







To the BEAD Success Summit!



David Stehlin CEO TIA



Helpful Information

Please silence phones/devices during sessions.

Event Wi-Fi Information: Network: Marriott_CONFERENCE Passcode: BEAD23

Phone charging station is in the back of the room.

Download the Mobile App to access the agenda, speaker bio's, special announcements and more!

Exhibit Hall hours 1pm – 5pm

Have Questions? Visit the Registration Desk for help.

Download the BEAD Success Summit Mobile App:

STEP 1 - Download the **Aventri Events App** in your app store (Apple or Android)

STEP 2 - Input Access Code: **790087**

STEP 3 - Enter the email address you used to register

STEP 4 - Input **BEAD23** for your password



Strong Industry Support Over 400 Global Members and Participants





Purpose of the BEAD Success Summit



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ISPs

Equipment Providers







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Meet the Exhibitors!

Adtran Amphenol Network Solutions Avion Networks Calix CHR Solutions CommScope Corning DZS Ericsson Irby Nokia Ribbon Sabre Industries Superior Essex TIA Vantage Point Wesco



Day 2 - April 20		
Start Time	Sessions	Speakers
7:30	Breakfast	
8:30	Opening Remarks	David Stehlin, TIA
8:45	Keynote	Kevin Gallagher, U.S. Department of Commerce
9:00	Broadband Funding and Investments	Blair Levin, Brookings Institute
9:15	Sharing the Cost and Benefits of Building Broadband Networks	Courtney Dozier, NTIA Elena Thaxton, New Jersey Broadband Office Meghan Sandfoss, Kentucky Broadband Office Moderator: Greg Bathrick, Calix
10:00	Buy America Update	Will Arbuckle, NTIA
10:15	Break	
10:45	The Effects of Climate Change on Broadband Networks	Ben DeAngelo, NOAA
11:00	Building in Climate Resiliency	Russell Hanser, NTIA Glen Howie, Arkansas Broadband Office Thomas Tyler, Louisiana Broadband Office Moderator: William Marx, DZS
11:30	Lessons Learned from Previous Broadband Grant Programs	Erin Scarborough, AT&T Teresa Ferguson, NRTC Moderator: Nathan Weber, P.E., Vantage Point
12:15	Lunch	Geoff Burke, DZS
1:00	Exhibits	
1:30	The Importance of Supporting Anchor Institutions	John Windhausen, Jr., SHLB Coalition
2:00	Stretching BEAD Funds to the Hard-to-Reach with Fixed Wireless Network Technology	Craig Schwechel, Ericsson Greg Agami, UScellular Mark Gibson, CommScope Will Adams, T-Mobile Moderator: Leslie Barnes, Qualcomm
3:00	NTIA / SBLN Closed Door Session	
5:00	Event Close	



The Importance of the BEAD Program for America



Kevin Gallagher Senior Advisor to the U.S. Secretary of Commerce



Kevin Gallagher Senior Advisor to Sec. Raimondo

TIA BEAD Success Summit, April 20, 2023







RELIABLE, AFFORDABLE, **HIGH-SPEED** INTERNET





OUR GENERATION'S MOMENT







DIGITAL DIVIDE





"But here in the United States of America, how many times have you seen a mom or a dad drive up to a parking lot outside a McDonald's just so they could get connected to the Internet so their kid could do their homework during the pandemic, literally? It's just not right. It's not who we are."

-PRESIDENT JOE BIDEN



MEANINGFUL CONNECTIVITY **IS VITAL FOR AMERICA'S** ECONOMIC FUTURE

NO INTERNET CONNECTION



FOR ALL

THOUSANDS OF GOOD-PAYING JOBS





<u>GOAL:</u>

All projects will have a highly skilled workforce prepared to connect the unserved and underserved.

NTIA WORKFORCE RESOURCES FOR ELIGIBLE ENTITIES



Workforce Planning Guide

Serves as a resource for Eligible Entities designing workforce plans and standards for subgrantees, offering strategies and recommended approaches.



Workforce Requirements and Guidance Webinar

Delivers an overview of workforce strategies for BIL implementation.



<u>Telecommunications Training &</u> <u>Workforce Development Program</u> <u>Best Practices Checklist</u> (Forthcoming)





Regional Director & FPO Coverage

INTERNE FOR ALL





Program Progress by State & Territory



Maine

BEAD Program Status Planning Grant Awarded







BEAD WITHOUT EQUITY







"THE FIVE-YEAR ACTION PLAN...SHOULD THEREFORE INCORPORATE THE ... STATE DIGITAL EQUITY PLAN, AS AN ELIGIBLE ENTITY **CANNOT HAVE A FIVE-YEAR ACTION** PLAN THAT DOES NOT ADDRESS DIGITAL EQUITY."





ONCE IN A GENERATION















KEYS TO BEAD SUCCESS



- Highly skilled workforce
- Partnership between NTIA and States
- Authentic stakeholder engagement
- Equity at the forefront
 - Make the investment once
 - Predictable, timely permitting
 - Supply chains Made in America



STATE OF THE UNION

We're making sure that every community has access to affordable, high-speed internet ...

... And when we do these projects, **we're going to Buy American.**

Buy American has been the law of the land since 1933. But for too long, past administrations have found ways to get around it.

Not anymore.

Tonight, I'm also **announcing new standards to require all construction materials used in federal infrastructure projects to be made in America.**

American-made lumber, glass, drywall, **fiber optic** cables.













Broadband Funding and Investments



Blair Levin Senior Fellow Brookings Institute



Sharing the Costs and Benefits of Building Broadband Networks

Moderator:



Greg Bathrick VP, Commercial Development Calix



Courtney Dozier Deputy Director for BEAD Program NTIA



Elena Thaxton Senior Program Manager New Jersey Broadband Connectivity



Meghan Sandfoss Executive Director Kentucky Broadband Office



Buy America Update



NTIA



The Effects of Climate Change on Broadband Networks



Ben DeAngelo Deputy Director of Climate Program Office NOAA



The Importance of Accounting for a Changing Climate for Broadband Infrastructure



Benjamin DeAngelo, Deputy Director Climate Program Office in NOAA Research




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Multiple observations show signs of a changing climate





Projected Changes in Temperature Extremes

Project Change in Number of Days Below 32°F

Mid-21st Century, Higher Emissions

Projected Change in Number of Days Above 90°F Mid-21st Century, Higher Emissions





Projected changes in precipitation extremes

Change in extreme precipitation across the United States



Benjamin DeAngelo



Sea level along the U.S. coastline is projected to rise, on average, 10 - 12 inches (0.25 - 0.30 meters) in the next 30 years (2020 - 2050).

Sea level rise will vary regionally along U.S. coasts because of changes in both land and ocean height.

Sea level rise will create a profound shift in coastal flooding over the next 30 years by causing tide and storm surge heights to increase and reach further inland. By 2050, "moderate" (typically damaging) flooding is expected to occur, on average, more than 10 times as often as it does today.



\$B-disasters trending up









Building a Climate Ready Nation is NOAA's Priority

Priority 1: "Ensure NOAA is seen as the **primary authoritative provider of climate information** and services. From the individual to the business to the tribe to the government, NOAA should be the agency that people turn to for reliable, accessible, relevant, actionable, easy-to-use climate information."

–Dr. Rick Spinrad September 30, 2021

Dedicated to Delivering a Climate Ready Nation by 2030



Broadband Equity, Access, and Deployment (BEAD) Program Overview

- NTIA and NOAA partnered to create guidance for climate resilience in the Notice of Federal Funding Opportunity (NOFO)
 - *What*: Demonstrate how you will design, build, and operate the broadband in a weather and climate resilient way
 - *How*: Use reliable information for climate and weather risks to:
 - Identify,
 - Assess, and
 - Plan for them (e.g., avoid or mitigate)



Climate Resiliency Expectation and Evaluation Criteria

- **1. Identify the geographic areas** that should be subject to an initial hazard screening for current and future weather- and climate-related risks and the time scales for performing such screenings;
- 2. Identify which weather and climate hazards may be most important to account for and respond to in these areas and over the relevant time horizons, utilizing the tools and resources recommended below or other resources available to the applicant;



he Battery Park Undercass in Hamattan a major thrywry in the city flooded with serviater curing Humane Bandy. This is only one example showing our auton's nees for more cimitea lioni infrastructure (Block)



Climate Resiliency Expectation and Evaluation Criteria (Continued)

- 3. Characterize any weather and climate risks to new middle mile infrastructure deployed using BEAD Program funds for the 20 years following deployment;
- 4. *Identify how the proposed plan will avoid and/or mitigate* the weather and climate risks identified; and
- 5. Detail the applicant's plans for periodically repeating this process over the *life of the project* to ensure that evolving risks are understood, characterized, and addressed, and that the most up-to-date tools and information resources are utilized.









Risk and Vulnerability O Historic Hazard Risk Disaster Types



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Benjamin DeAngelo



NOAA's Tools and Resources

- NOAA's 2022 state climate summaries: <u>https://statesummaries.ncics.org/</u>
- NOAA's Disaster and risk mapping tool: <u>https://www.ncdc.noaa.gov/billions/mapping</u>
- NOAA's Storms event database: <u>https://www.ncdc.noaa.gov/stormevents/</u>
- NOAA's Climate Explorer: <u>https://crt-climate-explorer.nemac.org/</u>
- NOAA's Digital Coast: <u>https://coast.noaa.gov/digitalcoast/</u>
- NOAA/interagency Climate Mapping for Resilience and Adaptation: <u>https://resilience.climate.gov/</u>



NOAA's Tools and Resources (Continued)

- National Weather Service's Weather Forecast Offices: <u>https://www.weather.gov/srh/nwsoffices</u>
- Regional Climate Centers: <u>https://www.ncei.noaa.gov/regional/regional-</u> <u>climate-centers</u>
- Regional Climate Services Directors: <u>https://www.ncei.noaa.gov/regional/regional-climate-services-directors</u>
- Academic and other partners under NOAA's RISA program: <u>https://cpo.noaa.gov/Meet-theDivisions/Climate-and-Societal-</u> <u>Interactions/RISA/RISA-Teams</u>



Other Tools

- 2018 National Climate Assessment (<u>https://nca2018.globalchange.gov/</u>)
- FEMA's National Risk Index (<u>https://hazards.fema.gov/nri/learn-more</u>)
- FEMA's flood risk (<u>https://msc.fema.gov/portal/home</u>)
- State climatologists (<u>https://stateclimate.org/state_progr</u> <u>ams/</u>)





Thank you

Benjamin DeAngelo ben.deangelo@noaa.gov @BenDeAngelo





Building in Climate Resiliency

Moderator:



William Marx Government Affairs Manager DZS



Russell Hanser Associate Administrator NTIA



Glen Howie Director Arkansas Broadband Office



Thomas Tyler Deputy Director Louisiana Broadband Office



Lessons Learned from Previous Broadband Grant Programs

Moderator:



Nathan Weber VP of Engineering Vantage Point



Erin Scarborough SVP Fiber Broadband Sales & Marketing AT&T



Teresa Ferguson Senior Director Broadband and Infrastructure Funding NRTC



Sponsor Remarks



Geoff Burke

Senior Vice President of Product Marketing and Government Affairs

DZS











Fast Forward 60 Years





HD Video Conferencing

IOT / Smart Home

Metaverse



Robotics



Artificial Intelligence

AR / VR / XR



A Noble Cause







A Noble Cause



Total Estimated BEAD Funding by State/Territory





Let's Do It Right



Look at the Big Picture

- Defines community trajectory
- Defines YOUR trajectory

Be Strategic

- BEAD a subsidy not a strategy
- Keep an eye on OPEX
- Middle Mile is Critical

Invest with the Future in Mind

- Be an "Experience Provider"
- Choose technology for the long run



Who Is...



HQ in Dallas, Texas

A global leader in access, optical and cloudcontrolled software defined solutions



Giving our customers a Competitive EDGE

- Agile > Cloud Native
- Open > Visionary



Who Is...

Customers (30 of Top 50 Telecoms)





Who Is...

ILECs/Overbuilder/Elec Coops Customers Across the USA





In the Network



DZS CloudCheck



60,000+ OLT Ports



20,000,000+ ONT / WiFi Devices



DZSExpresse





Let's Do It Right



Rural Moves Are Biased To FTTH Availability



Look at the Big Picture

Defines community trajectory
Defines YOUR trajectory

Be Strategic

TIA.

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Be Strategic

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Let's Do It Right



Invest with the Future in Mind

- Be an "Experience Provider"
- Choose technology for the long run

"You have to start with the **customer experience** and work backwards to the **technology.**"

- Steve Jobs







Let's Do It Right



Invest with the Future in Mind

- Be an "Experience Provider"
- Choose technology for the long run





Our Vision for BEAD Success





Thank You & Let's Do It Right!

See You on the Show Floor DZS Booth 14 Demonstrations Daily











The Importance of Supporting Anchor Institutions



John Windhausen, Jr. Executive Director Schools, Health & Libraries Broadband (SHLB) Coalition



Anchor Institutions: The Key to BEAD Success

John Windhausen Executive Director Schools, Health & Libraries Broadband (SHLB) Coalition



- Public interest advocacy organization based in DC.
- Over 330 members (schools, libraries, higher ed, telehealth networks, state broadband officials, public interest groups, research & education networks, commercial companies, etc.)
- Mission: supporting open, affordable, high-quality broadband for anchor institutions <u>and their</u> <u>communities</u>.
Broadband Equity, Access and Deployment (BEAD) (\$42.5 billion)

To close the availability gap: "access to affordable, **reliable**, high-speed broadband is essential to full participation in modern life in the United States."

Program priorities:

- Unserved locations (No access to 25/3 Mbps)
- Underserved locations (No access to 100/20 Mbps)
- Eligible Community anchor institutions (those without access to gigabit connections)

(BEAD NOFO, p. 7)

Challenging the Common Wisdom

Many observers say:

"By the time I finish connecting the unserved/underserved households, I won't have any money left to connect the anchor institutions."

But a deeper analysis shows there are (at least) six ways this is too simplistic. #1: "Strong
preference
for
connecting
anchors"

The BEAD NOFO contains a strong preference for connecting anchor institutions to gigabit broadband:

"Eligible Entities [States] that demonstrate they will be able to ensure service to all unserved and underserved locations will be free to propose plans that use remaining funds in a wide variety of ways, but NTIA underscores its **strong preference** that Eligible Entities also ensure deployment of gigabit connections to community anchor institutions such as libraries and community centers that lack such connectivity." (BEAD NOFO p. 7)

Anchors are not just an afterthought.

#2: Anchors help to connect the unserved, and sustain them.

If you are building a network to an unserved community that includes anchors, it would be uneconomic/wasteful to by-pass the anchors.

- Connecting the anchors at the same time as the households increases the long-term economic sustainability of the network.
- Anchor institutions can serve the role of an "anchor tenant" on the network, contributing revenues that will make it easier for the grantee to offer affordable broadband to households.

#3: Anchors can provide to Middle Mile backhaul.

Anchor institutions can provide open access, Middle Mile backhaul that reduce the costs of providing last mile service to unserved communities.

 "This [providing gigabit service to community anchors] can potentially include deployment of Middle Mile Infrastructure where the Middle Mile Infrastructure is in or through any area required to reach interconnection points or otherwise to ensure the technical feasibility and financial sustainability of an Unserved Service Project or an Underserved Service Project." (BEAD NOFO FN 44)

#4: The 80/20 rule.

Applicants for BEAD funding must demonstrate that at least 80% of the service area consists of unserved locations.

Anchors can be served with the remaining 20%.

#5: Funding wireless networks can leave money available for anchors. While the BEAD program has a preference for fiber, States are given the flexibility to fund wireless projects where economically feasible.

"The framework set out below will provide Eligible Entities flexibility to pursue deployments in the manner best suited to their populations – including, for example, the deployment of Wi-Fi service within multi-family buildings." (BEAD NOFO, p. 7)

States can ensure there is money left over to connect anchors by funding fixed wireless connectivity when it is more cost-effective than fiber.

#6: Planning first, then connect anchors.

The BEAD NOFO does NOT say States must connect all the unserved/underserved locations before connecting the anchors, it says you must have a PLAN to connect the unserved/underserved first.

States can fund gigabit connections to anchors early as long as it is part of the plan to connect the unserved/underserved.

#7: Anchors tell good stories.

The Biden Administration and Governors often tout the benefits of broadband for education, telehealth, public safety, and economic growth.

How ironic would it be if the BEAD program doesn't connect the very schools, hospitals and public safety centers that have been highlighted.

Connecting anchor institutions creates positive media attention and community support for these investments.

#8: Anchors care about the community.

Definition of Anchor Institution:

The term "community anchor institution" means an entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals.

(BEAD NOFO p. 11)

Anchor-Enabled Wireless Networks

New initiative within SHLB to promote wireless extensions from anchor institutions to the surrounding community. ("To and Through")

- Research report and cost model written by Dr. Raul Katz issued in August.
- Finds that schools partnering with WISPs can connect households much cheaper than distributing hot spots.
- Jointly sponsored by SHLB and OTI/New America.

THE "TO AND THROUGH" OPPORTUNITY:

An Economic Analysis of Options to Extend Affordable Broadband to Students and Households via Anchor Institutions



Economic analysis, Cost Calculation Toolkit and Public Policy Implications

Dr. Raul Katz Telecom Advisory Services LLC





	CAPEX	OPEX (ANNUAL)	NPV (OVER 5 YEARS)	COMMENTS
1. Purchase public LTE service from a commercial service provider	\$ 4,465,000	\$ 10,260,000 - \$ 6,840,000	\$ (46,770,000) - \$ (32,688,00)	 CAPEX is based on acquiring wireless broadband Mi-Fi equipment OPEX ranges are driven by alternative wireless plans (from \$ 45 to \$30) Financials are calculated at full price, without considering any potential discounts and /or social responsibility offers
2. Contract a CBRS based WISP	\$ 871,175	\$ 248,000 - \$ 227,000	\$ (4,334,756)	• Reimbursement from WISP to anchor institution increases over time with commercial service penetration
3. Leverage CBRS spectrum to deploy an LTE private network (insource O&M)	\$ 3,027,086	\$ 206,327	\$ (4,728,587)	• Financials exclude other "soft" costs of self-provisioning such as insurance, staff training, administrative overhead, and any regulatory/legal costs to
4. Leverage CBRS spectrum to deploy an LTE private network (outsource O&M)	\$ 3,027,086	\$ 412,300	\$ (6,429,468)	
5. Contract with a third- party integrator to deploy and operate the Wi-Fi network	\$ 899,824	\$ 742,000	\$ (7,015,000)	
6. Hybrid (Private LTE insource + Wi-Fi)	\$ 2,215,000	\$ 577,000	\$ (6,974,000)	 Assumes 50/50 service split between both networks

Mapping – will State maps save the day?

Many problems with FCC maps, including that they largely ignore anchor institutions.

State must develop an inventory of anchor institutions.

States may (or may not) create their own state maps – likely more reliable than FCC maps.

Save the Date!

SHLB AnchorNets Conference Oct. 10-12, 2023 Marriott Crystal Gateway Hotel Crystal City, VA

Featuring Showcases on Digital Equity, Broadband Innovation, E-rate Reform, Rural Health Care, USF Reform, Wireless "to and through" case studies, and more.

Contact Information



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Stretching BEAD Funds to the Hard-to-Reach with Fixed Wireless Network Technology

Moderator:



Leslie Barnes Sr. Director of Government Affairs Qualcomm



Will Adams VP Strategic Policy and Planning T-Mobile



Greg Agami Director of RAN Engineering UScellular



Mark Gibson Sr. Director, Business Development & Spectrum Policy CommScope



Craig Schwechel Principal, inCode Consulting Division Ericsson