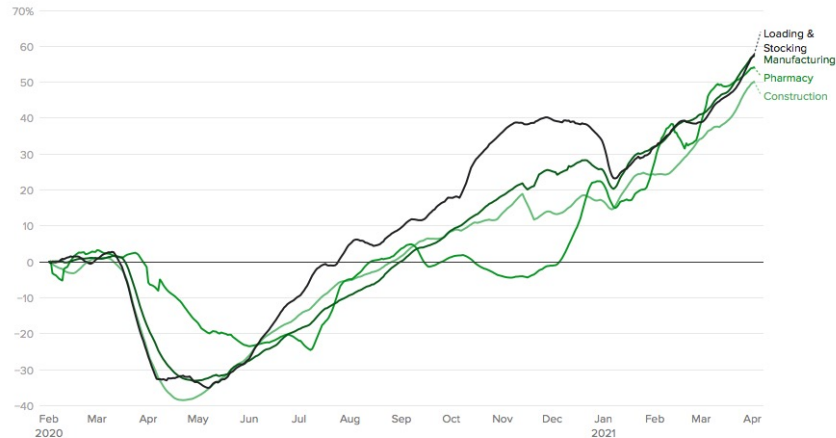


Today's Workforce Challenges.

The fastest-growing jobs on Indeed

Job listings in manufacturing, construction, warehouses and pharmacies have surged above their pre-pandemic levels.



Sources: Indeed, EMSI, ergonomictrends.com, Prudential, August 2021 Job Seeker Survey

- Record high job openings
- Rising attrition
- Wage pressure
- Multi-industry competition
- Flexible work

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**Workforce
challenge isn't
new and it isn't
temporary.**



Previous “Wars for Talent”



In-demand talent segments



Even demand overall



Competing against peer organizations

2021 and Beyond



All talent segments



Unprecedented demand and turnover hitting all at once



Competing against alternate careers, lifestyles, priorities

But it is evolving.

**Yet, there are much
larger and longer-
term workforce
concerns.**



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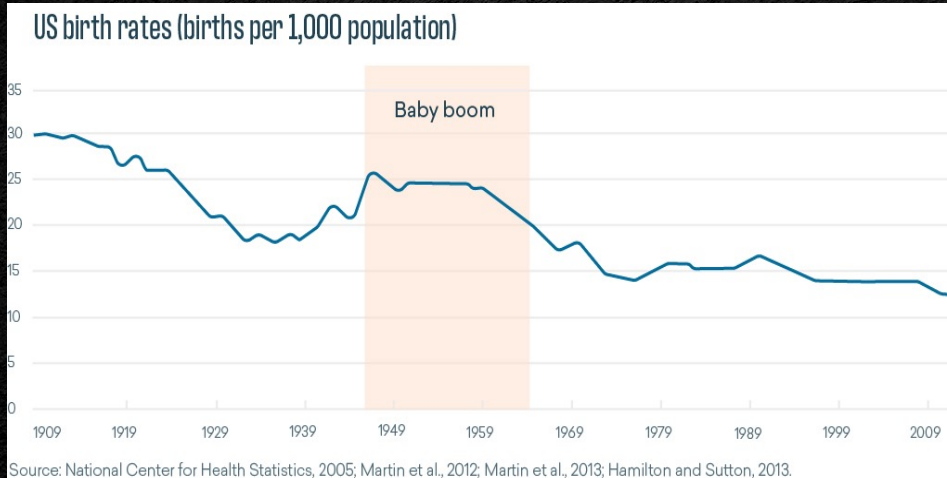


**One Generation Ages.
Next Generation Opts Out.
Coming Generations Shrink.**

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One Generation Ages.



- Labor force swelled to unparalleled levels
- Companies could shop for ready-made workers
- Still hold millions of roles in the workforce
- Accelerated exiting
- Amassing significant wealth to hand down

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Wealthiest Generation in History

Millennials are expected to inherit an estimated \$68T from boomer parents by 2030

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Next Generation Opts Out.

U.S. Labor Force Participation Rate



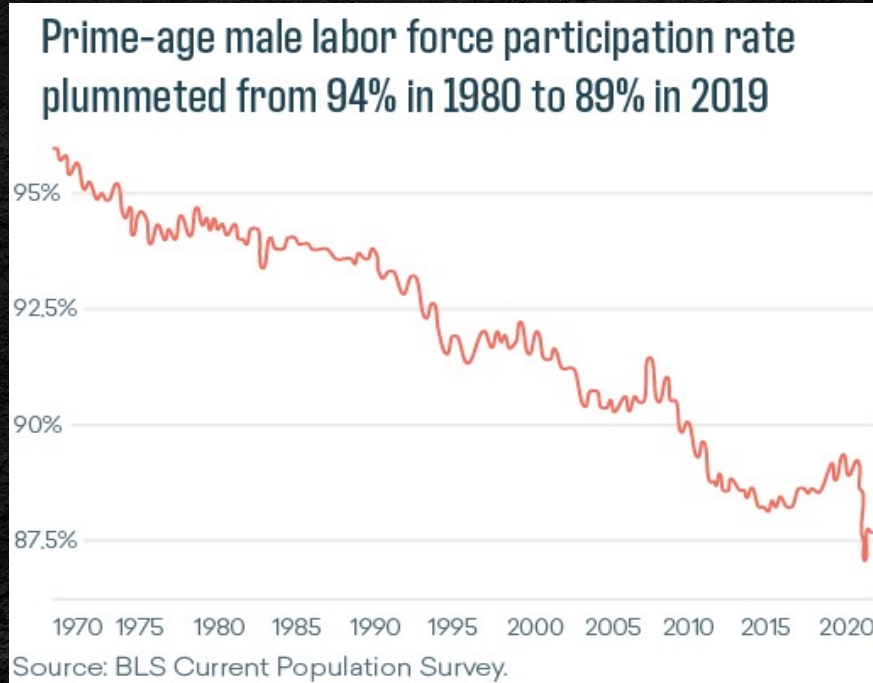
Data: Bureau of Labor Statistics

- Children and grandchildren of baby boomers aren't replacing them
- U.S. Labor Force Participation Rate has dropped to lows we haven't seen since the recession of the mid-1970s
- Record low labor force participation rate of prime-age Americans (25-54)

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Next Generation Opts Out.



- Men have been disappearing since the 1980s
 - Boomer wealth and later personal 'launch'
 - Increasingly prefer part-time work
 - Effect of Opioid Addiction
- 2.4M women left the workforce from Feb 2020 to Feb 2021
 - In January 2021 alone, 275k women left the workforce compared to 71k men

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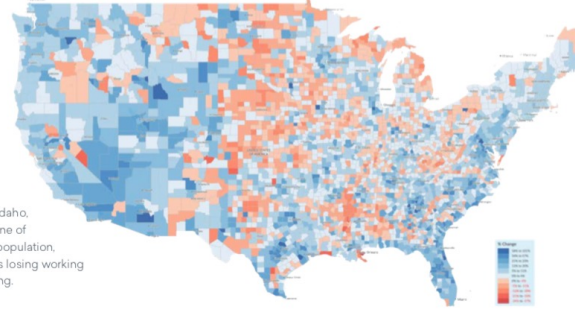


Working Age Population:

Losses that were mostly regionally concentrated in U.S. have become felt across the entire U.S. in 10 years

Percent change in working-age population by county between 2001 and 2011

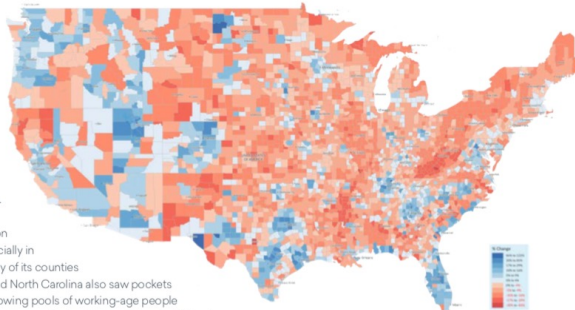
Notice how the worst losses are relatively localized to the Midwest and South. Almost every county on both coasts saw working-age population growth: between 2001 and 2011, rural areas were becoming increasingly elderly, while young people concentrated in prosperous urban centers. Most counties in Western states also saw their working-age population grow, although some counties in Oregon, Idaho, and Nevada suffered losses. Texas, one of the largest states in terms of overall population, was a mixed bag, with some counties losing working population and some counties gaining.



Source: Emsi labor market analytics

Percent change in working-age population by county between 2011 and 2021

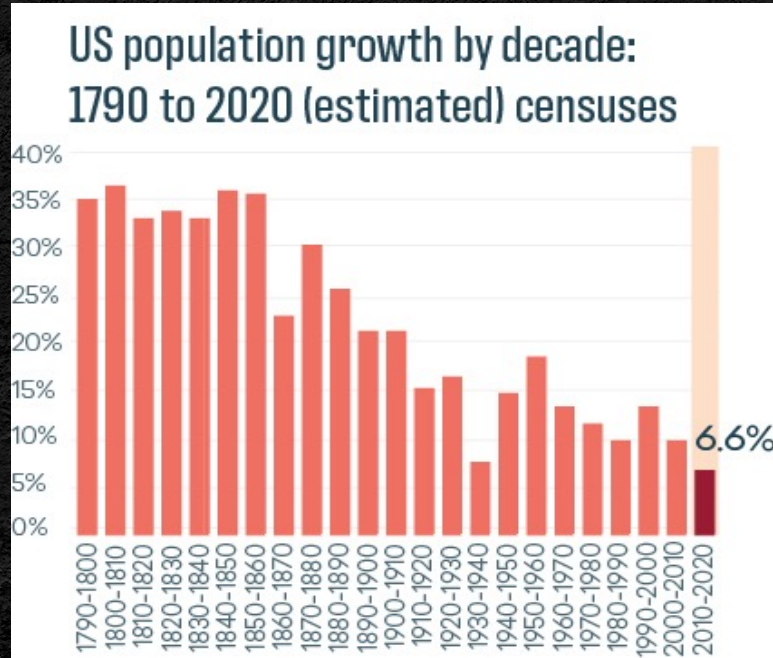
Note the stark contrast with the same map from only a decade earlier. Losses that were regionally concentrated have become nearly universal in the intervening 10 years. Economically powerful coastal regions suffered much more than they did in the previous ten years. In fact, California's coast is an almost completely unbroken stretch of working-age population loss. Interestingly, Florida, long considered by many a retiree colony, is an exception to these coastal patterns. Florida, especially in the southern part of the state, saw many of its counties gain working-age population. Texas and North Carolina also saw pockets of growth, but the largest areas with growing pools of working-age people were out west: counties in Washington, Oregon, Idaho, Utah, and Nevada. If the story of 2001-2011 was the hollowing out of America's heartland, 2011-2021 saw America's traditional hubs of economic and tech power lose young people in droves.



Source: Emsi labor market analytics



Slower population growth impacts workforce of the future



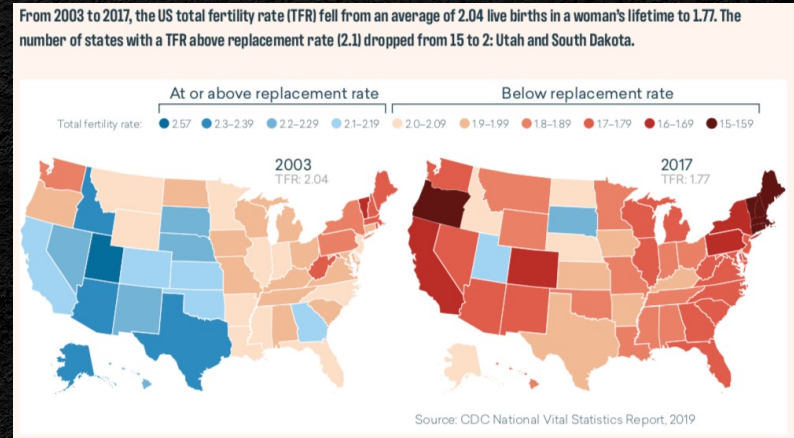
- This past decade's population growth is highly alarming
- Paltry 0.35% growth from 2019 – 2020
- U.S. population projected to begin shrinking by 2062, or faster if immigration does not produce growth

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Fertility rates impacting population growth significantly

- In 2003, nearly a third of US states had fertility rates above 2.1
 - In just 14 years, only two states remain
- Implications already realized
 - Student enrollment drops
 - Year over year working age population is falling steeply as a percentage of total population



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The Infrastructure Bill

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PRESIDENT JOE BIDEN

**BUILDING A
BETTER AMERICA**

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**A GUIDEBOOK TO THE
BIPARTISAN INFRASTRUCTURE LAW
FOR STATE, LOCAL, TRIBAL, AND
TERRITORIAL GOVERNMENTS, AND
OTHER PARTNERS**

Section Overview, Goals, Programs, Funding



Broadband

Challenge: Ensure that all Americans have access to affordable, reliable, high-speed internet service. High quality internet service is necessary for Americans to do their jobs, to participate equally in school learning, health care, and to stay connected. Yet, by one definition, more than 30 million Americans live in areas where there is no broadband infrastructure that provides minimally acceptable speeds – a particular problem in rural communities throughout the country. And, according to the latest Organisation for Economic Co-operation and Development data, among 35 countries studied, the United States has the second highest broadband costs.

Solutions: The Bipartisan Infrastructure Law invests roughly \$65 billion to help ensure that every American has access to reliable high-speed internet through a historic investment in broadband infrastructure deployment. The legislation will also help lower prices for internet service and help close the digital divide, so that more Americans can make full use of internet access.

Funding Overview: This funding falls into 7 major program areas – (1) the Broadband Equity, Access, and Deployment Program (\$42.45 billion); (2) the Affordable Connectivity Program (\$14.2 billion); (3) Digital Equity Planning, Capacity and Competitive Grants (\$2.75 billion); (4) the Tribal Broadband Connectivity Program (\$2 billion); (5) Rural Broadband Programs at the Department of Agriculture (\$2 billion); (6) the Middle Mile Broadband Infrastructure Program (\$1 billion); and (7) Private Activity Bonds (~\$600 million).

On January 7, 2022 – the National Telecommunications and Information Administration at the Department of Commerce released a Notice seeking comment on the **Broadband Equity, Access and Deployment program, the Middle Mile Broadband Infrastructure Program, and the Digital Equity Planning Grant Program.** The Broadband Equity, Access and Deployment program is a formula-based grant program to states, territories and the District of Columbia primarily for the purposes of state broadband planning and deployment. It can also be used for broadband data collection and mapping; to promote broadband adoption, including through the provision of affordable internet-connected devices; to provide Wi-Fi or reduced-cost internet access to multi-family housing units; and for other uses that the National Telecommunications and Information Administration determines are necessary to facilitate the goals of the program. States will distribute funds through a competitive grant program. Funding recipients have an obligation to offer a low-cost plan as a condition of receiving funding for broadband deployment. Future-proof deployments are prioritized. Each state, including the District of Columbia and Puerto Rico, will receive at least \$100 million. American Samoa, Guam, The Northern Marianas and the U.S. Virgin Islands will each receive at least \$25 million. The remainder of the funds will be allocated based on a formula that considers the number of locations in



each State or territory unserved by broadband and the number of high cost unserved locations.

The Middle Mile Broadband Infrastructure Program, administered by the National Telecommunications and Information Administration, will provide grants for the construction, improvement or acquisition of middle-mile infrastructure to eligible entities, including, but not limited to, telecommunications companies, technology companies, electric utilities, and utility cooperatives.

The Digital Equity Planning, Digital Equity Capacity, and Digital Equity Competitive Grants are three National Telecommunications and Information Administration-administered grant programs (two formula-based and one competitive) to plan for and then promote digital inclusion and equity for communities that lack the skills, technologies and support needed to take advantage of broadband connections. Grants can be used to accelerate the adoption of broadband through digital literacy training, workforce development, devices access programs, and other digital inclusion measures.

The Tribal Broadband Connectivity Program is an existing National Telecommunications and Information Administration program, that provides grants to federally recognized Tribal governments, Tribal organizations, Tribal Colleges and Universities, the Department of Hawaiian Homelands, and Alaska Native Corporations for broadband deployment on Tribal lands, as well as for telehealth, distance learning, broadband affordability, and digital inclusion.

On December 31, 2021, the Federal Communications Commission launched the **Affordable Connectivity Program** which provides a subsidy of up to \$30/month for low-income families (up to \$75/month for low-income families on Tribal Lands) to use toward the internet service plan of their choice offered by participating internet service providers, as well as a one-time \$100 towards a desktop, laptop or tablet computer offered by participating internet service providers.

The Broadband ReConnect Program, administered by the Rural Utilities Service at the Department of Agriculture, will provide almost \$2 billion in loans and grants toward the costs of construction, improvement, or acquisition of facilities and equipment needed to provide broadband service in eligible rural areas. Companies, cooperatives; and state, local, Tribal, and territorial governments may all apply for ReConnect funding.

Private Activity Bonds – the Bipartisan Infrastructure Bill allows states and local governments to issue private activity bonds to support broadband deployment in rural areas.

How to Prepare, and Resources



Getting Ready:

The Broadband Equity, Access and Deployment Program and the State Digital Equity Planning and Capacity Grants: In order to prepare to receive funding from the National Telecommunications and Information Administration from the Broadband Equity, Access and Deployment and State Digital Equity Planning and Capacity Grant programs, States should identify and solidify their state broadband leadership teams and begin coordinating across state agencies and with Tribal and local governments and other stakeholders to begin to develop a strategy and plan for identifying and meeting the state's broadband deployment, affordability and equity challenges.

Affordable Connectivity Program: In order to make sure low-income households in your communities can take advantage of the Affordable Connectivity Program, State, Tribal, and local leaders, internet service providers, and non-profits should identify opportunities to effectively reach out to low-income households and inform them about the program.

The Tribal Broadband Connectivity Program: Tribal leaders should identify and solidify their broadband planning, deployment and affordability programs and plan to participate in Tribal consultations, and National Telecommunications and Information Administration webinars and other information sessions regarding the Tribal Broadband Connectivity Program.

The Broadband ReConnect Program: Rural companies, government officials, and residents interested in bringing better broadband to your communities should to participate in Rural Utilities Service webinars to learn about the funding opportunity provided by the Broadband ReConnect Program.

Existing Resources:

- The American Rescue Plan included \$350 billion in State and Local Fiscal Recovery Funds, administered by the Department of the Treasury, which can be used to provide broadband affordability and deployment programs to respond to the negative economic impacts of the pandemic and to meet the necessary investments to expand affordable access to broadband. See more [here](#).
- Broadband deployment projects and digital connectivity projects are eligible uses for funding from the \$10 billion Capital Projects Program, administered by the Department of the Treasury and funded by the American Rescue Plan. Each State has been allocated more than \$100 million under that program, each Territory has been allocated more than \$14 million, and each Tribal government has been allocated \$167,000 under that program. See more [here](#).
- The Broadband ReConnect Program at the Department of Agriculture, is accepting applications, through February 22, 2022, for \$1.15 billion in grants and loans for broadband deployment in rural areas. See [here](#) for more information.

Program-Agency-Allocation, Program Detail



Program Name	Agency Name	Funding Amount
Broadband Equity, Access, And Deployment Program	Department of Commerce	\$42,450,000,000
Affordable Connectivity Program	Federal Communications Commission	\$14,200,000,000
Tribal Broadband Connectivity Program	Department of Commerce	\$2,000,000,000
Distance Learning, Telemedicine, And Broadband Program: Recombinant	Department of Agriculture	\$1,926,000,000
State Digital Equity Planning Grant	Department of Commerce	\$60,000,000
State Digital Equity Capacity Grant	Department of Commerce	\$1,440,000,000
State Digital Equity Competitive Grant	Department of Commerce	\$1,250,000,000
Middle Mile Grants Program	Department of Commerce	\$1,000,000,000
Distance Learning, Telemedicine, And Broadband Program: Broadband	Department of Agriculture	\$74,000,000
Affordable Connectivity Program - Outreach Grants	Federal Communications Commission	TBD
Broadband Deployment Locations Map	Federal Communications Commission	\$10,000,000
Small Commission Broadband Funding	Small Commission	\$250,000
TOTAL - BROADBAND		\$64,410,250,000



Broadband Equity, Access, And Deployment Program

Federal Agency: Department of Commerce

Bureau or Account: National Telecommunications and Information Administration

Funding amount: \$42,450,000,000

Period of Availability: Available until expended

Funding Mechanism: Grant

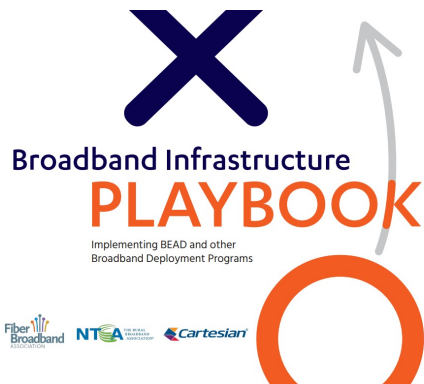
New Program: Yes

Recipients: States, Territories, District of Columbia

Description: Appropriates \$42.45 billion for states, territories, the District of Columbia, and Puerto Rico to use for broadband planning, deployment, and adoption projects. Each state, the District of Columbia, and Puerto Rico will receive an allocation of at least \$100 million and the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands will each receive \$25 million. Each state will receive initial funding of \$5 million and each territory will receive initial funding of \$1.25 million to support broadband planning efforts including building capacity in state broadband offices and outreach and coordination with local communities. Leveraging those initial planning funds each state and territory will submit a 5-year action plan, which shall be informed by collaboration with local and regional entities. The remaining funding will be distributed based on a formula that considers the number of unserved and high-cost locations in the state, based on the maps to be published by the Federal Communications Commission in 2022. The first priority for deployment is for providing broadband to projects that primarily reach unserved locations (those below 25/3 Mbps), followed by those that primarily reach underserved locations (those below 100/20 Mbps), and then serving community anchor institutions (1/1 Gbps).

Eligible Uses: Planning (e.g. broadband data collection and mapping); broadband infrastructure deployment (e.g. construction), to promote broadband adoption, including through the provision of affordable internet-connected devices; to provide Wi-Fi or reduced-cost internet access to multi-family housing units; and for other uses that the National Telecommunications and Information Administration determines are necessary to facilitate the goals of the program.

Playbook – Be in tune with State Offices/Plans



Using the Playbook

The Playbook is organized into 4 sections that cover key topics state broadband offices will need to address.

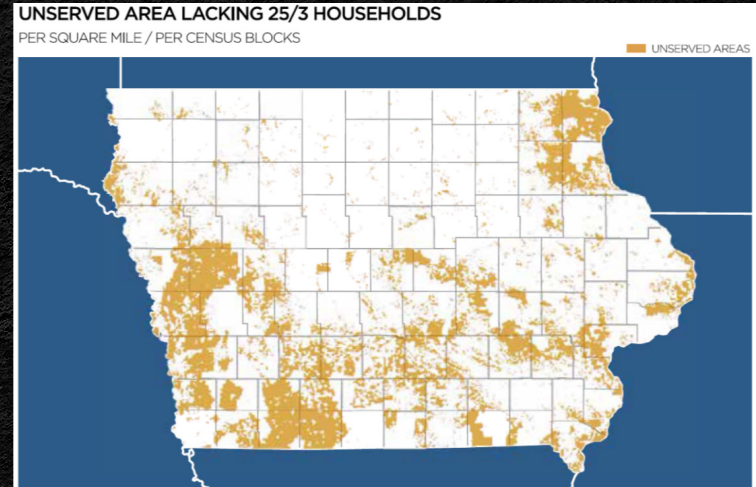
1	The State Broadband Office	2	The BEAD Application	3	Grant Program Design	4	Grant Program Administration
	Best practices for organizing and running a state broadband office well prepared for administering BEAD		Stages of the BEAD application to the NTIA including statutory requirements and pointers in preparing to unlock funding		Key steps in designing the state broadband grant program to achieve state and federal goals		Process steps involved in running a successful state grant program
	<i>For states that have yet to establish their Broadband Office, or that are seeking to augment their existing office to meet the scale of BEAD</i>		Start here to unlock your \$5 million in planning funds		<i>How to ensure BEAD delivers the strongest foundation for digital access & equity in your state</i>		<i>Recommendations and case studies from best practice state programs</i>

The Fiber Broadband Association announced that in partnership with NTCA –The Rural Broadband Association, the two groups have released the Broadband Infrastructure Playbook, a comprehensive guide designed to assist state broadband offices to best leverage federal funds available through the Infrastructure Investment and Jobs Act (IIJA). Developed in cooperation with global telecom consulting research firm Cartesian, the Broadband Infrastructure Playbook delivers relevant information from the Statute, outlines and recommends program structure and provides successful examples from the best state broadband programs.

Download a copy of the Playbook by clicking [here](#).

Iowa Broadband Plan example

1. \$450 million investment by the State...\$150M for 3 years.
2. **\$210 million Awarded thusfar, to 160 recipients**
3. Millions in additional private funds will be leveraged, turning \$210M state money into \$800M. Grant matching ranging from 35% to 75%.
4. Incentivizing providers to expand service in Iowa with the slowest speeds by covering 75% project cost for Tier 1 targeted service areas.
5. The new tiered system will scale the state's covered cost depending on current speed in that area with Tier 2 receiving 50% and Tier 3 receiving 35%.
6. **Requiring all providers to install at least 100 Mbps download and upload service for all projects that receive grant funding. = Fiber**



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Importance of our Voice, our Industry Input

For all of US

1. State Broadband office(s)
2. Your state and federal offices, especially those with oversight roles
3. To PCCA, to Eben Wyman – Give Feedback

For PCCA Gov't Affairs

1. /NTIA - New Office of Internet Connectivity and Growth (OICG)
2. Congressional Oversight, new Chairs as Republicans assume leadership
3. FCC, USDA/RUS
4. “Coalition” Partners/Associations

Supply Chain – How Did We Get Here?

Economics 101 – Supply and Demand

1. **Demand Up** – Multiple Waves of Stimulus, Quantitative Easing, Low interest
2. **Demand Change/Shift** – from services to goods
3. **Global Trade Up** – Imports/Exports Up 20% in 2021, Up 10% over pre-Covid
4. **Scarcity breeds demand**...hoarding, further bottlenecking, stuffing up warehouses

Supply Chain – How Did We Get Here?

Supply Constrained

1. **Deliberate Reduction in Output**...miscalculation of depth and length of demand reduction - 7 mon rebound in demand vs 23 mo with '08-09 financial crisis
2. **Lack of Production due to lack of people**...Covid, shutdowns, people leaving workforce, prime age males dying of Opioids
3. **Logistics Failure due to lack of people** in each link of supply chain...truck, rail, ship, ports, warehouse, etc.
4. **Physical apparatus of Trade not able to handle increased volume of trade**
Example: Ports of LA and Long Beach
Example: Containers: Inefficiency and volume demand more containers and price spike
5. **Policies that prolonged people staying on sidelines**...unemployment, stimulus checks, eviction moratorium, loan repayment deferrals, etc.
6. **Further Administration Policies** - Buy American, continuing tariffs, not seeking new trade agreements, further constricting labor thru PLA's and PRO act type provisions, etc.

Supply Chain – How did we get here...and what next?

1. **Global East/West Supply Chain Rift and Shift** for IP and national security reasons...semiconductors, IT, energy.
2. **Regionalization, near shoring, reshoring of “critical supplies”** which Covid laid bare...lack of PPE, Pharma supplies, critical minerals, etc.

And New or Potential Challenges...

1. **Infrastructure Bill...short-term competition for labor and material** (long term reduces supply chain stress)
2. **Russia/Ukraine – Oil & Gas, Steel, Minerals, Shipping Personnel**
3. **China’s “No Tolerance Covid Policy”** may backfire

How to Address the Challenge – The Present

What We Control:

1. Work with Customers and Suppliers/Vendors – Communication and Creativity
2. Retain and Flex our Workforce – culture, comp, train on multiple jobs
3. Increase critical inventory
4. Corporate Culture, principles, values

Government Action or Advocacy:

1. Flexibility in appropriations for Infrastructure Bill
2. H2B visas or other immediate workforce availability
3. Push back on Administration or Congressional policies that constrict labor or material
4. Encourage State-level workforce availability...appropriate child care support, reform unemployment systems, housing support, etc.

How to Address the Challenge – Mid-Long Term

What we Control:

1. Accelerate Automation and Productivity tools in Manufacturing
2. Bring suppliers/vendors even closer physically and strategically
3. Lean/Continuous Improvement with increased flexibility

Government Action or Advocacy:

1. Make sure Infrastructure Bill delivers
2. Immigration reform - short term raise H1B and H2B caps, longer term comprehensive reform
3. Advocate for policies that increase labor participation rate of those who should be working
4. Make “having more babies” cool again!