WELCOME











WELCOME 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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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



Start Time Sessions Spea 7:30 Breakfast

Sharing the Cost and Benefits of Building Broadband Networks

The Effects of Climate Change on Broadband Networks

Lessons Learned from Previous Broadband Grant

The Importance of Supporting Anchor Institutions

Stretching BEAD Funds to the Hard-to-Reach with

Fixed Wireless Network Technology

8:45

9:00

9:15

10:00

10:15

10:45

11:00

11:30

12:15

1:00

1:30

2:00

3:00

5:00

Kevnote

Break

Programs

Lunch

Exhibits

NTIA / SBLN

Event Close

Closed Door Session

Buy America Update

Building in Climate Resiliency

Broadband Funding and Investments

tait iiiie	Oessions	Opeakers
7:30	Breakfast	
8:30	Opening Remarks	David Stehlin, TIA

Kevin Gallagher, U.S. Department of Commerce

Elena Thaxton. New Jersev Broadband Office

Glen Howie, Arkansas Broadband Office

John Windhausen, Jr., SHLB Coalition

Moderator: Leslie Barnes. Qualcomm

Thomas Tyler, Louisiana Broadband Office

Moderator: Nathan Weber, P.E., Vantage Point

Meghan Sandfoss, Kentucky Broadband Office

Blair Levin, Brookings Institute
Courtney Dozier, NTIA

Moderator: Greg Bathrick, Calix

Moderator: William Marx. DZS

Erin Scarborough, AT&T

Teresa Ferguson, NRTC

Craig Schwechel, Ericsson Greg Agami, UScellular

Mark Gibson, CommScope

Will Adams, T-Mobile

Geoff Burke, DZS

Will Arbuckle, NTIA

Ben DeAngelo, NOAA
Russell Hanser, NTIA





The Importance of the BEAD Program for America



Kevin GallagherSenior 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





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OUR GENERATION'S MOMENT









DIGITAL DIVIDE







Why Students Still Can't Access Remote Learning: How Schools Can Help By Mark Lieberman — September 15, 2020 8 min read

Digital Divide Limits Telehealth Use in Rural Areas

Survey: Low-income families strained by distance learning

Multi-generational efforts are helping overcome a lack of technological proficiency By Ross Brenneman

Why rural Americans are having a hard time working from By Harmeet Kaur, CNN updated 8:14 AM ET, Wed April 29, 2020

FOR ALL

"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**



THOUSANDS OF GOODPAYING JOBS



GOAL:

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.



Telecommunications Training & Workforce Development Program Best Practices Checklist

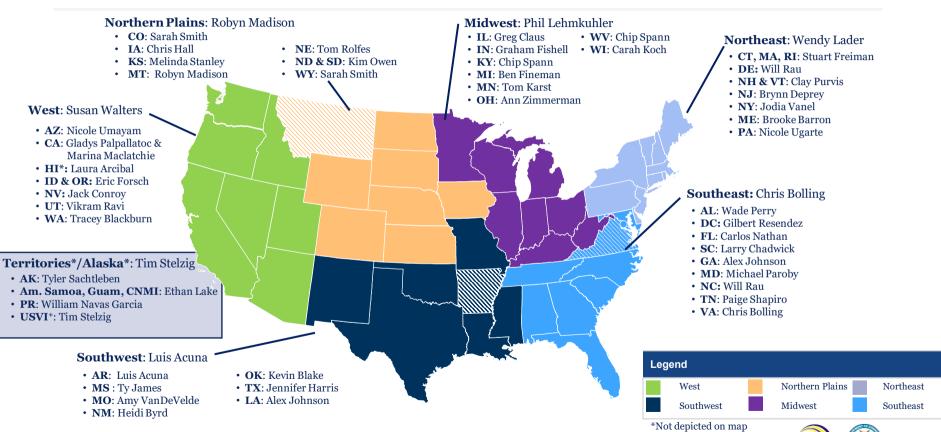
(Forthcoming)





Regional Director & FPO Coverage



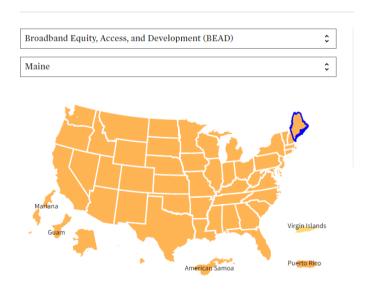






INTERNET FOR ALL MAP

Program Progress by State & Territory



Maine

BEAD Program Status Planning Grant Awarded

CONTACT INFORMATION

Federal Program Officer: Brooke Barron bbarron@ntia.gov

State Broadband Office Contact:
Andrew Butcher
abutcher@maineconnectivity.org









BEAD WITHOUT EQUITY

BAD





"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



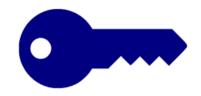












KEYS TO BEAD SUCCESS

- 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.

























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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



Will Arbuckle
Policy Advisor
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

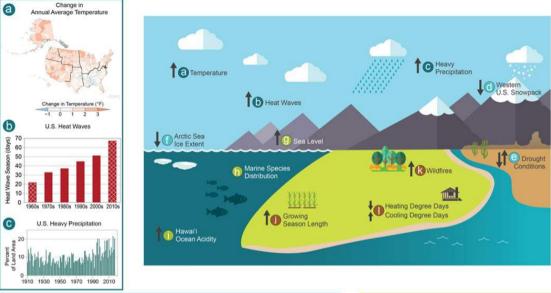


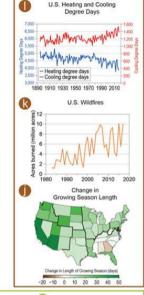
Benjamin DeAngelo, Deputy Director Climate Program Office in NOAA Research

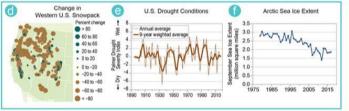


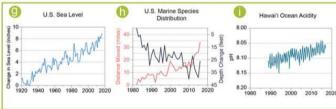


Multiple observations show signs of a changing climate





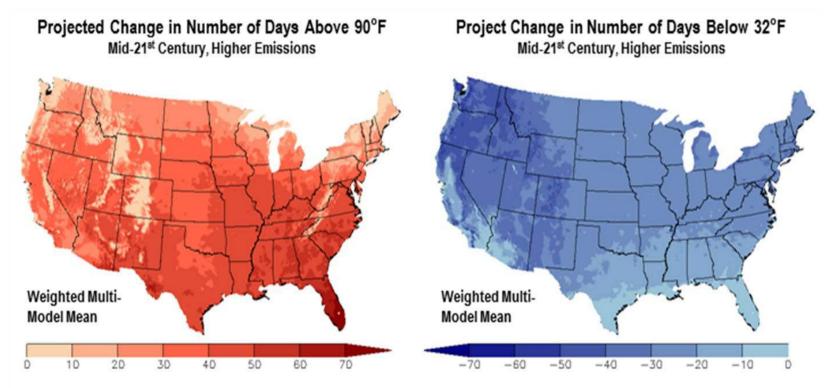








Projected Changes in Temperature Extremes



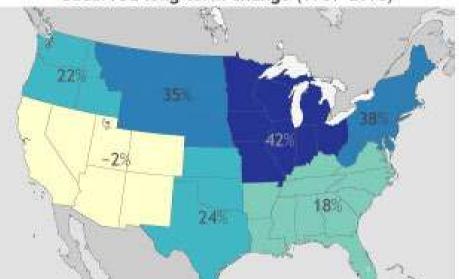




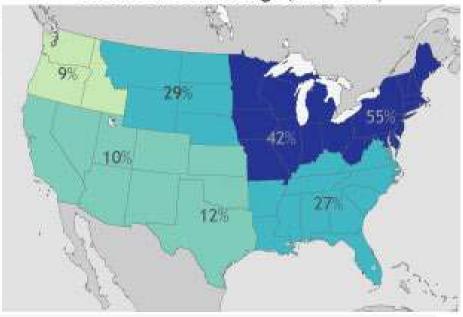
Projected changes in precipitation extremes

Change in extreme precipitation across the United States





Observed recent change (1958-2016)



Benjamin DeAngelo

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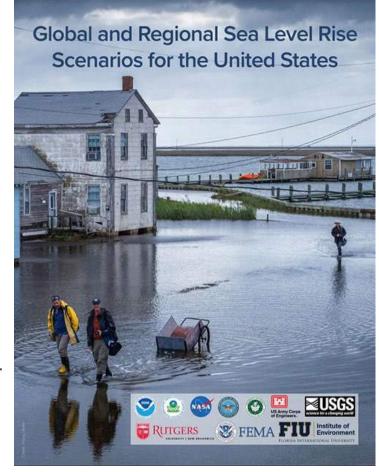




Sea level along the U.S. coastline is projected to rise, on average, 10 - 12 inches (0.25 - 0.30 meters) in the next 30 years (2020 - 2050).

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.

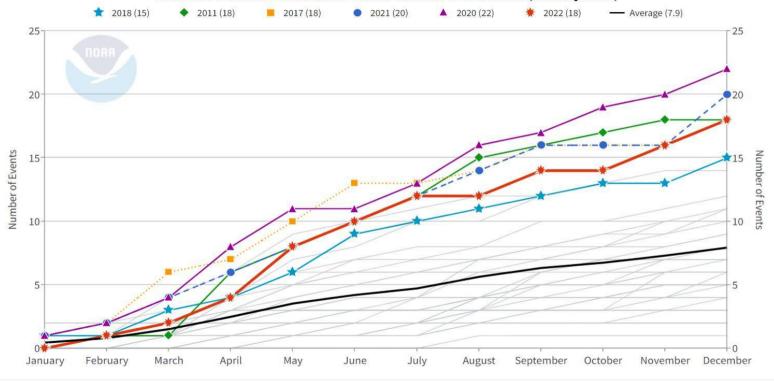






\$B-disasters trending up

1980-2022 United States Billion-Dollar Disaster Event Count (CPI-Adjusted)







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;







Climate Resiliency Expectation and Evaluation Criteria (Continued)

- 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.

Benjamin DeAngelo

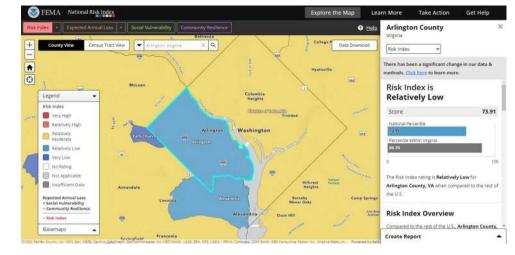
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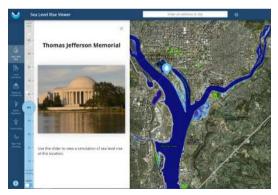


















NOAA's Tools and Resources

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





NOAA's Tools and Resources (Continued)

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





Other Tools

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





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





60 Year Ago...









Fast Forward 60 Years





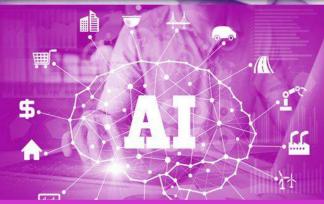


HD Video Conferencing

IOT / Smart Home

Metaverse







Robotics

Artificial Intelligence

AR / VR / XR





A Noble Cause





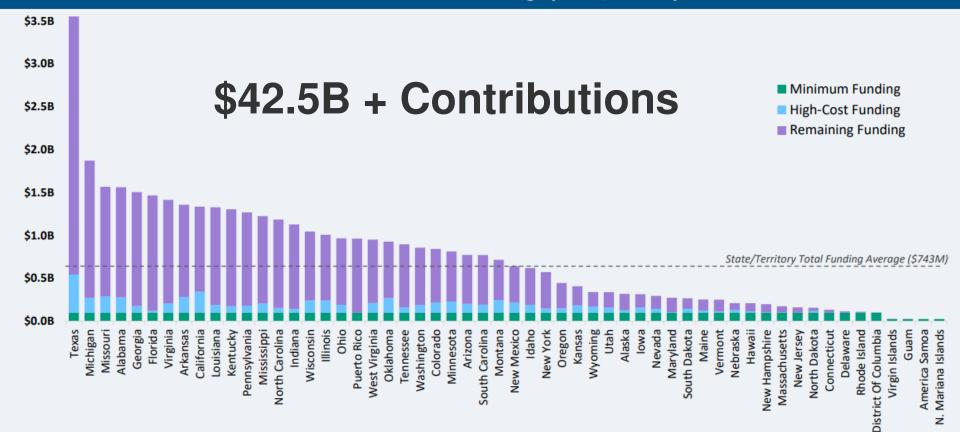




A Noble Cause



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

400+
CUSTOMERS

70+ COUNTRIES

70+ Million CLOUD CONNECTED HOMES/ BUSINESS

Access EDGE Subscriber EDGE

Optical EDGE

Cloud EDGE

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





















MID•HUDSON @able/























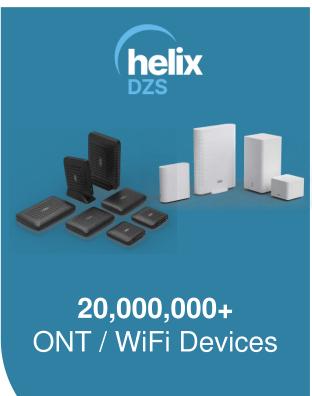


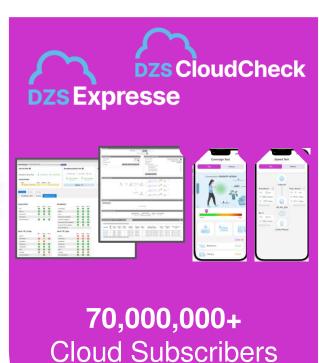


In the Network















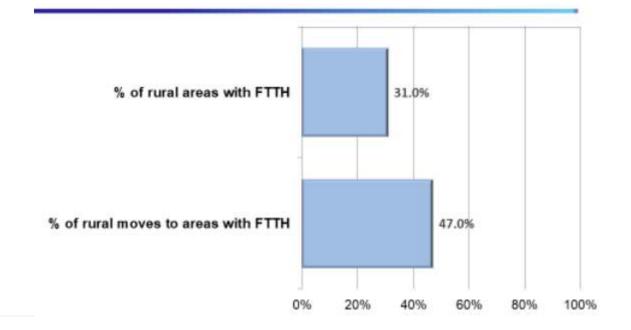
Look at the Big Picture

- Defines community trajectory
- Defines YOUR trajectory

Let's Do It Right



Rural Moves Are Biased To FTTH Availability







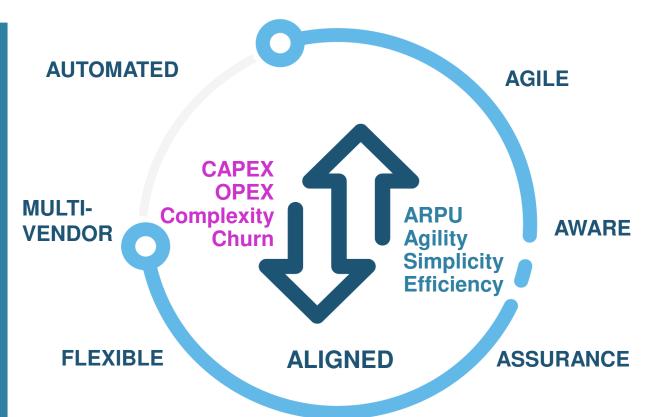
Let's Do It Right





Be Strategic

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







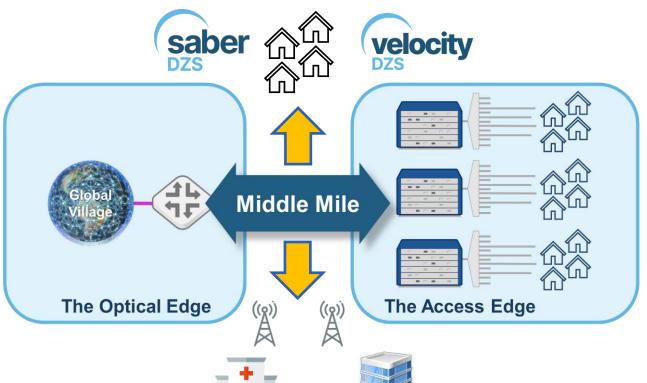






Be Strategic

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







Invest with the Future in Mind

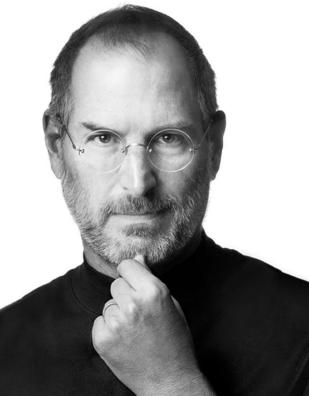
- Be an "Experience Provider"
- Choose technology for the long run

Let's Do It Right



"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

GPON 100G+ XGS-PON 50G-PON COHERENT 20GPON PON

Switching Capacity



Network Interfaces







Our Vision for BEAD Success









Thank You & Let's Do It Right!

See You on the Show Floor DZS Booth 14
Demonstrations Daily



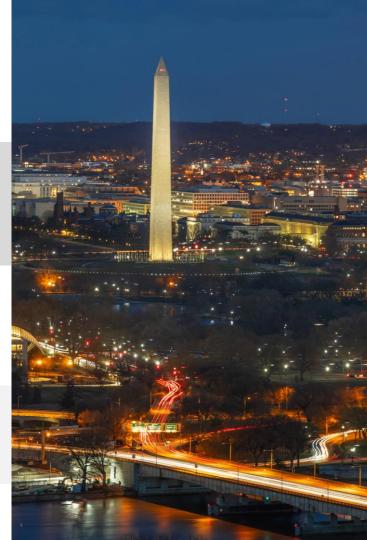






Geoff Burke
SVP, Product Marketing
Geoff.Burke@DZSI.com









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 and their communities.

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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www.shlb.org





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