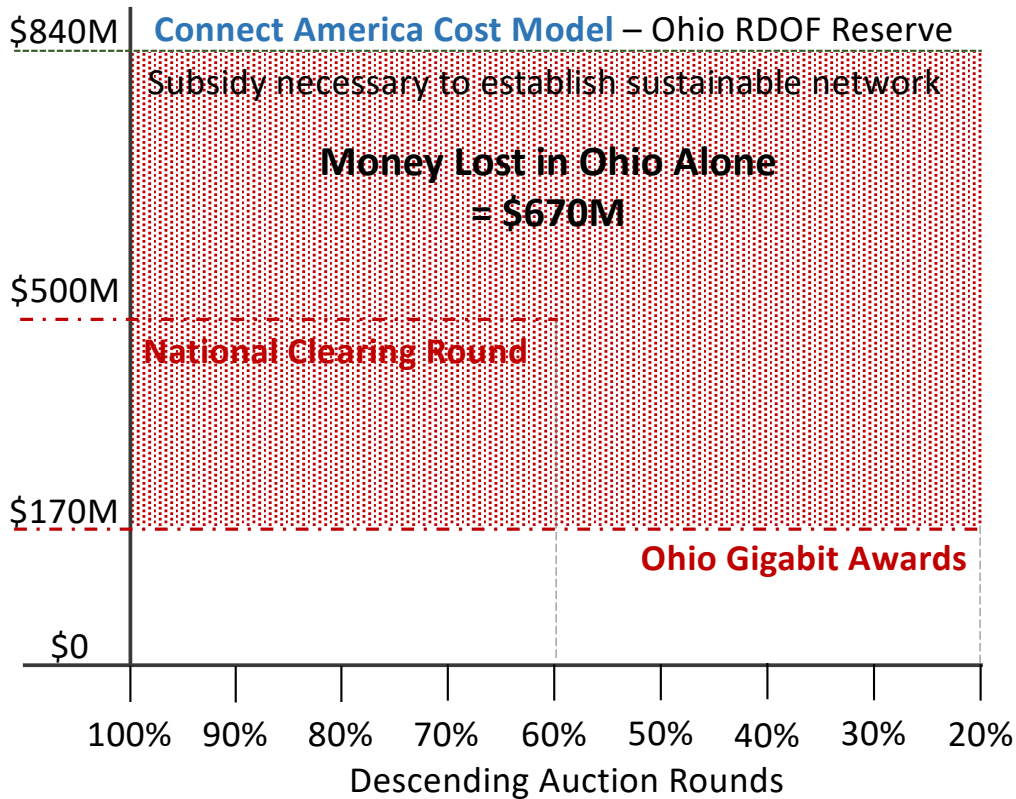
The logo for the Federal Communications Commission (FCC), consisting of the letters 'F' and 'C' in a stylized, bold, black font.

What's Working



- **Location Fabric**
- **Connect America Cost Mode**
 - Refined over more than a decade
 - Determines subsidy required to build fiber-to-the-home and create a sustainable business
 - Adjusted to realities of geography and density

Low Bid Problems



No Fairy Dust, Instead

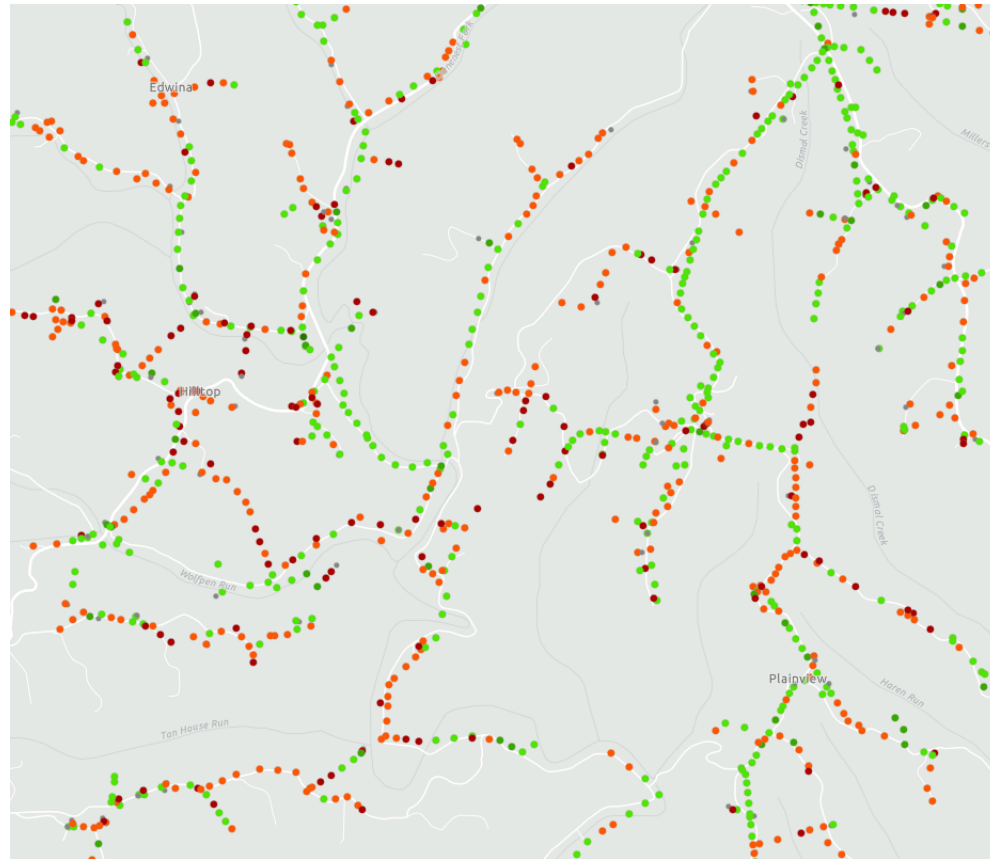
- Defaults and pruning
- Lower capacity builds
- Higher consumer pricing

Mistake being repeated in BEAD

Make-Ready Realities

Rural Ohio Example

- Rugged terrain
- 11,000 BSLs
- 39,000 poles
- 50% poles will need to be replaced if built in the communications space
- Switching to ADSS in the power space cut this to 10% of poles to replace



Pole Height
● 30'
● 35'
● 40'

How Low Can You Go?

Cost to Pass Example Analysis

Cost per Mile	\$100,000 [Including \$40,000 for Make-Ready]					
Locations per Mile	5	10	15	20	25	30
Cost per Location	\$20,000	\$10,000	\$6,667	\$5,000	\$4,000	\$3,333
<i>Per Location Over 30 Years</i>	<i>\$667</i>	<i>\$333</i>	<i>\$222</i>	<i>\$167</i>	<i>\$133</i>	<i>\$111</i>
75% Grant	\$15,000	\$7,500	\$5,000	\$3,750	\$3,000	\$2,500
25% Match	\$5,000	\$2,500	\$1,667	\$1,250	\$1,000	\$833
Typical ISP Threshold	\$1,000 to \$3,000					

Risk of "No Bid" ←



Ways to Accelerate and Enhance

NTIA:

- Extend Categorical Exclusions to include **ANY** work in disturbed rights-of-way
- Focus less on match % and more on quality of proposed network



White House: Convince Forest Service to accept categorical exclusions

ISPs and Electric Utilities:

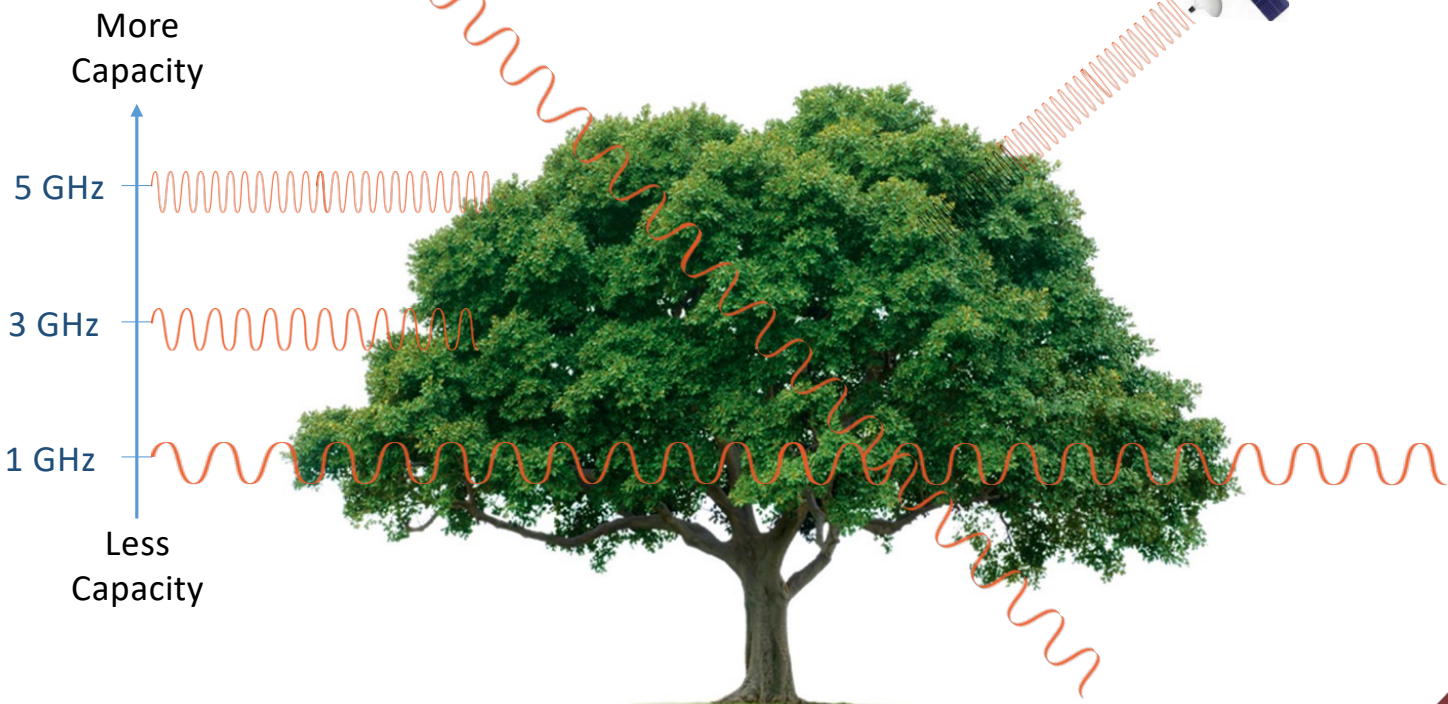
- Collaborate to advance broadband and smart grid
- E.g. deploy ADSS fiber in power space with splice cases and terminals in communications space
- Improves grid resilience, reverses population declines, increases electric usage

GPS



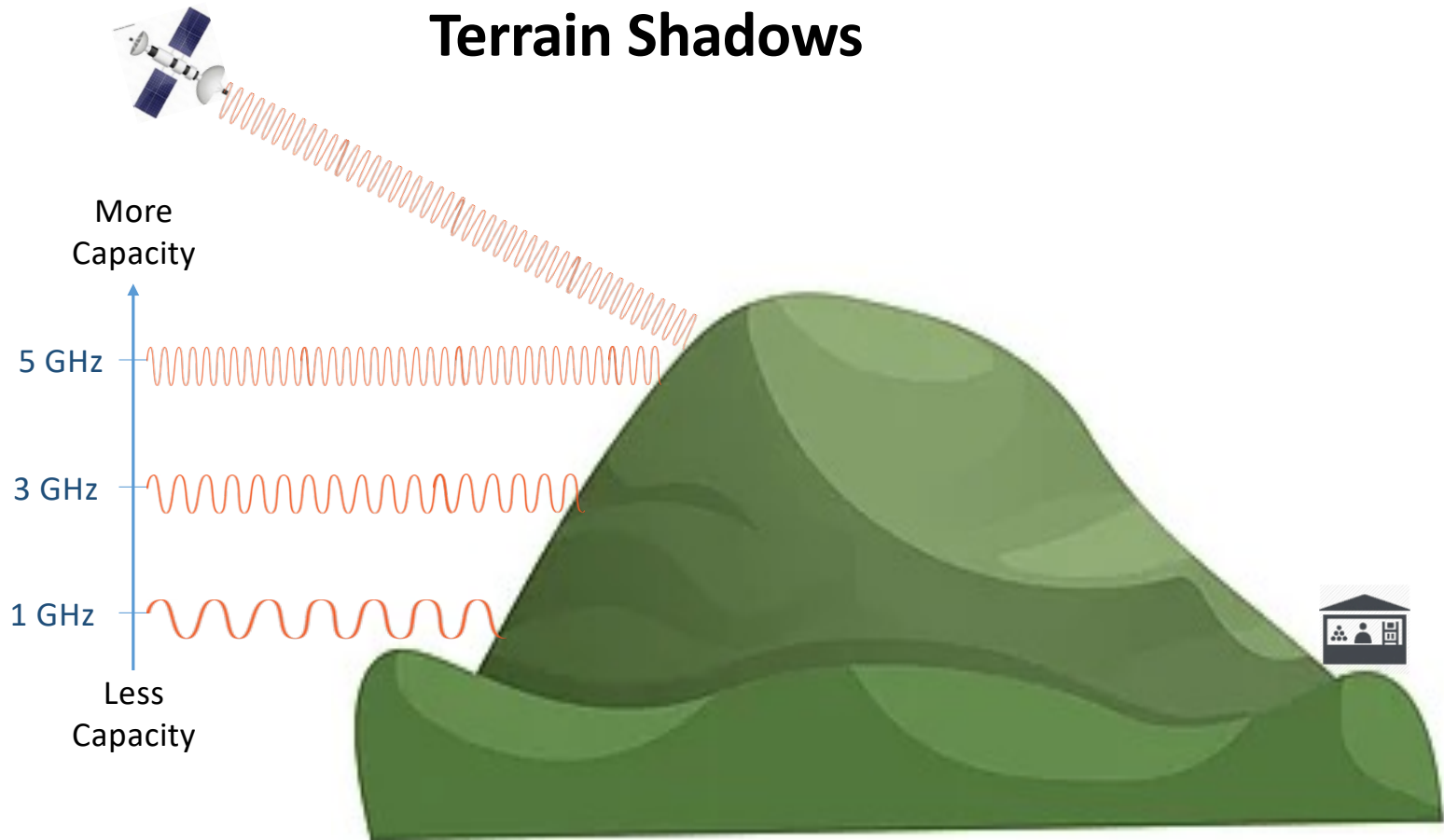
Wireless Limitations Canopy Absorption

Starlink



Starlink

Wireless Limitations Terrain Shadows



Fixed Wireless Capacity Limitations

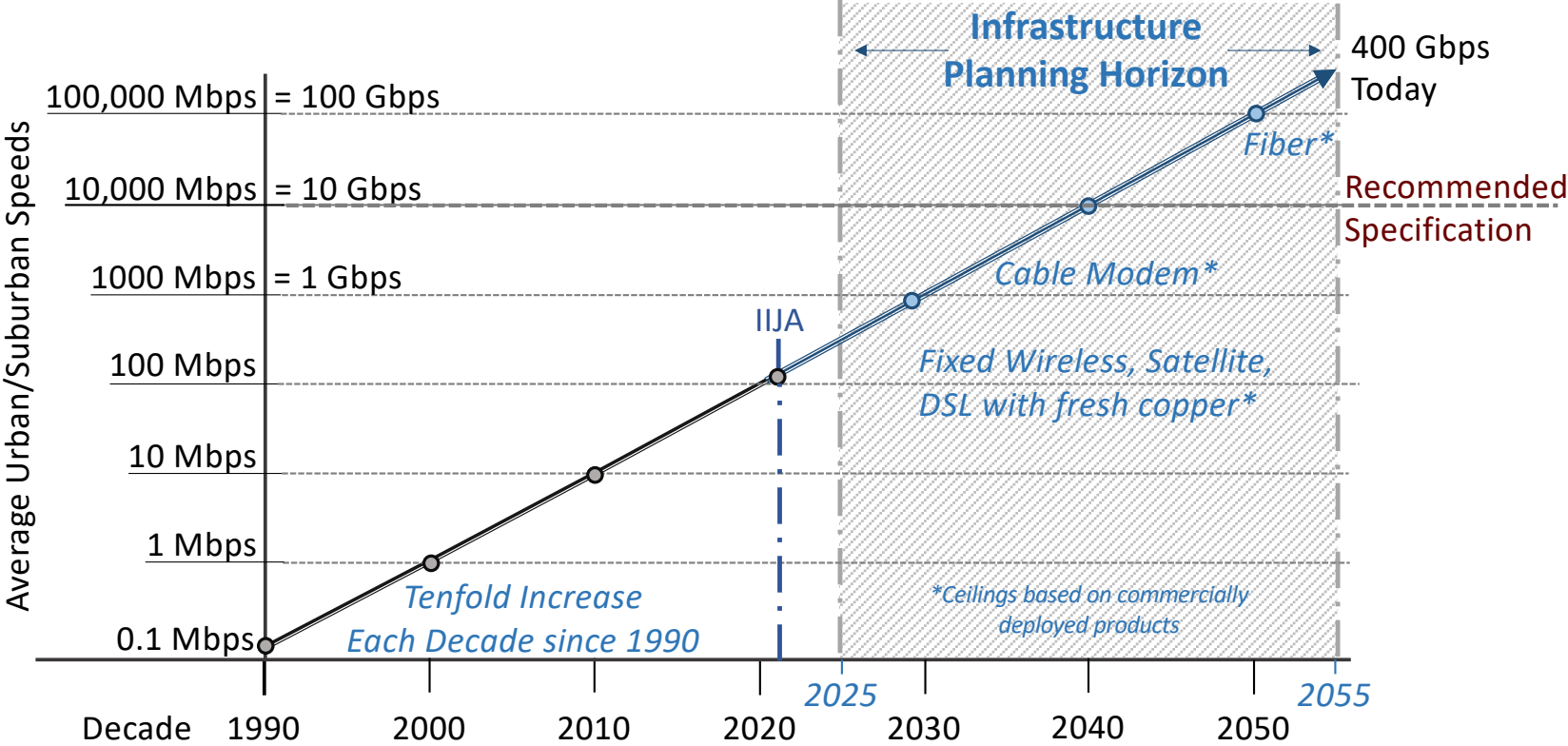
- If the service area was flat and devoid of trees
- The fixed wireless networks could not support the load



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Keep a Long-Term Perspective

“Technology neutral” but must meet the speed requirements of 2055



Milestones	WWW Begins	VoIP Created	Zoom Launched	Telehealth Mainstream	Augmented Reality?	Immersive VR Education?
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GENERATION
WEST VIRGINIA

Thanks for joining!
Learn more at
connecthumanity.fund/appalachia-digital-accelerator



With thanks to the Appalachian Regional Commission for their partnership and financial support for the Appalachia Digital Accelerator.

