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A Blueprint for Better Broadband in Nebraska

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Foreword by Jim Smith

Jim Smith is Chief Strategy Officer at the Platte Institute and former President of Blueprint Nebraska. He also previously served as a State Senator and chaired the Transportation and Telecommunications Committee of the Nebraska Unicameral Legislature.

In 2018 and 2019, I had the opportunity to work with business leaders from across the state to develop an economic initiative for greater competitiveness and growth. The initiative was called Blueprint Nebraska and included leaders like Governor Pete Ricketts, Union Pacific CEO Lance Fritz, and 21st Century Equipment CEO Owen Palm. Together, the 21-member steering committee committed to building a blueprint for Nebraska's future based on its core strengths of land, people, and location.

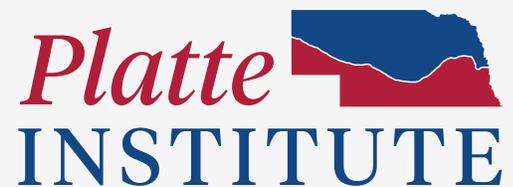
The Council for Technology and Innovation, chaired by industry leader Gary Warren of Hamilton Telecommunications, was one of 16 industry councils formed by Blueprint Nebraska to examine root causes of Nebraska's current competitive standing and to form key recommendations for improving the state's economic position. The council identified three primary goals related to technology and innovation: create a technical workforce, invest in innovation, and capitalize on industrial biotech and precision engineering. Moreover, the council highlighted a common denominator for the achievement of its prime goals: "Nebraska should strive to have the highest level of high-speed broadband infrastructure available amongst its peer(s)."

In 2019, Blueprint Nebraska released its *Growing the Good Life* report, and highlighted broadband

access in its 15-point plan for statewide economic competitiveness and growth. The Blueprint report applauded recent efforts to address Nebraska's broadband challenge, but encouraged additional work to further increase rural broadband access and make Nebraska's large and small cities national models for digital connectivity.

In its report, Blueprint Nebraska recommended three primary actions to accelerate access and adoption: create a clear understanding of high-need, high-impact areas for broadband expansion; make the case for continued investment by calculating the expected return on investments necessary for expanded access and adoption rates; and seek partners for capital investment and optimize use of public funding. As with the full Blueprint Nebraska plan, these recommendations related to broadband remain as valid—if not more—in a post-COVID economy.

As Nebraska meets the broadband challenge, it is important that our regulators, state legislators, key stakeholders, and citizens have a clear understanding of the broadband situation in Nebraska and the best solutions for our state. This report by the Platte Institute serves the public interest to this end and, moreover, ensures that we examine the best options for private-sector-driven solutions.



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Basics of Broadband

When we refer to Broadband, we are primarily referring to the digital telecommunications infrastructure, whether wireless or wireline technologies, that enable high-speed exchanges of data and information.

This exchange of data is critical to business-to-business transactions, consumer activities, education and learning platforms, health care and quality of life needs, and a broad range of social interactions. In fact, it's hard to imagine any element or corner of our modern world that is not impacted or controlled by Broadband.

Commonly referred to as high-speed internet access, Broadband provides for a higher-speed of data transmission that is measured in megabits per second (Mbps) of download and upload speed.

Download speed is the speed at which information travels from the internet to your internet-connected device. For example, if you open the Facebook app, your download speed would determine how long it takes to load your feed.

Upload speed is the opposite. It is the speed at which information travels from your internet-connected device to the internet. So, if you post to your Facebook timeline, your upload speed would determine how long it takes your post to get to the Facebook server for all your friends to see.

For internet service to qualify as Broadband, the Federal Communications Commission (FCC) specified that the provider must deliver at least 25 Mbps download speed and at least 3 Mbps upload speed (i.e., 25/3 Mbps). When it comes to recent state and federal funding

Upload speed measures data being sent from a device to the internet.



Download speed measures data being received from the internet onto a device.

Mobile Broadband refers to the Broadband connection you

requirements for grant recipients, however, these standards are increased to 100/100 Mbps.

Streaming high-definition videos, gaming, and downloading large files use the most bandwidth (i.e., Broadband capacity) and rate of data transfer (i.e., Broadband speed). To achieve a virtually seamless experience with videoconferencing or online education programs and multiple devices or users (i.e., activities requiring robust upload and download data transfer), one would need broadband speeds up to 100 Mbps and above. For other activities like streaming music, browsing the internet, and other lower data usage activities (i.e., download data transfer), 25 Mbps should be sufficient.

The high-speed transmission technologies shown on the next page are best considered for providing fixed-location wireline Broadband services.

Although wireline technologies are foremost today, satellite, and fixed- and mobile-wireless technologies, are important to briefly note as well.

Fixed-wireless Broadband uses wireless technology to cover the last mile to the customer. Data first travels over a pre-existing hard-wired network to a broadcast tower where it can then travel by radio waves for limited distances to last-mile stationary consumers (e.g., homes and buildings). Transmission between the broadcast tower and the consumer requires no physical wires or cables but does require transmitters and receivers at either end of the data transmission.

Faster

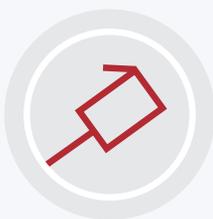


Fiber internet uses fiber-optic cables capable of transmitting large amounts of information quickly. But while fiber is fast, it isn't available in as many areas due to the high cost of creating its network infrastructure.



Cable internet uses the same types of cables that transmit cable TV services and can reach high speeds. It is usually available through current or former cable TV providers in their respective areas. Cable internet speeds are usually similar to DSL speeds, but can be even faster in some areas.

Slower



DSL uses a connection that looks similar to a phone line, but the wiring inside is different and allows for Broadband transmission. This makes DSL much faster than dial-up. Current or former telephone companies that also provide internet service often use this technology, and it is usually available throughout their service areas.

get on your cell phone or mobile device, and uses the same technology as fixed-wireless Broadband. However, because the connection is not stationary and predictable, mobile Broadband provides a lesser connection, and is a poor solution for rural broadband service.

In the case of a satellite service, Broadband is delivered directly via satellites, instead of fiber or mobile networks.

Nebraska's Current Broadband Condition

When we discuss the condition of Broadband in Nebraska, the topic can mean many things to many people. Examining the condition of Broadband can range from the assessment of unserved and underserved areas across the state, to examining the causes of low adoption rates and deployment of new technologies. For the

purpose of this report, we will focus on the conditions associated with deployment of Broadband to known unserved and underserved communities across our state.

While Nebraska has benefited from significant private-sector Broadband investment, sizable portions of the state still do not enjoy benefits of high-speed internet access. Because of wide degrees of internet access and usage when discussing Broadband in Nebraska, it is important to distinguish between *underserved* (speeds less than 100/20 Mbps) and *unserved* areas (speeds less than 25/3 Mbps) of the state.

The map on page 5 represents Nebraska's Broadband coverage according to performance speed.¹ Areas of the map depicted in orange are determined to have Broadband speeds of at least 100/20 Mbps. All other areas of the map are considered *underserved* or *unserved* and are the primary focus of federal and state funding programs that are underway or proposed.

Broadband access at speeds of 100/20 Mbps is essential for many activities required for quality of life and economic investment and growth in rural Nebraska. Farmers and ranchers rely on Broadband access to manage and operate their successful businesses, the same as small businesses do in urban and suburban America. Access to Broadband is essential for farmers and ranchers to follow commodity markets, communicate with their customers, gain access to new markets around the world and, increasingly, for regulatory compliance.

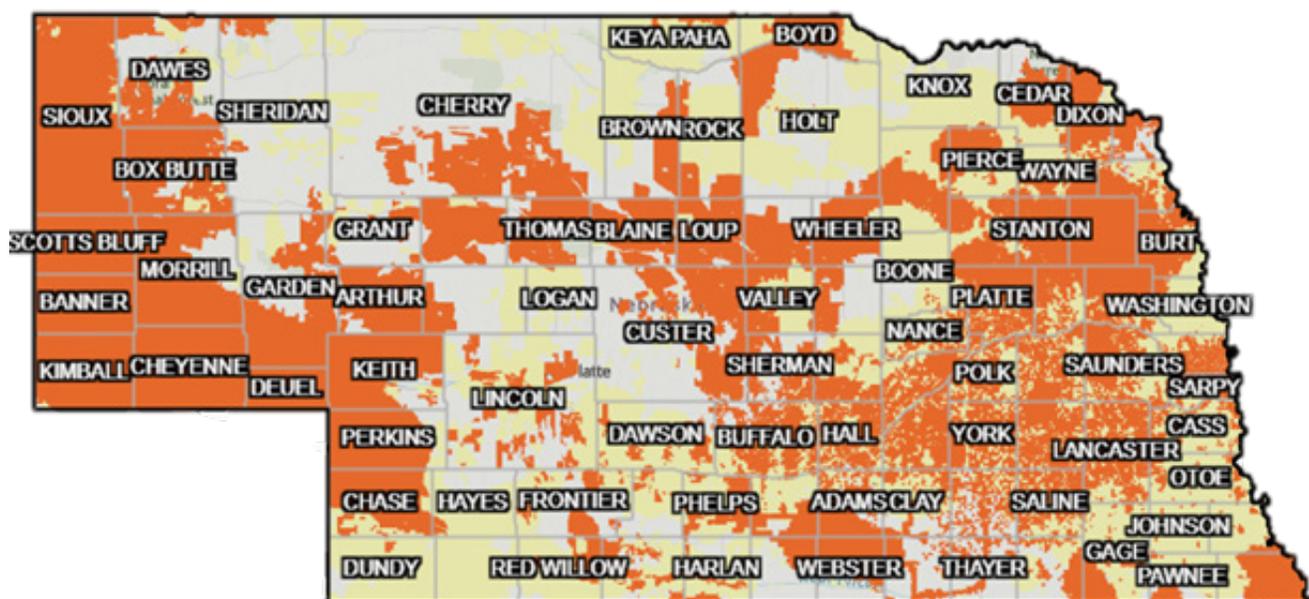
High-speed internet is also essential for telehealth where traditional health care services are not immediately or otherwise available, for access to critical government services, and for remote learning for K–12 and higher education. Additionally, to attract business and start-up investment in communities and rural areas across the state, robust connectivity is needed for modern business operations, as well as the quality-of-life measures for attracting and retaining a younger rural workforce.

Broadband Funding Programs and Legislation

The following pages include highlights of legislation enacted and proposed by the federal government and Nebraska policymakers to address unserved and underserved areas of the state.

Although Broadband deployment has long been considered a major factor for capital investment, business, commerce, and quality of life measures, the COVID-19 pandemic led to a dramatic increase in Broadband awareness and infrastructure spending. Among the many federal programs passed in the last 2-3 years, those most affecting the deployment of Broadband in Nebraska include:

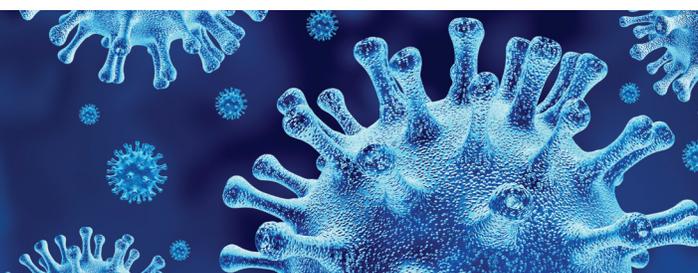
- Coronavirus Aid, Relief and Economic Security (CARES) Act
- American Rescue Plan (ARPA) Act
- Coronavirus Capital Projects Fund (CPF)
- Infrastructure Investment and Jobs Act



NOTE: When talking about the condition of Nebraska’s communities relative to Broadband access, it is important to also mention adoption rates or the relative percentage of users adopting or using fixed-location high-speed transmission technologies. Low adoption rates, partly due to poverty and affordability, are addressed within several federal funding programs but excluded from this discussion of unserved and underserved communities.

CARES

CORONAVIRUS AID, RELIEF AND ECONOMIC SECURITY ACT



\$29.5 million assigned to Nebraska projects to date; coordinated by Nebraska Department of Economic Development²

The CARES Act was a \$2.2 trillion economic relief bill passed and signed into law in March 2020.

In direct response to the first round of federal relief money in early 2020 and the onset of the COVID-19 pandemic, Governor Ricketts directed the Department of Economic Development to

make available through a competitive award process \$40 million in CARES Act funding to private entities for broadband expansion projects. Of the \$40 million originally available, \$29.5 million has been allocated to qualified projects. Use of these funds were restricted to unserved and underserved areas, and overbuilds less than 100/20 Mbps.

ARPA

AMERICAN RESCUE PLAN ACT



Issued directly to local governmental entities. However, amount allocated to Broadband is unknown.

Also called the COVID-19 Stimulus Package or American Rescue Plan, ARPA is a \$1.9 trillion economic relief bill passed and signed into law in March 2021. The package builds upon many of the measures in the CARES Act from March 2020.

ARPA provided \$219.8 billion to states, territories, and tribal entities with one of the approved uses being Broadband infrastructure investment. Allocated directly to local governmental entities, ARPA funds can be used for water and sewer projects and a variety of Broadband-related projects, including deployment

of networks, supporting digital learning and training programs, telehealth and telemedicine, and subsidizing the purchase of devices and internet access.

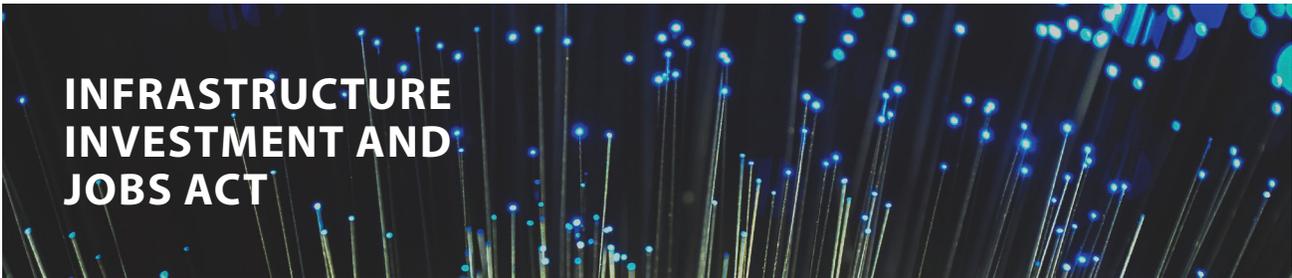
It is estimated that local governments in Nebraska received \$662 million, of which a portion will potentially be spent on Broadband-related needs.³ Although the individual local entities have jurisdiction over their respective funds, this report later urges broader coordination with the state agencies to avoid duplication and waste.



An estimated \$128 million available to the state of Nebraska; application by Office of the Governor in progress

Also created through the ARPA legislation was the Coronavirus Capital Projects Fund (CPF). Of the \$10 billion approved through the CPF for Broadband project funding, the state of Nebraska was allocated \$128 million. CPF eligible projects include broadband infrastructure, digital

technology connectivity projects, and multipurpose community facility projects. As of late November 2021, the Governor's Office was in the process of applying for the state's portion of federal funds under this program.



Guaranteed to be a minimum of \$100 million and estimated to be \$300 million; status unknown, but to be assigned to the state of Nebraska

The Infrastructure Investment and Jobs Act was signed into law in November 2021 and included several programs pertaining to Broadband, including the Broadband Access, Equity and Deployment Program (BEADA).

BEADA will provide direct grants to the states, who will then make project funding awards to eligible subgrantees. Under this program, states are guaranteed \$100 million in funding with additional funding to be distributed based the number of unserved homes within the state. The level of

such funding will be based upon new broadband availability maps that will be created by the Federal Communications Commission.

Grant projects must provide a minimum speed of 100/20 Mbps, and funding is focused only for unserved locations (less than 25/3 Mbps) and underserved locations (speeds between 25/3Mbps and 100/20 Mbps). States may also use the funding for costs associated with data collection, mapping, and planning. Grants must include a 25% match from successful grant recipients.

OTHER NEBRASKA INITIATIVES

NEBRASKA LEGISLATURE

The Nebraska Legislature also took its own action to enhance the deployment of Broadband. In 2018, LB944 was signed into law, which created the Nebraska Rural Broadband Task Force, which remains active. The bill also set speed standards for all residents in the state of a minimum download of 25 megabits per second (Mbps) and a minimum upload of 3 Mbps.

The following year, two bills, LB338 and LB388, were signed into law and changed the state's Broadband landscape and regulatory climate. Together, these laws updated the definition of Broadband service to have a download speed of 100 Mbps and a minimum upload speed of 20 Mbps. Since many municipal governments

also received money for Broadband deployment, the legislation prohibited any local government from using federal Broadband support dollars to overbuild any existing provider capable of providing 100 Mbps download and 20 Mbps upload capable service. In addition, the laws committed an annual \$20 million from the state's General Fund for expansion of Broadband services and created the Broadband Bridge Act, which makes funding available through a competitive bidding process. And finally, the new legislation specified that high-cost support distributed through the Nebraska Universal Service Fund (NUSF) shall only be distributed to projects that provide Broadband scalable to 100 Mbps download and 100 Mbps upload starting in 2022.

Designing Nebraska's Plan

Communities all across the country are exploring ways to overcome the digital divide and to make good use of the "once in a lifetime funding" offered by the federal government. Nebraska is no different, and now is the opportune time for our policymakers and practitioners to build a plan that fits the unique needs and ideals of our great state.

When it comes to Broadband solutions that are right for Nebraska, we encourage state leaders to optimize the use of federal and state Broadband funding programs by adhering to sound public policy and using well-structured private-public partnerships. Specifically, we propose that our policymakers and practitioners formulate actions around three primary objectives:

- Encourage private-sector investment
- Expand and maintain last-mile service coverage
- Ensure efficient and effective use of funds

Encourage Private-Sector Investment

Future private-sector investment will be impacted by the conditions set for public access to funding for the development and operation of Broadband networks. In Nebraska, public access would include local municipalities or other government institutions, like public power districts. This is important because investment in Broadband in Nebraska to date has primarily been through private-sector action, encouraged by the prospects of financial return. Also, because the private-sector is subject to the oversight of shareholders,

the opportunities for financial failure are mitigated by the industry’s experience with managing risk. Conversely, public access—aside from public-private partnerships—carries with it certain risks for the taxpayer, as well as disincentivizing critical investment by the private sector.

Means for encouraging private-sector investment, including private-public partnerships include:

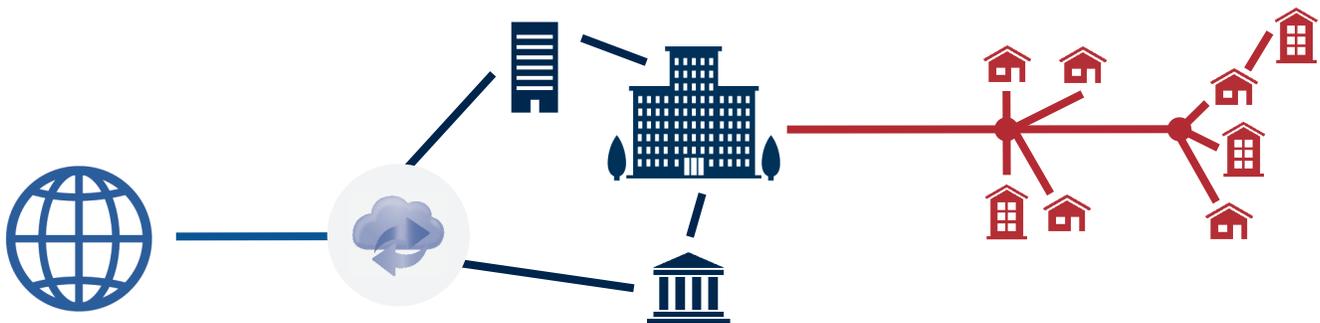
- Require recipients of state and federal funding to have significant experience in Broadband deployment, to have the financial ability to see a project through to completion, and to show how they intend to maintain the facilities constructed.
- Define the public-sector’s role in Broadband development by designing model private-public partnerships. Such partnerships should meet federal conditions for funding while minimizing unreasonable public-sector competition.
- Award project funding through competitive processes that are technology-neutral. However, preference should be given to technologies that are scalable and cost efficient over the long run, as well as meet speed requirements.

- Funded programs should be laser-focused on deploying Broadband and not used to achieve other unrelated, or extraneous policy objectives. This includes restricting the cross-subsidizing of projects that use public funds for unrelated operations.

Expand and Maintain Last-Mile Service Coverage

Another area affecting long-term outcomes is *overbuilding*. Overbuilding occurs when one provider moves into the geographic service area of another provider, building one network over another. Normally, free-market competition is adequate to sort out this issue. However, when a rural community has scarce competition for Broadband services, some level of consumer protection is prudent, especially when taxpayer dollars are involved. For example, consider an incumbent provider that is currently providing 25/3 Mbps service to a town as well as individual, last-mile customers on the far outskirts of town. Now consider that a competitor provider decides to overbuild the town, but not the individuals on the outskirts, because the cost of infrastructure to the outlying customer is many times more than infrastructure to the average home in town

MILES OF A BROADBAND NETWORK



First Mile

The internet at large.

Middle Mile

Internet Service Providers which link the first mile with a local end-user. This infrastructure tends to be located in metropolitan areas and incorporates larger and more densely situated business and residential customers.

Last Mile

A retail end-user who must be connected to the Internet Service Provider’s larger network at the middle mile.

(i.e., the new provider is unable to obtain the necessary return from the last-mile customer). In this scenario, it is possible, if not likely, that the incumbent provider loses enough accounts to the new provider that it abandons its operations in the area, leaving the individual on the outskirts stranded and without even the slightest level of Broadband service.

Activities to help promote last-mile service and avoid stranding last-mile customers include:

- Continue to work with providers, state and federal regulators, and the academic community to refine and increase the accuracy of broadband mapping tools.
- Set clear standards for what is considered “served” and “unserved,” and include a challenge process to help ensure that government funds are prioritized and directed to those areas most in need.
- Where network overbuilding may occur, set conditions to prevent the abandonment (or abandonment-in-place) of customers. This might include the use of incumbent telephone company exchange boundaries or other quasi-extraterritorial jurisdictions in the grant-application process, in essence creating an “all or nothing” application selection standard.
- Develop a final course of action (i.e., last resort) when the private sector is unable to deploy the necessary Broadband services. This should involve developing the structure for a public-access solution when no other option exists for providing Broadband to last-mile consumer-users.

Ensure Efficient and Effective Use of Funds

Like other states, Nebraska has seen an influx of money aimed at helping residents access high-speed internet, and may receive hundreds of millions more. The goal of Nebraska’s policymakers should be to ensure that this new funding is not misspent and that state and local officials take action to ensure all available funding is appropriately prioritized and deployed in the most effective manner. Without careful coordination and an effective framework for private-public partnerships, Nebraska risks duplication of efforts and government waste.

Actions to prevent duplication and waste include:

- Designate a single high-level person (i.e., Broadband Director) within the Executive Branch (e.g., Cabinet-level office) to collaborate with key stakeholders in the design and development of recommended policies and supporting processes for managing all federal broadband funding programs.
- Develop a regulatory framework within the Public Service Commission (PSC) to manage federal Broadband funding programs across local entities, state policymakers, and industry practitioners. This will require ongoing coordination between the PSC and the Broadband Director on the recommended policies and processes developed by the Executive Branch.
- Promote maximum transparency in the administration of funding, and providing enhanced accountability for the development and administration of projects to the Governor, the Legislature, and to the public.
- Safeguard that funding programs are designed as one-time grants for a project. However, if such a project requires ongoing public support for operations, ensure transparency for use of such funds.
- Reduce costs and remove barriers to deployment by minimizing regulations and increasing coordination between providers and public entities.

Conclusion

Now more than ever, the need for affordable and reliable high-speed Broadband access has been demonstrated for all Nebraskans. Broadband access impacts all sectors of the state's economy, from education to health care, and from agriculture to accessing government services. It also impacts the ability of businesses to effectively operate and for individuals to remain productively employed. The state and federal governments have made significant investment to date in Broadband infrastructure with significantly more investment to be made over the next several years.

By conservative estimates, the cost to deliver high-speed Broadband to every home and business in Nebraska could reach nearly \$1.2 billion⁴, while generous estimates place total federal and state funding to meet the need at roughly half that amount. So, while the available program funding by federal and state sources is sizable, it is unreasonable to believe we can satisfy all needs without tight management of federal resources, ongoing use of universal service funds, and continued investments and actions by the private sector.

Policymakers need to work to safeguard that funding is delivered to experienced, capable, responsible private sector companies who will be accountable and transparent. And where no clear path exists for private-sector solutions, policymakers and practitioners must come together to build alternative models that deliver results, without risk to the taxpayer, and harm to private-sector motivation.

Endnotes

1. <https://broadbandmap.nebraska.gov>
2. <https://www.opportunity.nebraska.gov/gov-ricketts-announces-recipients-of-rural-broadband-grants/>
3. Allocation to Municipalities and Counties: <https://www.nlc.org/resource/local-allocations-in-the-american-rescue-plan/>; <https://www.naco.org/resources/featured/state-and-local-coronavirus-fiscal-recovery-funds/>
4. <https://www.costquest.com/resources/dashboards/state-broadband-data-tool/>



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OUR MISSION

To advance policies that remove barriers to
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A non-profit foundation, the Platte Institute relies on the resources and innovative thinking of individuals who share a commitment to liberty and the best possible quality of life for Nebraskans.