CONNECTING INDIANA

FIVE YEAR ACTION PLAN
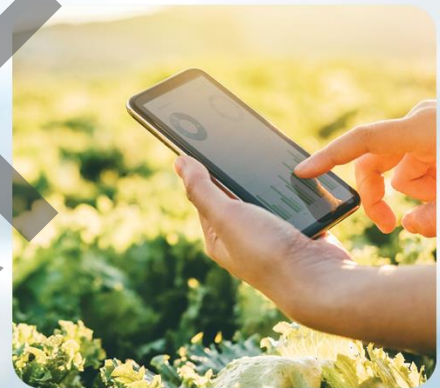
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1 Executive Summary

Indiana is diligently working to expand broadband access across the entire State, recognizing its vital role in economic development, education, healthcare, and overall quality of life. The State has implemented numerous initiatives and programs to enhance broadband infrastructure and connectivity, guaranteeing that all residents can enjoy reliable and affordable high-speed internet services. Governor Eric Holcomb has shown a strong commitment to this effort by investing over $268 million in broadband infrastructure through the Next Level Connections (NLC) program, benefiting more than 74,800 homes and commercial locations. These initial investments have yielded valuable insights on encouraging private investment, resulting in a total leverage of over $580 million.

In 2018, the establishment of the Indiana Broadband Office (IBO) further strengthened the State's dedication to connect all Hoosiers. The following plan outlines the vision, goals, and objectives supported by an impressive $868,109,929.79 investment in broadband, the largest in Indiana's history. The IBO plays a central role in coordinating broadband expansion projects and fostering partnerships between public and private stakeholders. Indiana aims to build on past accomplishments and extend broadband access to all Hoosiers through various delivery methods, meeting residents' internet needs while driving economic development.

Indiana actively seeks and leverages federal funding opportunities to support broadband expansion, including the Broadband Equity, Access, and Deployment (BEAD) Program authorized by the Infrastructure Investment and Jobs Act of 2021. Recognizing the significance of planning, collaboration, and learning from previous efforts, Indiana views this plan as a crucial step in maximizing the benefits of such a monumental investment.

This plan embodies fundamental principles that will drive the work of the IBO across the State. These principles have been developed through extensive discussions held by the IBO with community organizations, ISP partners, broadband taskforces, as well as other state agencies and departments.

Areas of focus:

- Enabling robust broadband access for Hoosiers is an imperative priority, with particular focus on addressing the challenges faced in rural areas, where the close ties to agriculture create unique obstacles.

- Community participation is crucial and will influence all aspects of broadband deployments. Feedback and preparation will be incorporated at every phase of the BEAD deployment.

- Workforce considerations play a pivotal role throughout every stage of broadband deployment, encompassing initial infrastructure development, collaboration with third-party entities that control essential assets, and the ongoing maintenance and operation of the network.

- Digital equity and literacy must be addressed comprehensively across Indiana, spanning from promoting equal access to technology and connectivity to empowering individuals with the necessary digital skills for full participation in the digital age.
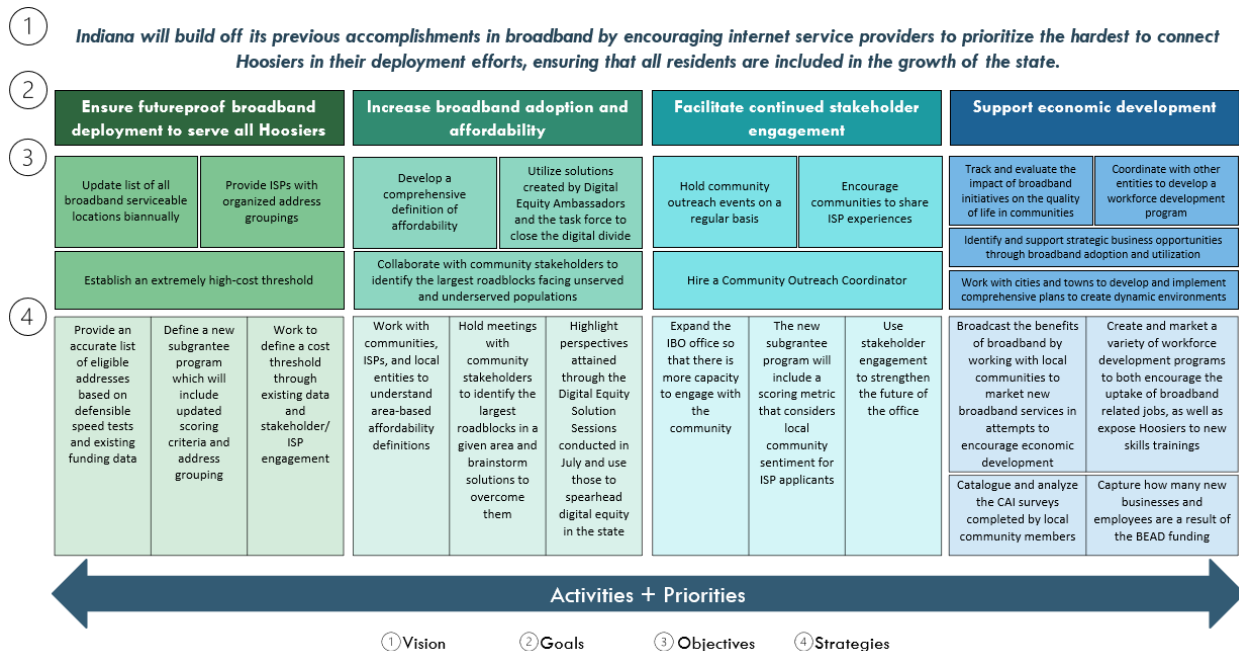
These principles are pervasive throughout each chapter of this plan and play a pivotal role in shaping how the IBO approaches the task of connecting every resident in Indiana.

To ensure efficient deployment of broadband infrastructure, Indiana adopts a data-driven approach. The State has heavily invested in mapping initiatives to accurately identify areas lacking reliable broadband access and determine optimal expansion strategies. The IBO has identified four priority areas—ISP selection, location selection, Community Anchor Institutions (CAIs), and State Activities—to guide implementation efforts. This comprehensive plan empowers the IBO to create an environment that is ready and adaptable for deploying a broadband megaproject. By gaining a deep understanding of the broadband landscape, Indiana can efficiently allocate resources, target areas in greatest need, and collaboratively overcome barriers and obstacles.

Moreover, Indiana actively engages in public-private partnerships to accelerate broadband deployment. By collaborating with internet service providers (ISPs) and other stakeholders, the State leverages their expertise, resources, and infrastructure to extend broadband access to underserved areas. These partnerships foster innovative approaches to last-mile connectivity, ensuring that broadband reaches even the most remote parts of the State.

Indiana recognizes the importance of digital equity and inclusion, aiming to bridge the digital divide by addressing affordability and accessibility barriers. Through the Purdue Center for Regional Development (PCRD) and a dedicated task force, the State is actively seeking solutions to make broadband services more affordable for households, ensuring that cost is not a hindrance to access. PCRD is a thought leader in the digital divide space. Their research provides Indiana and the nation with helpful context about the existing barriers in accessing broadband and its impact on residents. Access to PCRD's work ensures Indiana is at the forefront of addressing these challenges with proven solutions.

Furthermore, Indiana plans to invest in digital literacy and skills training programs. Understanding that access to broadband alone is insufficient, the State plans to empower residents with the necessary digital skills and knowledge to fully participate in the digital economy. Through solution sessions, training, and educational resources, Indiana equips individuals with the tools to maximize broadband connectivity and harness its potential. In summary, Indiana's comprehensive and multifaceted approach to expanding broadband across the State reflects its unwavering commitment. Through the IBO, strategic partnerships, targeted funding initiatives, and a focus on digital equity, Indiana ensures that every resident has access to high-speed internet services. By bridging the digital divide, the state paves the way for economic growth, innovation, and an improved quality of life for all residents in the digital age.

Indiana will build off its previous accomplishments in broadband by encouraging internet service providers to prioritize the hardest to connect Hoosiers in their deployment efforts, ensuring that all residents are included in the growth of the state.

Ensure futureproof broadband deployment to serve all Hoosiers			Increase broadband adoption and affordability		Facilitate continued stakeholder engagement		Support economic development	
Update list of all broadband serviceable locations biannually	Provide ISPs with organized address groupings		Develop a comprehensive definition of affordability	Utilize solutions created by Digital Equity Ambassadors and the task force to close the digital divide	Hold community outreach events on a regular basis	Encourage communities to share ISP experiences	Track and evaluate the impact of broadband initiatives on the quality of life in communities	Coordinate with other entities to develop a workforce development program
Establish an extremely high-cost threshold			Collaborate with community stakeholders to identify the largest roadblocks facing unserved and underserved populations		Hire a Community Outreach Coordinator		Identify and support strategic business opportunities through broadband adoption and utilization	
							Work with cities and towns to develop and implement comprehensive plans to create dynamic environments	
Provide an accurate list of eligible addresses based on defensible speed tests and existing funding data	Define a new subgrantee program which will include updated scoring criteria and address grouping	Work to define a cost threshold through existing data and stakeholder/ISP engagement	Work with communities, ISPs, and local entities to understand area-based affordability definitions	Hold meetings with community stakeholders to identify the largest roadblocks in a given area and brainstorm solutions to overcome them	Highlight perspectives attained through the Digital Equity Solution Sessions conducted in July and use those to spearhead digital equity in the state	Expand the IBO office so that there is more capacity to engage with the community	The new subgrantee program will include a scoring metric that considers local community sentiment for ISP applicants	Use stakeholder engagement to strengthen the future of the office	Broadcast the benefits of broadband by working with local communities to market new broadband services in attempts to encourage economic development	Create and market a variety of workforce development programs to both encourage the uptake of broadband related jobs, as well as expose Hoosiers to new skills trainings
										Catalogue and analyze the CAI surveys completed by local community members	Capture how many new businesses and employees are a result of the BEAD funding

Activities + Priorities

① Vision   ② Goals   ③ Objectives   ④ Strategies

2 Overview of the Five-Year Action Plan

2.1   Vision

Indiana will build off its previous accomplishments in broadband by encouraging internet service providers to prioritize the hardest to connect Hoosiers in their deployment efforts, ensuring that all residents are included in the growth of the State.

Indiana is home to roughly 6.8 million individuals residing in 92 counties. 72 of these counties, representing roughly 34% of the State's population, are considered rural[1] based on the metropolitan statistical areas (MSA). Meshed with large metropolitan areas such as Indianapolis and Fort Wayne, Indiana is a state diverse in its people, and in its needs. Most of the State's economy is based on services, manufacturing, and agriculture, and it ranks among the nation's highest share of both blue-collar workers and

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[1] Indiana State University. "Rural Indiana." August 2014, https://www2.indstate.edu/news/pdf/2014-08_IN%20Rural_Counties_Economic_Overview.pdf

farmers[2]. Despite this, Indiana has over 3,000,000 non-farm jobs[3] and a vast array of post-secondary institutions, showing the range of the State's need for broadband access. From precision agriculture to attending online classes to telecommuting to video conferencing with family and friends, reliable broadband access will play a major role in positively affecting all Hoosiers' lives now and in the future.

Broadband in Indiana has a rich history; The State of Indiana has been committed to increasing access for their constituents through the implementation of various programs and funding administered by the Office of Community and Rural Affairs (OCRA). In 2018, the Indiana Broadband Office (IBO)[4] was established to identify needs and eliminate roadblocks to broadband deployment and digital literacy throughout the State. In 2020, when the COVID-19 pandemic disrupted everyday life, the world was reminded of the importance of broadband access; everyday activities such as going to work, attending school and church, visiting the doctor, and talking to loved ones, quickly transitioned online and internet access became a necessity. The State of Indiana recognized this and has been committed to increasing access for their constituents through the implementation of various programs and funding administered by the OCRA. The State of Indiana and their dedicated broadband team has an ongoing mission to assist residents in need of affordable and reliable connectivity. To successfully accomplish this mission, they have actively engaged and will persistently communicate with stakeholders, while also providing valuable resources to a diverse audience, and leveraging well-established relationships with elected officials, associations, and providers.

The State is enthusiastic about the success they have had thus far and is excited about the success to come. Nearly 600,000 Indiana households were without broadband subscriptions in 2018[5]. That number has since dwindled to roughly 380,000 households that are currently without a broadband subscription[6]. These households represent the work the State knows still needs to be done to connect all Hoosiers with affordable, future-proof broadband access.

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[2] Inspection Support Network. "Cities with the Most Successful Blue-Collar Workers." 23 June 2023, https://www.inspectionsupport.com/cities-with-the-most-successful-blue-collar-workers/#:~:text=The%20proportion%20of%20workers%20in,%25%20of%20total%20employment%2C%20respectively.

[3] Dashboard Details: Hoosiers by the Numbers. "Hoosiers by the Numbers." May 2023, http://www.hoosierdata.in.gov/indicator/ind.aspx?indicator_id=12&indicator_geo=18000&indicator_style=full&indicator_mode=html

[4] Indiana Broadband Office. Official Website. https://www.in.gov/indianabroadband/

[5] US Census American Survey. "S2801: Types of Computers and Internet Subscriptions 5-Year Estimate." 2018, https://data.census.gov/table?text=S2801&g=040XX00US18&tid=ACSST5Y2018.S2801

[6] US Census American Survey. "S2801: Types of Computers and Internet Subscriptions 5-Year Estimate." 2021, https://data.census.gov/table?text=S2801&g=040XX00US18&tid=ACSST5Y2021.S2801

Indiana currently has two programs focused on connecting all Hoosiers to broadband, and both are administered by OCRA. The Next Level Connections (NLC) and Indiana Connectivity Program (ICP). These initiatives are part of NLC's four-round funding strategy, amounting to a substantial investment of $320 million, with $268 million already allocated towards enhancing broadband access and connecting over 74,800 homes and businesses by its completion. The Indiana Connectivity Program (ICP) has issued 6 rounds of funding, investing over $4.3 million into connecting 1,139 homes and 55 businesses[7].

Building off the past efforts of the State, the IBO plans to use the Broadband Equity, Access, and Deployment (BEAD) funds to meet the needs of all Hoosiers, now and in the future. With a substantial funding of $868,109,929.79 allocated to Indiana, the IBO is dedicated to maximizing the impact on as many Hoosiers as possible, particularly those who are presently unserved or underserved. As defined by the Federal Communications Commission (FCC), an unserved address is a location which does not have access to broadband speeds of at least 25/3 Mbps, while an underserved address is a location which does not have access to broadband speeds of at least 100/20Mbps. Broadband access does not only have a positive impact on individuals, but on the overall community as well. By increasing broadband access across the state, the IBO
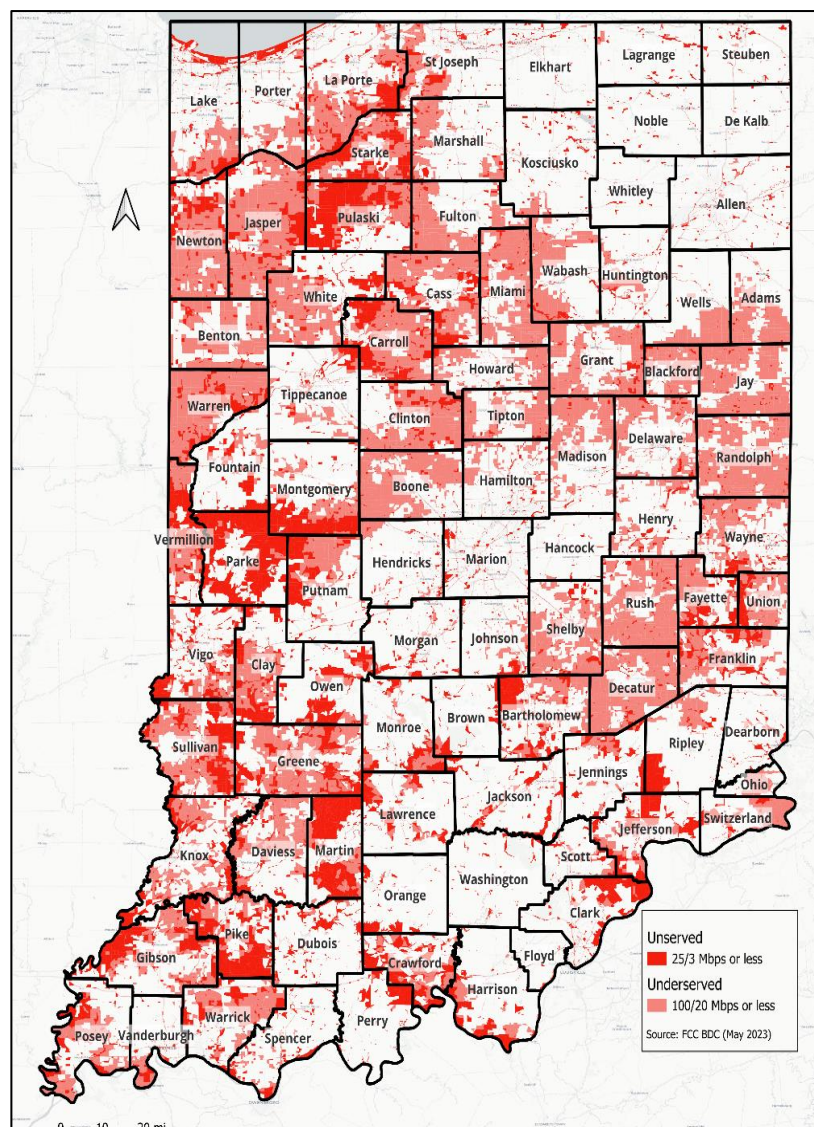
Figure 1. Census blocks with unserved and underserved locations

aims to provide Hoosiers with the opportunity to stay and strengthen their local communities with small businesses, the ability to telecommute, and utilize telehealth opportunities, as well as encourage transplants to take up residency in the State.

2.2   Goals and Objectives

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[7] State of Indiana. "Indiana Connectivity Program." https://www.in.gov/ocra/broadband/icp/

Connecting Indiana – Five Year Action Plan

Indiana has identified four overarching goals to accomplish their vision of providing adequate and affordable broadband to meet the everyday needs of all Hoosiers now and in the future. The following sections identify the 4 established goals, along with their accompanying objectives.

2.2.1 Goal 1
Ensure futureproof broadband deployment to serve every broadband serviceable location, including households, businesses, farms, and community anchor institutions throughout the State of Indiana.

The implementation of the Five-Year Action Plan will focus on getting homes, community anchor institutions, and businesses, including farms, connected to broadband. Indiana will prioritize fiber deployments as per the National Telecommunications and Information Administration (NTIA) BEAD Notice of Funding Opportunity (NOFO)[8], but understands that for some locations alternative methods may need to be deployed.

2.2.1.1 Objective 1.1 Address Identification
Objective 1.1: The IBO will update their list of all broadband serviceable addresses throughout the State and their current access to adequate broadband on a quarterly basis.

The ability to maintain accurate information about unserved and underserved addresses will be core to the State's work. The objective aligns with the goal of ensuring adequate broadband access throughout the state of Indiana, which is a crucial aspect of promoting connectivity and digital inclusion. Indiana has identified a mapping and survey partner, Ready.net, to collect speed test data throughout the State on its connectingindiana.com website. This partner will allow the State to combine existing data with new data and tests, to capture a full picture of broadband in Indiana. Additionally, the IBO is identifying partners throughout the state that can encourage the collection of this data. This effort will include deploying volunteers from nonprofit and community organizations to take defensible speed tests. They will maintain this effort throughout deployment and pair it with the information from the FCC Broadband Data Collection (BDC) maps so that data remains at the center of the work.

2.2.1.2 Objective 1.2 Address Grouping
Objective 1.2: Throughout the application process, the IBO will proactively provide internet service providers with organized address groupings, promoting comprehensive coverage through transparent scoring, soliciting community feedback, and facilitating discussions related to high-cost addresses during each application cycle.

Early in the application process there will be ongoing communication with ISPs about addressing the feasibility of adding addresses that were previously left off, and the possibility of accompanying incentives to help facilitate these build outs in communities. This objective aligns with the goal of ensuring no address is left behind in terms of broadband access. It emphasizes transparency, community involvement, and active conversations to address the barriers that might exist in reaching high-cost addresses.

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[8] National Telecommunications and Infrastructure Administration. "Notice of Funding Opportunity Broadband Equity, Access, and Deployment." May 2022, https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

2.2.1.3 Objective 1.3 Alternative Methods of Delivery

Objective 1.3: The IBO will establish an extremely high-cost threshold in the creation of their Initial Proposal, allowing specific addresses to be served with alternative technologies when internet service providers choose not to deploy fiber due to high costs or low return on investment.

The IBO recognizes that business decisions to provide certain addresses with fiber will be dependent on the market. To address this, the state is committed to multiple phases of grant funding. The first phase will prioritize fiber deployments in accordance with the NTIA's guidance. If providers do not bid on an address, the state may use that as a market signal and begin to consider those addresses as extremely high cost. The State intends to serve as many locations with fiber as the market will allow while also providing alternatives to locations that may be priced out.

2.2.2 Goal 2
Help all Hoosiers effectively navigate the internet and use digital services, while increasing adoption and affordability.

It is the mission of the IBO to "assist residents in need of affordable and reliable connectivity. This vision of reaching Hoosiers where they live, work and play is accomplished by communicating with stakeholders, providing resources to a diverse audience, and leveraging established relationships with elected officials, associations, and providers."

As the State builds out infrastructure, it will hold residents and businesses at the center of its work, just as the IBO mission states. This will mean understanding the financial restraints and knowledge barriers individuals face when trying to obtain and utilize broadband.

2.2.2.1 Objective 2.1 Affordability

Objective 2.1: The IBO will develop a comprehensive definition of affordability in the State of Indiana, considering the median and discretionary income of residents in each county, and ensuring the provision of necessary resources to enable broadband access for every resident prior to the submission of the Final Proposal.

The Indiana Broadband Office will continue to be a champion of the Affordable Connectivity Program (ACP) and encourage eligible households to subscribe to the service. Additionally, the IBO will work with ISPs to ensure that Hoosiers have access to services offering an ACP program, despite where they may live or what service providers are available to them. The IBO can explore existing models of utilities assistance programs to help residents get and stay connected.

The ACP is set to run out of funds in the summer of 2024 at its current adoption[9]. Many households rely on the ACP to ensure affordable internet access. If the program is not renewed, the IBO will explore options to ensure that residents of Indiana still have affordable options available to them.

Although there are costs associated with broadband subscriptions, there are many cost-saving opportunities available to Hoosiers once they access broadband. It is the IBO's objective to educate Hoosiers on these opportunities. It is estimated that consumers benefit from access to a

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[9] Benton Institute for Broadband & Society. "The End of the ACP." January 17, 2023, https://www.benton.org/headlines/end-acp

wider array of goods and services, leading to cost savings estimated at $1,850 per household annually[10]. Some of these potential cost savings include, but are not limited to:

- Telemedicine Health Savings
- Long distance, video communication, entertainment
- Access to online, higher education
- Online banking, electronic billing

2.2.2.2 Objective 2.2 Adoption

Objective 2.2: The IBO will collaborate with community stakeholders and organizations to identify the largest roadblocks facing unserved and underserved populations and provide support in overcoming them throughout the lifetime of the funds provided by the Digital Equity Act.

Identifying these roadblocks will be largely dependent on the work being conducted by the Purdue Center for Regional Development (PCRD) for the Digital Equity Plan that is currently under development. PCRD has identified Digital Ambassadors, individuals who have faced roadblocks to broadband access and adoption, and is collaborating to compile a list of tactical solutions to increase adoption among unserved and underserved populations. This objective aligns with the goal of bridging the digital divide by focusing on solutions tailored to unserved and underserved populations. By working closely with community stakeholders and organizations, the IBO aims to understand the specific challenges and solutions facing these populations and will provide sustained support to overcome them with the use of the Digital Equity Act Funds. The IBO will be able to track the identified roadblocks, document the collaboration with community stakeholders and organizations, and monitor the support provided.

2.2.2.3 Objective 2.3 Digital Equity

Objective 2.3: The Broadband Office will actively utilize solutions created and refined by Digital Ambassadors and the task force to close the digital divide throughout the lifetime of the funds provided by the Digital Equity Fund.

As defined by the BEAD NOFO, Digital Equity means, "the condition in which individuals and communities have the information technology capacity that is needed for full participation in the society and economy of the United States". Achieving Digital Equity looks different from community to community; however, it ultimately means providing all Hoosiers the means and skills to access and adopt broadband services at an affordable price. The Office can tap into diverse perspectives and expertise to address the specific challenges faced in bridging the digital divide. The IBO will track the implementation and utilization of the solutions developed in the Digital Equity Plan. The number of solutions implemented and their impact on closing the digital divide can be measured and evaluated. The specific indicator of the digital divide will be identified in the Digital Equity Plan.

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[10]Federal Reserve Bank of Richmond. "Bringing Broadband to Rural America." December 2020, https://www.richmondfed.org/publications/community_development/community_scope/2020/comm_scope_vol8_no1

2.2.3 Goal 3

Through community outreach and engagement, the Indiana Broadband Office (IBO) is committed to frequently addressing adaptive digital equity and revisiting what additional support communities in Indiana may need to make sure that no Hoosier is left behind.

The IBO **recognizes that the digital landscape is constantly changing; the digital divide today may not be what it looks like in the coming years. Because of this, the IBO** will build off the State's past work to continue to foster a collaborative environment that responds, connects, and addresses challenges facing community stakeholders and local government around broadband deployment and implementation. As a result of the efforts by the State, the Indiana Broadband Office has developed steps to success for local communities to take on as they prepare to deploy broadband. These steps to success incorporate each objective encompassed within this goal by extending community coordination efforts, encouraging and utilizing community input, and enhancing community collaboration.

2.2.3.1 Objective 3.1 Community Coordination

Objective 3.1 The Indiana Broadband Office (IBO) will hire a Community Outreach Coordinator to meet communities where they are in their broadband journey and develop a playbook to ready communities for broadband deployments prior to the allocation of awards through the grant selection.

Local communities will need to take important steps to ensure the success of broadband deployment. This can range from understanding permitting processes, data collection, encouraging adoption, and securing additional funding. The State will employ its resources to help local communities successfully accomplish these tasks by collaborating with them to understand what they have accomplished and what current challenges they may have as they move forward. The IBO will share best practices and connect communities throughout the state to leverage the successes and lessons learned at a local level. By hiring a Community Outreach Coordinator and developing a playbook, the IBO aims to further bridge the gap between communities and broadband deployments, tailoring their approach to meet the specific needs and readiness of each community.

2.2.3.2 Objective 3.2 Community Input

Objective 3.2 The IBO will actively encourage communities to share their experiences with ISPs, collect their feedback, and incorporate it into the scoring process for grants prior to the award selection.

The State recognizes the importance of local communities' experience and knowledge of their area in the deployment process. Thus, it is important to the State, that local leaders have a voice in this process. Through the steps to success, communities will or have already identified a broadband taskforce point of contact. This contact will work with the state on sharing their feedback on specific ISPs in their community and ensure good partnerships prior to the final award notification. Communities can also provide information about the support necessary to accomplish a successful deployment. The state will facilitate ongoing communication between local governments and ISPs beyond the grant award and into the physical buildout. By incorporating community feedback, the IBO aims to enhance the grant process and make it more responsive to the needs and challenges faced by the communities. The IBO can measure this objective by tracking the number of communities that share their experiences, documenting

the feedback received from communities, and observing the integration of community feedback into the scoring process for grants. This objective aligns with the goal of promoting community engagement and ensuring that the grant process considers the real experiences and perspectives of communities to ensure no Hoosier is left behind.

2.2.3.3 Objective 3.3 Community Collaboration

Objective 3.3 The IBO is committed to enhancing its community outreach efforts by hosting a series of regular events, aimed at fostering a collaborative environment throughout the entire broadband development process, from planning to project completion.

The IBO is dedicated to fostering extensive community collaboration and will continue to prioritize engaging with local Hoosiers. To ensure effective communication, the IBO will make itself available to travel to communities as needed, facilitating discussions about the current and future state of broadband in each area. These efforts will involve engaging with local governments, ISP partners, and other key entities essential to the success of the BEAD deployment. This commitment extends beyond the distribution of BEAD funds and encompasses the ongoing maintenance of the infrastructure buildout.

To reach a wide audience and keep Hoosiers informed, the IBO will maintain its online communication channels. These channels include the IBO website, monthly newsletters, and the broadband champions' campaign. By leveraging these platforms, the IBO aims to provide regular updates and essential information regarding broadband to the community.

In addition to online communication, the IBO recognizes the value of in-person interaction. By organizing outreach events, the IBO can facilitate direct communication, gather feedback, and cultivate relationships with community members, ultimately fostering a collaborative environment. The success of this objective can be measured by tracking the number of community outreach events conducted by the IBO and evaluating the level of collaboration and engagement achieved as a result. This approach aligns with the objective of promoting collaboration and engagement within the community, yet this commitment extends beyond the distribution of BEAD funds and encompasses the ongoing maintenance of the infrastructure buildout.

2.2.4 Goal 4
Provide Hoosiers, current and future, quality jobs, quality of life, business opportunities, and dynamic cities and towns throughout the State of Indiana. The State recognizes broadband is at the center of making Indiana an attractive place to live, work, and play. This investment will ripple throughout various sectors in the State.

Although the IBO is responsible for leading the charge on broadband, they are not working in a silo; many other partners, such as Indiana Economic Development Corporation (IEDC), Indiana Destination Development Corporation (IDDC), Department of Workforce Development (DWD), and Indiana State Department of Agriculture (ISDA), have greatly contributed to, and will continue to play a large role in making sure all Hoosiers have access to reliable and affordable broadband.

2.2.4.1 Objective 4.1 Retaining and Attracting Residents to Indiana

Objective 4.1 The IBO will track and evaluate the impact of broadband initiatives on the quality of life in communities across Indiana during and directly after broadband deployments.

Several local communities will benefit from the access to broadband. These localities will be able to attract residents and provide their current residents with the services needed to remain inside the State. Some of the benefits that will attract and retain residents to Indiana include increased opportunities in telecommuting, and quality of life, such as access to resources assisting individuals with aging in place. Improved broadband access will simplify the lives of those living in rural areas and encourage the young adult population to remain.

2.2.4.2 Objective 4.2 Workforce Development and Job Growth

Objective 4.2 IBO will coordinate with departments and organizations throughout the State to develop a workforce development program and facilitate the creation of quality jobs through broadband enabled economic development initiatives and broadband-centered job growth during and directly after broadband deployments.

The State is focused on workforce development in two primary ways: 1) ensuring that there is enough talent to meet the needs of the deployment of broadband and ongoing maintenance and operation, 2) using broadband to upskill labor and encourage digital literacy. Certain tasks the IBO will conduct to accomplish this objective are:

- Encourage residents seeking employment to focus on jobs in this industry.
- Consider scoring mechanisms that encourage timely deployment and maintenance.
- Utilize available funding through the Department of Workforce Development to provide digital literacy training.
- Collaborate with the Department of Workforce Development to provide thoughtful opportunities to meet the needs of business.

2.2.4.3 Objective 4.3 Business Growth

Objective 4.3 The IBO will identify and support strategic business opportunities through broadband adoption and utilization during the lifetime of the BEAD funds.

The IBO will emphasize growing and championing the access of broadband at Community Anchor Institutions, as well as local, small businesses. These locations will be highlighted in the BEAD deployment process, to ensure that communities have areas to gather with free, reliable broadband. The ability of small vendors to be able to connect to broadband throughout Indiana will enable them to accept all forms of payments. The IBO can provide programs and resources to help businesses effectively leverage broadband technologies using webinars and mentorship programs focused on digital skills, e-commerce, and online marketing. The IBO will continue to identify gaps and opportunities in different industries and sectors that can be addressed through broadband adoption. The IBO will establish mechanisms to monitor and evaluate the impact of broadband adoption on strategic business opportunities. This includes tracking key metrics such as increased revenue, job creation, and new business formations. The IBO will continue to identify gaps and opportunities in different industries and sectors that can be addressed through broadband adoption.

2.2.4.4 Objective 4.4 Dynamic Cities and Towns

Objective 4.4 The IBO will work with cities and towns to develop and implement comprehensive plans to create dynamic environments and will measure local communities' progress on

important metrics, such as average annual earnings and Gross Domestic Product (GDP) gains and a new metric, the proportion of total jobs at young firms, and new firms during and directly after the broadband deployments.

The IBO has already begun capturing the needs, priorities, and aspirations for creating dynamic environments through broadband during its community engagement efforts. It will continue to identify the specific areas where broadband deployment can have the most significant impact, such as economic development, education, healthcare, public safety, and government services. Additionally, the IBO will incorporate the guidance it has collected from the Digital Equity Plan to support digital inclusion efforts. By encouraging equal access to broadband and digital resources the IBO will ensure that all members of the community can benefit from this investment.

3   Current State of Broadband and Digital Inclusion

3.1   Existing Programs

The Indiana Broadband Office (IBO) was created in 2018 to eliminate barriers and help bring broadband services to all Hoosiers. In conjunction with the Office of Community and Rural Affairs (OCRA), the IBO currently serves the State in providing Hoosiers with information, programs, and grants to assist in the deployment and adoption of broadband. The State has several programs, both past and present, that assist in deploying both broadband information and infrastructure. Indiana has emerged as a nationwide leader in broadband initiatives, and the programs outlined below provide a foundation for further progress and development.

Table 1: Current Activities that the Broadband Program/Office Conducts

Activity Name	Description	Intended Outcome(s)
Broadband Ready Communities and Task Forces	The Broadband Ready Communities Program is a tool to encourage broadband development throughout Indiana. The Broadband Ready Community certification sends a signal to the telecommunication industry that a community has taken steps to reduce barriers to broadband infrastructure investment. This program was established by IC 5-28-28.5.	The purpose of this program is to prepare community leadership so that they are ready to engage in broadband deployment projects, as well as prepare communities to utilize this new technology. Communities take on activities such as mapping their permitting and inspection processes. Becoming a Broadband Ready Community can significantly reduce deployment timelines once an ISPs has made the decision to expand infrastructure.
Next Level Connections (NLC) Broadband Program	The NLC is currently administered by OCRA. This program is designed to spread access of reliable and affordable broadband service to all areas of the State, this is done by allowing ISPs to bid on addresses for them to service.	The purpose of this program is to provide broadband access to all areas of the State. In doing so, the State has the opportunity to gain billions in economic benefits by drawing talent to these areas and giving businesses the tools, they need to succeed in the 21st century.

Indiana Connectivity Program (ICP)	The ICP is administered by OCRA and it is a program that connects residents and businesses whom lack access to broadband internet with service providers. Household owners or businesses can apply to have their address listed for consideration. The program assists with the expense of extending broadband to those locations.	The intent of this program is to expand ISPs' service areas by providing them incentives to cover addresses that were previously passed.
Broadband Champions Campaign	The Broadband Champions Campaign is a video series campaign which highlights individuals who are pivotal game changers in the broadband space within their communities or across the State of Indiana. The Campaign emphasizes the importance of the Broadband Ready Communities Program and the benefits for both investing in a Task Force and becoming Broadband Ready.	This campaign helps to promote broadband adoption and educate other communities on the benefits of broadband. The State understands that overcoming barriers to adoption is key to a successful deployment.
Broadband Monthly Newsletter	The monthly newsletter, distributed by the IBO, provides the latest news on broadband in the State of Indiana. The newsletter is emailed to subscribers on a monthly basis, while past newsletters can be found on the State's website here.	The intent of this newsletter is to reach a larger audience, especially everyday Hoosiers. It allows for current and relevant updates on ongoing broadband programs to reach the public either through the general viewership, or through local broadband leaders passing it to their constituents. The newsletter also provides readers with helpful information to allow them to better engage with broadband.
Free Public WiFi Map	The Free Public WiFi Map, located on the Indiana Geographic Information Office Website, is an interactive map spearheaded by the Indiana Broadband Office. A resource not many other states have, this map allows for users to see where public Wi-Fi exists and what type of location it is (i.e. public school, library, higher education institution).	This map allows for the State to quickly identify publicly utilized locations and areas that can reach a large amount of people. Additionally, this map is helpful for unserved and underserved areas which rely on public locations to access the internet. The map demonstrates a wide variety of locations throughout the State.
Ready.net	The State has recently engaged with a new mapping platform which will help aggregate all relevant data on broadband and create an accurate landscape prior to providing grants for broadband deployment. It will also host a survey that will be leveraged during the challenge process.	By engaging Ready.net, Indiana has shown their dedication to creating the most accurate landscape of broadband in their state to ensure that the BEAD funds are being utilized in the most effective and eligible way.
Indiana Statewide Broadband Strategic Plan 2020	The State created a strategic plan in 2020 that addressed avenues to expand broadband in Indiana, including setting aside an initial $100 million in grant funding through what is now the NLC program.	As a public document, the strategic plan is a good starting place to learn more about past and current broadband efforts in the State. It outlines the vision and goals of where they hope to take the State through the expansion of broadband deployment and adoption

Broadband Readiness Pilot Program	Initially facilitated by OCRA, this pilot program established feasibility plans for five counties in the State. Empowering communities to comprehensively assess their existing broadband conditions and needs, this program further enabled the State to craft a long-term vision for broadband within their locality, while identifying viable pathways to realize this vision.	The intended outcome of this program was to get communities ready for the deployment of broadband and understand how much it would cost. Additionally, it was a pilot to the Indiana Broadband Ready Communities Program that was later established.

Table 2: Current and Planned Full-Time and Part-Time Employees

Current/ Planned	Full-Time/ Part-time	Position	Description of Role
Current	FT	State Infrastructure and Broadband Administrator	This position oversees all broadband activity for the state of Indiana and will oversee all staff involved in the project. The position duties will include overall project management of all activities and staff from the Indiana Broadband Office (IBO), Office of Community and Rural Affairs (OCRA) and Grant Services (GS) in the Lieutenant Governor's Business Office. The Administrator will communicate with the executive and legislative branches of government, as well as work on outreach and engagement with stakeholders and the public. The Administrator will also manage the subgroup of employees overseeing the mapping efforts as well as guide the overall policy of the project and final deliverables. The Administrator will be the chief contact for any external contracted assistance the state enters into and responsible for overall project evaluation and success.
Current	FT	IBO Program Director	The IBO Program Manager will support the SIBA, OCRA Broadband Director, grant services staff and coordinate with the team handling the Digital Equity Act activities. They will also assist with managing data requests, community outreach and stakeholder activities and events. Additionally, they will host. meetings with telecom partners and provide guidance and direction in coordination with the SIBA and to all staff involved in the BEAD project. The Program Manager will assist with overall project deliverables and implementation.
Planned	FT	IBO Deputy Program Director	The IBO Deputy Program Manager will provide peer coaching and cross-district support for program development staff as well as development, delivery and ongoing management of the grant. programs. This position will report to the Program Director and will fill in for them when they are not available
Planned	FT	IBO Broadband Grant Services Specialist	The Broadband Grant Services Specialist will manage required grant activities and serve as liaison between IBO, OCRA, and Grant Services. They will help develop and process protocols for implementing broadband related grants, assist with the development of forms and reporting tools, establish guides and resources for grantees, focusing on federal regulations and serve as the broadband point of contact and subject matter expert.

Planned	FT (x2)	IBO Digital Equity Advisor	The IBO Digital Equity Advisor will be responsible for the development, delivery, and ongoing management of the digital equity programs. Other responsibilities include collaborating with local government and not-for-profit organizations to promote digital literacy programming throughout the state. This work will ensure all citizens are provided access to broadband internet and have a better understanding for using it.
Planned	FT	IBO Program Coordinator	The IBO Program Coordinator will compile, extract, and develop data and prepare recommendations on improvements, enhancements, and efficiencies, to ensure maximum cost and performance efficiencies. This new position will be responsible for problem solving and expediting permitting challenges.
Planned	FT	IBO Legal/Policy/Legislative Affairs Director	The IBO Policy Director position will provide advice to IBO leadership and team on policy, legal, and legislative matters. They will also serve as the legislative point of contact for state and federal legislators and local leadership on broadband matters. Ideally, this position should be filled by an attorney.
Planned	FT	IBO Community Engagement Director	The IBO Community Engagement Director will promote the BEAD program and its associated funding and work with digital equity and digital literacy programming with a focus on diminishing the digital divide in all areas of the state.
Planned	FT	IBO GIS System Analyst	The IBO GIS System Analyst will provide technical assistance on projects involving design and execution of GIS using ESRI and other products to prepare, create, manipulate, analyze, and display geographic information data.
Planned	FT	IBO Accountant	The IBO Accountant will be responsible for reviewing, paying, drawing down, and recording financial transactions. They will participate in reporting on grant financial activities.
Planned	FT	IBO Administrative Assistant	The IBO Administrative Assistant will provide support for all administrative functions of the IBO team, including preparing, evaluating, and maintaining reports, policies, and procedures for program areas, scheduling and managing and directing team correspondence, and administering staff functions in program areas.

Table 3: Current and Planned Contractor Support

Current/ Planned	Time	Position	Description of Role
Current	Contractual	Program Development Support	Guidehouse has provided the IBO support in the development of the 5 Year Action Plan and the accompanying community engagement
Current	Contractual	Outreach and Website Support	RJL Solutions provides a variety of services to the IBO, including marketing, outreach support, and managing communication channels
Current	Contractual	Mapping and GIS Support	Geoconvergence has provided the IBO support in mapping and GIS

			initiatives, specifically in the creation and deployment of the Indiana Farm Bureau Speed Test
Current	Contractual	Mapping, Speed Test, and Challenge Process Support	Ready.Net is supporting the IBO in future mapping needs. They are responsible for the *Connecting Indiana* speed test and collecting data which will aid in the State's Challenge Process
Planned	Contractual	Project Management for Initial Proposal	The IBO plans to utilize a consultant to help with project management for the Initial Proposal

Table 4: Broadband Funding

Source	Purpose	Total	Expended	Available
Indiana Next Level Connections Broadband Grant	This grant is designed to promote access to broadband service for all Hoosiers to be able to function in a 21st century economy. This funding encompasses the Next Level Connections Program as well as the Indiana Connectivity Program.	$270,000,000	NLC 1 +2: $78.9M NLC 3: $189M ICP 1-5: $3.44M Total: ~270M	$0
FCC Rural Digital Opportunity Fund (RDOF) Round 1[11]	This funding was specifically aimed at bridging the connectivity gap for over 6 million homes and businesses located within entire census blocks where both voice and broadband speeds fell below the threshold of 25/3 Mbps.	$20,400,000,000 (nationwide)	$169,379,965	n/a
USDA ReConnect Loan and Grant Program[12]	This program offers loans, grants, and loan-grant combinations to facilitate broadband deployment in areas of rural America that currently do not have sufficient access to broadband.	$1,150,000,000 (nationwide)	FY 2020: $1,040,872 & $3,915,788 FY 2023: $17,596,314 & $1,033,276	n/a
FCC Connect America Fund (CAF)	Run by the FCC, the Connect America Fund aims to close the digital divide in rural America and ensure that consumers in underserved and unserved areas have access to modern communications networks and	$28,357,400,775 (nationwide)	$2,280,102,401	n/a

[11] Telecompetitor. "RDOF Funding by State Report: How Does Your State Rank?." March 31, 2021, https://www.telecompetitor.com/rdof-funding-by-state-report-how-does-your-state-rank/

[12] USDA. "ReConnect Program: Proposed and Approved Projects." 2023, https://ruraldevelopment.maps.arcgis.com/apps/webappviewer/index.html?id=e2d4c909e06c46d3aa9577bea695a2b9

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	services. This set of funding includes the CAF – BLS, CAF II Auction, and CAF II.			
U.S. Department of Treasury Capital Projects Fund (CPF)[13]	These funds are allocated to effectively tackle numerous challenges exposed by the pandemic with a particular emphasis on addressing the needs of rural America, Tribal communities, and low- and moderate-income communities. The primary focus of these efforts revolves around enhancing broadband infrastructure and related initiatives in these specific areas.	$10,000,000,000 (nationwide)	$203,100,000	n/a
The Alternative Connect America Cost Model (ACAM)[14]	Established in 2016, by the the Rate-of-Return Reform Order, the ACAM "provides funding to rate of return carrier that voluntarily elected to transition to a new cost model for calculating High-Cost support in exchange for meeting defined broadband build-out obligations"[15].	$7,863,434,615 (nationwide)	$78,675,196.66	n/a
Rural Broadband Experiments (RBE)[16]	The RBE funding assists in price-cap areas to bring high-quality, scalable broadband to residential and small business locations in rural America.	$23,844,906.73 (nationwide)	$98,008.56	n/a
American Rescue Plan Act (ARPA)	These funds were used for various functions such as Career and Technical Assistance, Conservation, Economic Development, Emergency Management, Mental Health, Premium Pay, Public Health, Public Safety Equipment, Recreation, Research, Transportation, Unemployment Fund, Water and Sewer, and Broadband. The NLC Program uses ARPA money to fund its program.	$3,116,200,000	~$270,000,000	n/a
NTIA Enabling Middle Mile Broadband	This Middle Mile Grant Program overseen by the NTIA helps to connect communities by building new backbone infrastructure. One grant was received in Indiana through this	$11,684,088.90	$0	$1,000,000,000

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[13] U.S. Department of the Treasury. "Capital Project Fund Award Fact Sheet: Indiana." August 2022, https://home.treasury.gov/system/files/136/State-Award-Fact-Sheet-IN-Aug-2022.pdf

[14] Universal Service Administrative Co. "Connect America Fund Broadband Map." https://data.usac.org/publicreports/caf-map/

[15] Universal Service Administrative Co. "ACAM." March 3, 2023, https://www.usac.org/high-cost/funds/acam/#:~:text=Established%20by%20the%202016%20Rate,defined%20broadband%20build%2Dout%20obligations

[16] Universal Service Administrative Co. "Rural Broadband Experiments." March 3, 2023, https://www.usac.org/high-cost/funds/rural-broadband-experiments/#:~:text=The%20Rural%20Broadband%20Experiments%20(RBE,business%20locations%20in%20rural%20communities

Infrastructure Program[17]	program and was awarded to Indiana Michigan Power Company Inc. on June 16, 2023. The total cost of the project is estimated to be $23,415,007.82.			
FCC E-RATE [18]	E-rate is administered by the FCC and is a universal service program for schools and libraries. It provides discounts to eligible entities for telecommunications, internet access, and internal connections.	$4,768,000,000 (nationwide FY 2023)	n/a	n/a
Indiana Governor's Emergency Education Relief Fund (GEER) Grant	The GEER Grant, established under the CARES Act, empowers the Governor to provide crucial assistance to local educational agencies and institutions of higher education. Its focus is on enhancing distant/remote learning capabilities and expanding educational opportunities in these areas. It reflects the Governor's commitment to empowering educational institutions and creating accessible learning environments for all students.	$61,600,000	$61,600,00	$0
Affordable Connectivity Program (ACP)	The ACP helps low-income households pay for internet service and connected devices through a subsidy provided directly to ISPs on behalf of consumers.	$14,200,000,000 (nationwide)	324,353 Indiana households enrolled; ~$113.4 million spent since inception	This program is projected to be available through the beginning of next year.
FCC 5G Fund for Rural America	This grant makes funding available in hard to serve areas with sparse populations, tough terrain and/or agricultural communities.	$9,000,000,000 (nationwide)	n/a	n/a
Broadband Readiness Planning Grant	To aid communities in comprehending their existing broadband conditions and needs, as well as in formulating a long-term vision for broadband within their locality, this initiative aims to facilitate the identification of viable pathways towards realizing that vision.	$50,000 per community awarded	n/a	n/a

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[17] Broadband Breakfast. "NTIA Awards Middle Mile to 35 Projects in 350 counties with 12,000 Miles of Fiber." June 16, 2023, https://broadbandbreakfast.com/2023/06/ntia-awards-middle-mile-to-35-projects-in-350-counties-with-12000-miles-of-fiber/

[18] BroadbandUSA. "Federal Communications Commission – E-Rate Program." March 2023, https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding/federal-communications-commission-e-rate-program

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3.2 Partnerships

The Indiana Broadband Office understands that this work cannot be completed in a silo and that its partners – other state agencies, local governments, private companies, associations, community-based organizations, and ISPs – are all going to play an instrumental role in ensuring every Hoosier is served.

Table 5: Partners

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Office of Community and Rural Affairs (OCRA)	OCRA will aid in the deployment and adoption of the State's BEAD plan through their prior experience in developing and deploying the Broadband Readiness Pilot Program and their grant programs, Next Level Connections Program and the Indiana Connectivity Program.
Purdue Center for Regional Development (PCRD)	Due to the interconnectedness of the Digital Equity Plan and the BEAD Deployment Plan, the Indiana Broadband Team intends to collaborate closely with PCRD. The integrated approach should help develop continuity between the Digital Equity Plan and the BEAD Five-Year Action Plan.
Indiana Farm Bureau (IFB)	Indiana Farm Bureau is working to help bring reliable broadband through promotion of the Indiana Speed Test. The Indiana Broadband Team will work closely with IFB to continue and expand the speed test throughout the most unserved and underserved communities throughout the State.
Indiana Electric Cooperative (IEC)	IEC is a non-profit organization made up of rural electric companies. IEC was formed to provide electricity to rural areas that were otherwise unserved. Having expanded into 82 of the 92 counties throughout the State, IEC is the second largest utility company in Indiana. Two main goals of the IEC are prioritizing fiber over other technology and ensuring higher speeds to its members. IEC will be a strong partner of the State in providing broadband to rural communities.
Indiana Broadband Technology Association (IBTA)	The Indiana Broadband Technology Association (IBTA) has a century-long legacy as a telephone association, representing more than 29 companies that span Indiana's entire land mass, including major players like ATT and Terry Spencer Telephone. Given their extensive experience, IBTA's insights will be valuable in formulating the policy framework for deploying new broadband infrastructure. By understanding the needs and constraints of ISPs, IBTA will play a crucial role in assisting the State. Moreover, as a strategic partner, IBTA will actively contribute to educating and raising awareness among ISPs about the State's plans to deploy new infrastructure, fostering a collaborative and informed approach to achieving enhanced broadband accessibility for all.
Department of Workforce Development	The Indiana Department of Workforce Development (DWD) will be a crucial partner for broadband deployment due to its expertise in understanding the workforce needs and employment landscape throughout the state. As broadband infrastructure expands, there will be an increased demand for skilled workers capable of supporting and maintaining the network. The DWD can play a pivotal role in identifying workforce development opportunities related to broadband technology, offering training programs, and aligning educational initiatives to meet the industry's needs.
Indiana Department of Transportation (INDOT)	The Indiana Department of Transportation (INDOT) will be a vital partner for broadband deployment due to its extensive infrastructure and network planning experience. As INDOT oversees the state's transportation systems, it has an in-depth understanding of the existing infrastructure and access points that can be leveraged for broadband expansion. By collaborating with INDOT, broadband initiatives can benefit from shared resources, such as utility corridors, rights-of-way, and existing fiber optic cables, which can significantly reduce deployment costs and accelerate the expansion process. Additionally, INDOT's expertise in project management and coordination will ensure

	efficient and well-planned broadband deployment, leading to a more cohesive and integrated broadband network across Indiana.
Indiana Office of Technology (IOT)	The Indiana Office of Technology (IOT) is a critical IT partner for all government agencies throughout the State, ensuring secure computing and communication environments to deliver optimal services. By implementing cutting-edge tools, policies, and practices, IOT plays a vital role in safeguarding the State's data and technology assets, thereby maintaining public trust. Notably, IOT is actively addressing cybersecurity concerns at the local level, demonstrating its commitment to protecting the entire state's digital infrastructure. With IOT's expertise and proactive approach to cybersecurity, government agencies can confidently focus on their essential missions, knowing their information is secure and their services are delivered efficiently and reliably to the citizens of Indiana.
Indiana Laborers Council	The Indiana Laborers Council will be a crucial partner for broadband deployment due to its skilled workforce and expertise in construction and infrastructure development. As a representative body for laborers, the council can provide a pool of trained workers who possess the necessary skills for deploying and maintaining broadband networks. Their experience in construction and groundwork will be invaluable in facilitating the physical installation of broadband infrastructure across the state. Moreover, by collaborating with the Indiana Laborers Council, broadband deployment projects can understand the number of available skilled laborers and if there is a need for additional training and apprenticeship.
Indiana Building & Construction Trades Council	Due to the importance of workforce development for the installation and implementation of fiber infrastructure, along with the shortage of workforce throughout the State, the Indiana Broadband Team intends to collaborate with the Indiana Building & Construction Trades Council. Collaboration will focus on ensuring stability and increases in the workforce.

3.3   Asset Inventory

The State of Indiana has a variety of hard and soft assets[19] across different entities. Between the state government agencies, local governments, community-based organizations, schools, religious organizations, higher education institutions, etc., the State has numerous resources to leverage in the successful development and deployment of the BEAD funding. In building upon the FCC's documented broadband service availability, internet providers, and associated technologies and speeds, we

> As defined by the NTIA, **hard assets** are typically infrastructure related (towers, buildings, utility poles, etc.), while **soft assets** are focused on programs, activities, strategies, skills, and technical assistance.
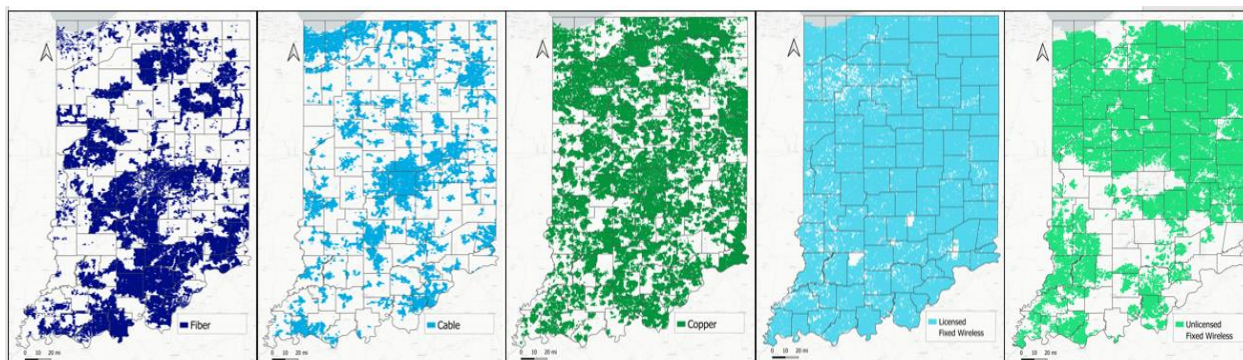
Figure 2. Existing Technology

aim to go beyond the initial foundation. Our focus lies in the comprehensive documentation of Indiana's distinct assets, essential for the successful deployment and widespread adoption of broadband coverage to every Hoosier. The provided maps offer a detailed overview of the current broadband technology landscape, as recorded by the FCC as of May 30, 2023. Through collaborative efforts involving government agencies, private enterprises, and local communities, our goal is to create an inclusive, connected environment that

~ 119 Internet Service Providers in Indiana				
81 Fiber	10 Cable	31 Copper	23 Licensed Fixed Wireless	49 Unlicensed Fixed Wireless

fosters innovation, education, and economic growth. The State's focus on a data driven approach will lead to a model of cutting-edge connectivity, setting a precedent for other regions to follow suit in their development of a fully connected and thriving society.

The FCC has indicated that there are approximately 119 Internet Service Providers (ISPs) in Indiana[20]. Of that, some of them provide multiple technologies, while others focus on just one. These companies range from larger, Tier 1 providers, to Rural Electric Membership

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[19] Internet For All – United States Department of Commerce. "Five-Year Action Plan Guidance." https://broadbandusa.ntia.doc.gov/sites/default/files/2022-09/BEAD_Five-Year_Action_Plan_Guidance.pdf
[20] FCC BDC. Published May 30, 2023

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Cooperatives (REMCs). Each community is unique, and thus the most effective and efficient providers and technologies will vary by location.

3.3.1 Broadband Deployment

The goal of the BEAD program is to provide every Hoosier a connection to the internet. The first step in doing so is to ensure that infrastructure is in place for individuals to access it, ensuring an effective deployment. Indiana has a variety of assets which will contribute to, and help expedite, broadband implementations.

3.3.1.1 Infrastructure

In Indiana, the majority of middle-mile networks and existing hard assets are under private ownership by Internet Service Providers (ISPs). Nevertheless, the State, in collaboration with local entities and organizations, possesses infrastructure that can be effectively utilized. Given the high costs associated with building broadband infrastructure from scratch, it becomes imperative to thoroughly document and strategically explore all possible avenues for the optimal utilization of these valuable assets. By fostering a comprehensive approach, we can maximize the efficiency and effectiveness of broadband deployment, ensuring that communities benefit from enhanced connectivity and economic opportunities.

Table 6: Infrastructure Assets

Asset	Description
Integrated Public Safety Commission (IPSC) Safe-T Network	The IPSC has a network of 190 Radio Towers throughout the entire State. Most towers utilize a copper framework, but they are currently in the process of building out with fiber. The State owns 54 of the towers in the network. ISPs can inquire and explore the possibility of utilizing these state-owned towers for their own broadband deployment needs, such as device attachments.
Indiana Toll Road – existing fiber	The Indiana Toll Road has fiber running the entire length of their road starting from the Ohio border to the Illinois State line. It is approximately 157 miles of fiber and 289 strands of dark fiber. One conduit is reserved for the Indiana Finance Authority (IFA), but the rest is for sale.
I-Light [21]	I-Light is a high-speed fiber optic network that connects Indiana public universities and private colleges. The network is exclusively limited to higher education and public safety purposes. It is not currently being utilized for public safety measures, however, spans across the State, and presents the possibility of improving public safety communications.
Hoosier Net [22]	Hoosier Net is a middle mile network owned and maintained by 18 ISPs. They offer services to telecom operators and direct commercial customers. The Hoosier Net is responsible for thousands of miles of fiber network across Indiana, and they are a member of INDATEL.

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[21] I-Light. https://ilight.net/
[22] HoosierNet. "About HoosierNet." https://www.hoosiernet.info/about

Indiana Department of Transportation (INDOT) Broadband Corridors Program [23]	This program ensures that broadband infrastructure providers are notified of planned highway projects to help facilitate the installation of broadband throughout the State. All interstates (I-64, I-65, I-69, I-70, I-74, I-80, I-90, I-94, I-265, I-465, I-469, I-865), US 30, US 31 (North from I-465 to South Bend/Michigan border), and any toll road, toll way, or toll bridge, are designated Broadband Corridors. The Indiana Department of Transportation administered this program in 2018 to "facilitate, implement, and maintain new avenues for rapid deployment of broadband throughout Indiana by focusing on removing any barriers that may prevent providers from deploying broadband or wireless facilities within the right of way".
INDOT I-69 Finish Line[24]	The I-69 Finish Line is an interstate project that is expected to be fully open in 2024. It is the construction of an interstate from Martinsville to I-465 in Indianapolis and then adds an additional travel lane on I-465 from I-65 to I-70 on the southwest side of Indianapolis. The ongoing project has the additional responsibility of laying conduits as it completes the construction process.
NTIA Middle Mile Grant Award to Indiana Michigan Power Company Inc. [25]	This grant was awarded in June 2023 and will help build out a middle mile network in Delaware and Grant Counties.

3.3.1.2 Policies

Policies in Indiana play a pivotal role in establishing a conducive environment for broadband deployment. Understanding the impact of relevant rules and regulations is crucial for development and deployment. Additionally, identifying policies or legislation that offer incentives for development is essential. By actively monitoring and implementing supportive regulations, providing funding and incentives, promoting digital inclusion, facilitating planning and coordination, and fostering public-private partnerships, the state can effectively drive the expansion of broadband infrastructure and elevate connectivity for its residents.

Table 7: Existing Policies

Policy	Description
Indiana Right of Way	Indiana has a public dataset which marks all roads within the State. As per the Indiana Code (IC) 8-20-1-15.5, " 'Apparent right-of-way' means the location and width of county highway right-of-way for purposes of use and control of the right-of-way by the county executive" and "the width of the apparent right-of-way may not exceed twenty (20) feet on each side of the center line exclusive of additional width required for cuts, fills, drainage,

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[23] Indiana Department of Transportation. "Broadband Corridors." February 27, 2023, https://www.in.gov/indot/doing-business-with-indot/permits/broadband-access-permit-$55/broadband-corridors/#:~:text=Broadband%20Infrastructure%20Coordination%20%26%20Registration,broadband%20infrastructure%20throughout%20the%20state.

[24] I-69 Finish Line. https://i69finishline.com/

[25] BroadbandUSA. "Enabling Middle Mile Broadband Infrastructure Program Funding Recipients." June 16, 2023, https://broadbandusa.ntia.gov/funding-programs/enabling-middle-mile-broadband-infrastructure-program/funding-recipients#I

	utilities, and public safety". [26]The right-of-way is different from County to County
Indiana Dig Once Policy	Indiana's Dig Once Policy (105 IAC 16-1-1) allows for the installation of conduit during specified work conditions. This provides a more cost effective and efficient method to install fiber for future providers.[27]
S.B. 419	This bill will allow broadband companies to subtract federal, state, or local grants funds they receive from adjusted corporate income tax; in other words, this bill will allow these companies to avoid taxation on federal broadband funding.[28]
Indiana Code 6-1.1-12.5-4	This authorizes a county executive to adopt an ordinance designating a geographic territory as an Infrastructure Development Zone ("IDZ"), which allows for eligible infrastructure within the zone to be exempt from property taxation.[29]
Indiana Code 5-28-28.5	This section of the Indiana Code establishes the Broadband Ready Communities Program. The code lists out the specific steps necessary for a community to become Broadband Ready. In completing these steps, communities send a signal to local ISPs that they are ready to engage and will be an easy partner in developing and deploying internet infrastructure.[30]

3.3.1.3 Workforce Development

A critical aspect to broadband deployment is the workforce. A strong and reliable workforce will be critical to the implementation of the State's BEAD Plan. With the large influx of money coming to the State for broadband deployment, Indiana will need to ensure its workforce is prepared. To meet the increasing demand, it is vital to leverage and optimize local higher education institutions, online programs, and workforce development initiatives. By doing so, we can effectively prepare Hoosiers to excel in fulfilling the task at hand.

Table 8: Workforce Development Programs

Asset	Description
Ivy Tech Community College	Ivy Tech Community College is a leader in broadband workforce training space in the State. They offer a variety of programs including *Building Construction Technology, Electrical Engineering Technology, Electronics and Computer Technology, Industrial Technology and Network*

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[26] Justia Law. "2017 Indiana Code Title 8. Utilities and Transportation Article 20. County Roads – Location and Eminent Domain." 2017, https://law.justia.com/codes/indiana/2017/title-8/article-20/chapter-1/section-8-20-1-15.5/#:~:text=Sec.-,15.5.,way%20of%20a%20county%20highway.

[27] Justia Law. "2021 Indiana Code Title 8. Utilities and Transportation Article 23." 2021, https://law.justia.com/codes/indiana/2021/title-8/article-23/chapter-5/section-8-23-5-10/

[28] Indiana General Assembly. "Senate Bill 419." January 1, 2023, https://iga.in.gov/legislative/2023/bills/senate/419/details

[29] Justia Law. "2017 Indiana Code. Title 6. Taxation: Article 1.1 Property Taxes: Chapter 4. Procedures for Real Property Assessment." 2017, https://law.justia.com/codes/indiana/2017/title-6/article-1.1/chapter-12.5/section-6-1.1-12.5-4/

[30] Justia Law. "Indiana Code Title 115, Article 20, Chapter 1." 2017, https://statecodesfiles.justia.com/indiana/2016/title-5/article-28/chapter-28.5/chapter-28.5.pdf

	Infrastructure, as well as a technology apprenticeship as a *Telecommunications Technician.* Ivy Tech – Lafayette and Ivy Tech – Valparaiso both have State Earn and Learn Programs (SEALs) which launched in 2021.
Wireless Infrastructure Association Telecommunications Education Center (WIA TEC)	WIA TEC has an abundance of courses to prepare individuals for the broadband workforce. They provide opportunities for education, training, certification, and offer workforce training programs to employers.

3.3.2 Broadband Adoption

Nearly 90% of Indiana's population have a broadband internet subscription[31]. This is further broken down by varying demographics such as race, education attainment, and age. On average, those without a high school degree, over the age of 65, or are a minority, have a lower broadband subscription rate.

When analyzing broadband subscription rates based on race, Asian Americans (93.4%) surpass the average, while White Americans (88.8%) slightly exceed it. On the other hand, Hispanic and Latino Americans fall slightly below the average. Notably, Black Americans (83.4%), American Indians (87.6%), Native Hawaiians/Pacific Islanders (83.6%), and individuals from
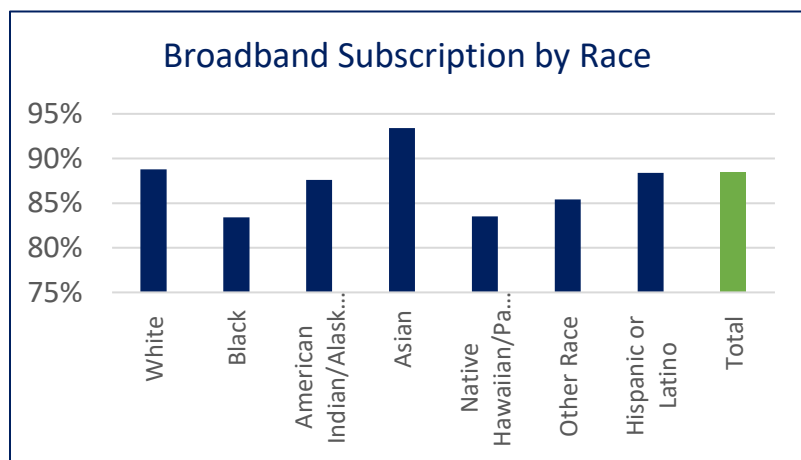

other races (85.4%) all demonstrate subscription rates below the State average. In Indiana, urban areas such as Indianapolis and Fort Wayne tend to have the highest levels of subscriptions. While many of the unserved and underserved addresses are in rural areas. Indiana understands there is more to broadband adoption than access to infrastructure and technology alone. The IBO intends to take a multifaceted approach to address challenges such as affordability and digital literacy.

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[31] US American Census Survey. "Bs8003: Presence of a Computer and Type of Internet in Household 5-Year Estimate." 2021, https://data.census.gov/table?q=b28003&g=040XX00US18&tid=ACSDT1Y2021.B28003

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Educational attainment is also an important factor when looking at broadband adoption rates. On average, those with less than a high school education (69%), had lower broadband subscription rates than those who were a high school graduate (86.2%) or received a bachelor's degree or higher (95.2%). Individuals receiving less education are more likely to have negative opinions about the internet, likely contributing to a lower adoption rate[32]. Additionally, individuals who do not have a high school diploma, on average, make approximately $6,399 less a year[33] than those who do. This may put the price point for broadband services out of reach, creating another barrier for Hoosiers to access these essential services.

Broadband Subscription by Education
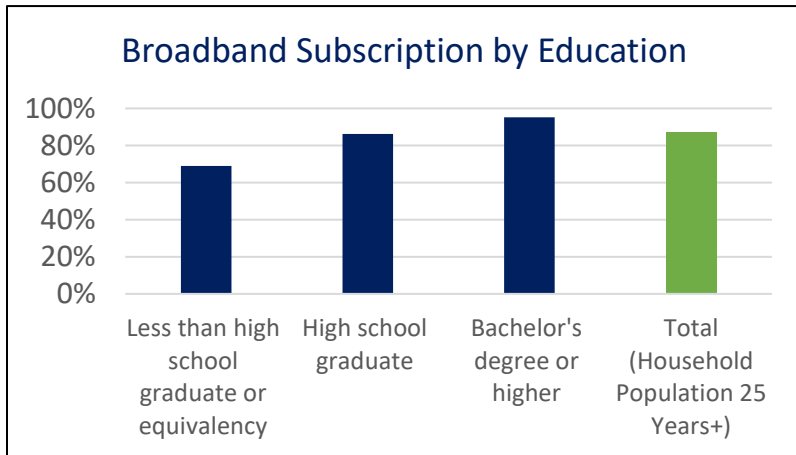
Age can also be an important factor when discussing the digital divide; older generations have not had as much exposure to technology as their younger counterparts. Additionally, digital literacy classes in the community are not always available, leaving this demographic unconnected. On average, individuals 65+ (75.8%) are less likely to have a broadband subscription. Despite this, broadband has countless advantages for the aging population of Indiana, such as scheduling telehealth appointments, ordering groceries to the home, and checking in with friends and family who may live far away.

Broadband Subscription by Age
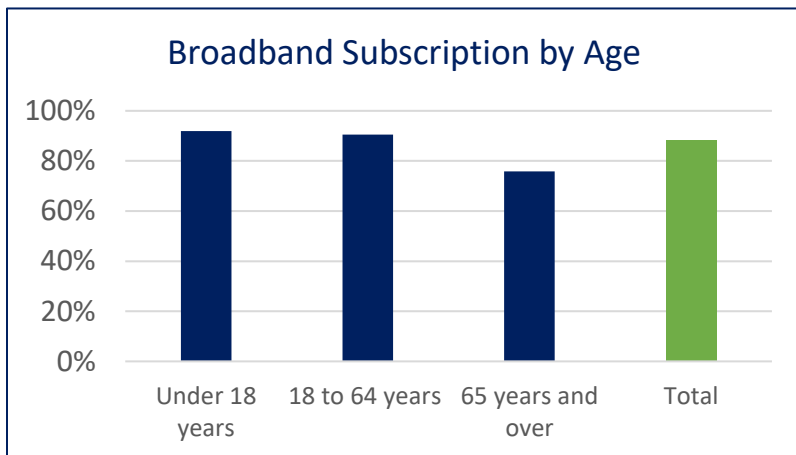
3.3.2.1 Purdue Center for Regional Development (PCRD)

Purdue Center for Regional Development (PCRD) is a prominent higher education research institution actively collaborating with the IBO to champion Digital Equity and Broadband Adoption across the State of Indiana. With an impressive track record in extensive research on Digital Equity, PCRD holds considerable influence within the Indiana community and throughout the nation. While currently supporting the development of the Digital Equity Act (DEA) State Plan, their impact extends far beyond this engagement.

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[32] Pew Research Center. "Declining Majority of Online Adults Say the Internet Has Been Good for Society." April 30, 2018, https://www.pewresearch.org/internet/2018/04/30/declining-majority-of-online-adults-say-the-internet-has-been-good-for-society/

[33] U.S. Career Institute. "How Much More High School Graduates Earn Than Non-Graduates in Every State." https://www.uscareerinstitute.edu/blog/how-much-more-high-school-graduates-earn-than-non-graduates

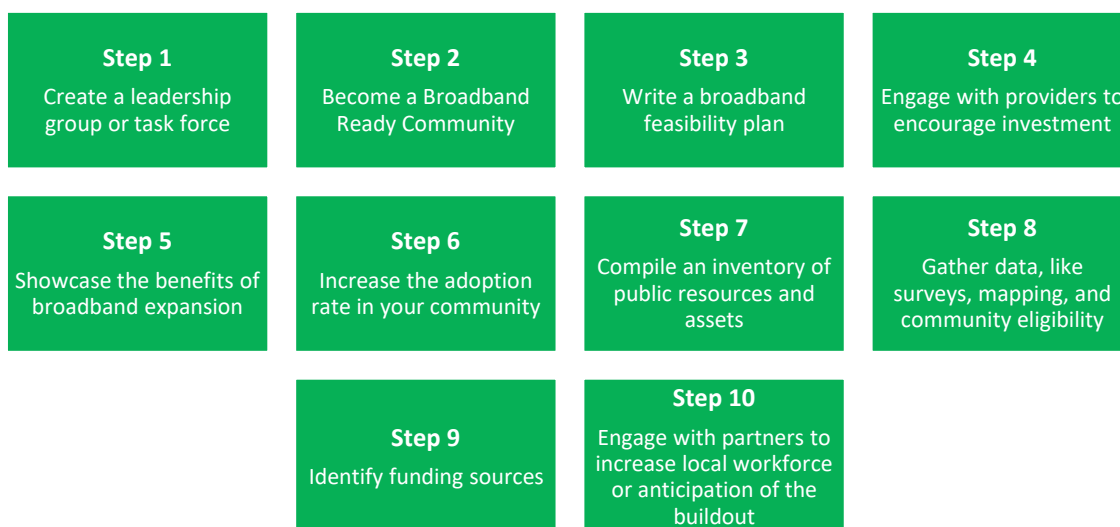**Connecting Indiana** – Five Year Action Plan

PCRD plays a crucial role in conducting community digital equity studies and plan development. Their on-the-ground data collection through comprehensive surveys of local communities provides valuable insights. This research contribution and presence within the digital equity domain are invaluable assets to the State, fostering increased access, adoption, and digital equity throughout Indiana.

3.3.2.2 Indiana Broadband Office Broadband Champions Campaign

The Broadband Champions Campaign, spearheaded by the IBO, focuses on showcasing local leaders in the broadband field through a series of videos. Its primary objective is to share the success stories of broadband implementation with communities that have not yet embraced the concept of becoming Broadband Ready. By highlighting the many benefits of broadband to Hoosiers, the IBO aims to inspire and energize both community leaders and individuals to actively promote adoption. This, in turn, is expected to encourage broadband providers to invest in buildouts, particularly in areas that may currently lack sufficient coverage. Through this campaign, the IBO endeavors to drive broader access to broadband services and foster digital development throughout Indiana.

3.3.2.3 Indiana's Broadband Steps to Success

Alongside various other state agencies, the IBO developed the *Steps to Success*, which is a handbook to help communities prepare for broadband services and their further connectivity. More information, including case studies, on the following 10 *Steps to Success* can be found on the IBO's website:

Step 1	Step 2	Step 3	Step 4
Create a leadership group or task force	Become a Broadband Ready Community	Write a broadband feasibility plan	Engage with providers to encourage investment

Step 5	Step 6	Step 7	Step 8
Showcase the benefits of broadband expansion	Increase the adoption rate in your community	Compile an inventory of public resources and assets	Gather data, like surveys, mapping, and community eligibility

Step 9	Step 10
Identify funding sources	Engage with partners to increase local workforce or anticipation of the buildout

3.3.2.4 Adoption Programs

Table 9: Adoption Programs

Program	Type of Program	Description
Affordable Connectivity Program (ACP) [34]	Subsidy	The ACP allows for eligible households to receive up to $30 per month towards internet services. This program is an FCC benefit program and helps to ensure that households can afford the broadband they need for work, school, healthcare and more. Additionally, the ACP allows for eligible households to receive a one-time discount of up to $100 to purchase a laptop, desktop computer, or tablet from participating providers if they contribute more than $10 and less than $50 towards the purchase price. The ACP, providing eligible households a subsidy for monthly broadband, is a federal program and has the potential to run out of funds in the future.
Large Internet Service Provider Training Programs	Digital Literacy	AT&T[35] and Comcast[36] both provide digital literacy programs, the AT&T Digital Literacy Training Program and Comcast RISE Program. These are online programs that help individuals learn more about different aspects of technology such as technology basics, online safety, and digital citizenship.
Indiana Digital Navigators	Digital Navigators	The following 9 organizations were listed on the National Digital Inclusion Alliance (NDIA)'s website as Digital Navigators in the State of Indiana. Digital Navigators are organizations who "address the whole digital inclusion process – home connectivity, devices, and digital skills – with community members through repeated interactions".[37] ➢ City of South Bend ➢ Greensburg Decatur County Economic Development Corp ➢ Hope Training Academy ➢ Indianapolis Public Library ➢ La Porte County Public Library ➢ Labor Institute for Training, Inc ➢ Net Literacy ➢ St. Joe Valley Metronet, Inc. ➢ The Open Resource
Indiana School (Bus) Hotspots	Hot Spots	During the pandemic, many entities in the State partnered to create hot spots on school buses to provide students with internet access to continue their schooling. Although it is no longer in commission, this exercise was a good case-study into mobile, and quickly deployed, hotspots. Overall, it is crucial kids have access to the internet so that they can complete homework and maintain in contact with teachers. Recently, the School City of Mishawaka is asking the board to approve

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[34] Federal Communications Commission. "Affordable Connectivity Program." May 4, 2023, https://www.fcc.gov/acp

[35] AT&T ScreenReady. "Digital Literacy." https://screenready.att.com/digital-literacy/

[36] Comcast RISE. https://www.comcastrise.com/

[37] National Digital Inclusion Alliance. "The Digital Navigator Model." May 9, 2023, https://www.digitalinclusion.org/digital-navigator-model/

		funds for hotspots. They are asking for $53,400 to pay for 200 portable hotspots. [38]
Local Hotspot Initiatives	Hot Spots	Certain communities, especially those that are Broadband Ready Communities (i.e. Union County) have installed local hotspots in public places, such as courthouses. This is an initiative that other communities can incorporate into their broadband planning. Additionally, certain organizations, such as AARP, have hotspot programs for their constituents.
Promoting Achievements through Technology and Instruction for all Students (PATINS)	Refurbished Technology	PATINS provides a refurbished technology program for students.[39] Indiana public schools can request technology online and that will then be distributed at no cost. This program has the goal to fill educational gaps for individual students but does not focus on gaps in infrastructure needs for classrooms and buildings.
The Indiana Assistive Technology Act (INDATA) Depot: Equipment & Computer Reuse	Refurbished Technology	INDATA operates an equipment reuse program, which takes donated computers, wipes them of all data, and provides them at no charge to individuals in Indiana with disabilities and have no other means of obtaining a computer.[40]
Local Refurbishment Initiatives	Refurbished Technology	During the BEAD Stakeholder Visioning Sessions, held over the duration of this plan development, community leaders, such as those from the City of Rushville, indicated the presence of computer refurbishment and giveaway programs. These programs are available for qualified individuals who receive a free device after taking a digital literacy class.
New Beginnings Computer Training	Digital Literacy	The mission of the New Beginnings Organization is to provide individuals the training, skills, and confidence to launch a new career, grow current careers, or make a career change.[41] Although this organization provides computer training, their program is included as workforce development.

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[38] Good Morning America. "Indiana School District's Wi-Fi Buses Ease Virtual Learning for Students at Home." September 4, 2020, https://www.goodmorningamerica.com/living/story/indiana-school-districts-wi-fi-buses-ease-virtual-72626209

[39] PATINS. "Refurbished Technology." https://www.patinsproject.org/services/refurbished-technology
[40] Easterseals Crossroads. "INDATA Depot – Equipment and Computer Reuse." https://www.eastersealstech.com/our-services/device-re-utilization/

[41] New Beginnings Computer Training. https://nbct.tech/

3.3.2.5 Department of Education Initiatives

The Indiana Department of Education has a Digital Readiness Dashboard, which documents access to devices, virtual learning, enterprise technologies, bandwidth, infrastructure, and technology staffing based off the school corporation for students grades K-12. Certain data points include student's 1:1 device access, percentage of virtual learning, if the district is on a fiber network or not, and technician FTEs per 1,000 users.
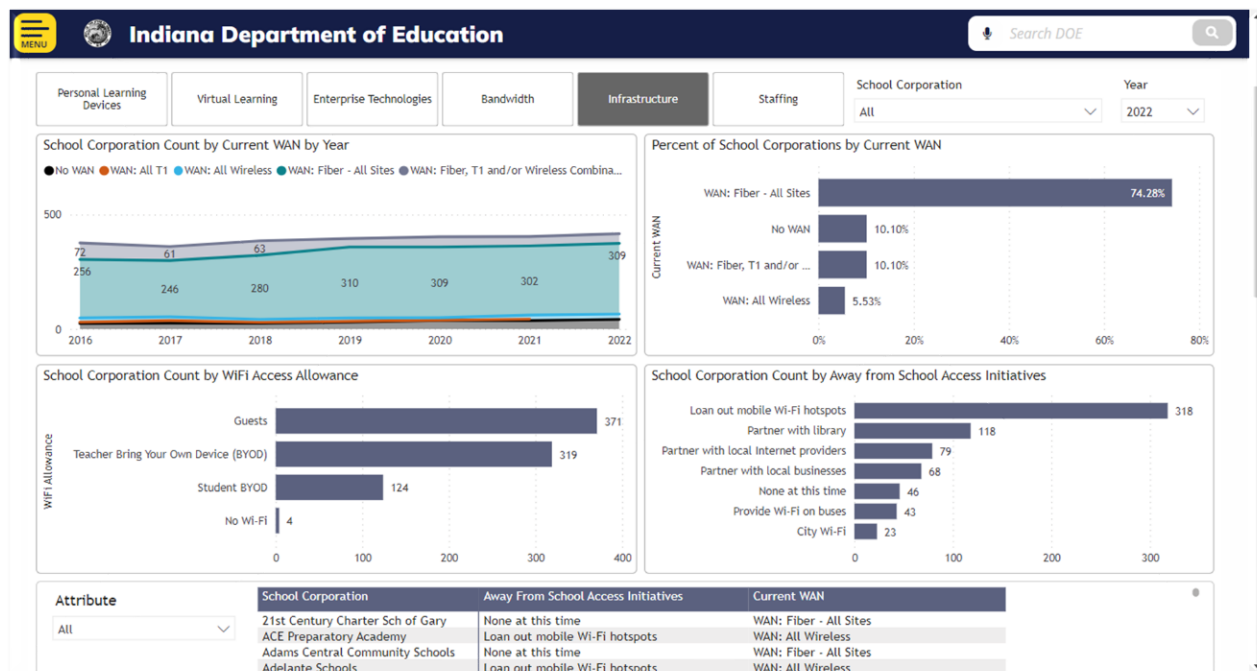

Figure 3. Indiana Department of Education Digital Readiness Dashboard

3.3.2.6 Indiana State Library

Indiana State Libraries play a pivotal role in providing reliable internet access for Hoosiers. Recognizing the significance of libraries as community hubs in rural, suburban, and urban areas, it is imperative to ensure robust and dependable broadband connectivity in these locations. To achieve this, the incoming BEAD funding offers a valuable opportunity to support Community Anchor Institutions (CAI's), including libraries, in their mission to provide access to broadband services.

The Indiana State Library's efforts in documenting the current state of internet service across state libraries are commendable. This comprehensive documentation[42] serves as a valuable resource in identifying existing gaps in broadband coverage and determining areas where network expansion is necessary. By utilizing this data, we can strategically plan and allocate resources to ensure that Hoosiers have access to high-speed internet, regardless of their location.

Speed	Number of Libraries
1.6 Mbps – 5.9 Mbps	5
6.0 Mbps – 14.9 Mbps	13
15 Mbps – 24.9 Mbps	29
25 Mbps – 49.9 Mbps	20
50 Mbps – 99.9 Mbps	55
100 Mbps – 499.9 Mbps	77
500 Mbps – 1 Gbps	27
Greater than 1 Gbps	10
Total Unserved	**47**
Total Underserved	**75**
Total Served	**114**

Out of the 236 public libraries in the region, only 114 are currently fully served with a reliable connection to the fiber optic network. This indicates that a significant number of libraries, 122 in total, are facing challenges with their internet infrastructure. Among these, 47 libraries have speeds below the 25/3Mbps threshold, while an additional 75 libraries experience speeds below the 100/20Mbps threshold. This situation highlights the urgent need to address broadband access disparities across communities, be it rural, suburban, or urban areas.

Libraries are community hubs that offer vital resources and services, making them essential for people from all walks of life. To ensure that these locations can continue serving as anchors for their communities, it is imperative to strengthen and expand broadband access in these areas.

The incoming BEAD funding presents a valuable opportunity to address these challenges. By directing funding towards Community Anchor Institutions (CAI's) like libraries, we can bolster their capacity to provide reliable access to broadband services. This support will not only benefit library patrons but also positively impact local businesses, students, researchers, and other community members who depend on these facilities for internet connectivity. The existing documentation on internet service across libraries is an invaluable resource for identifying gaps in coverage and determining areas where network expansion is most urgently needed. By leveraging this information, we can strategically allocate resources to bridge the digital divide and ensure that all Hoosiers have access to high-speed internet, regardless of their location.

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[42] Indiana State Library. "2022 Indiana Public Library Statistics: Internet Access and Computers." 2022, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.in.gov%2Flibrary%2Ffiles%2F22 -Table-9-Internet-Access-and-Computers.xls&wdOrigin=BROWSELINK

3.3.3 Broadband Affordability

3.3.3.1 The Affordable Connectivity Program
The Affordable Connectivity Program (ACP) provides eligible households with a discount of $30 per month towards internet service, along with a one-time discount of up to $100 to purchase a laptop, desktop computer, or tablet from participating providers. Beginning December 31, 2021, the ACP replaced the Emergency Broadband Benefit program as the long-term entitlement program. To be eligible, a household must have at least one member with any of the following criteria[43]:

➢ Has an income that is at or below 200% of the federal poverty guidelines
➢ Participates in certain assistance programs, such as SNAP, Medicaid, Federal Public Housing Assistance, SSI, WIC, or Lifeline
➢ Participates in Tribal specific programs, such as Bureau of Indian Affairs General Assistance, Tribal TANF, or Food Distribution Program on Indian Reservations
➢ Is approved to receive benefits under the free and reduced-price school lunch program or the school breakfast program, including through the USDA Community Eligibility Provision
➢ Received a Federal Pell Grant during the current award year
➢ Meets the eligibility criteria for a participating provider's existing low-income program

IBO and its partners hope that this program continues. While this Action Plan primarily focuses on the importance of infrastructure issues, affordability and adoption remains a top concern.

3.3.3.2 Additional Affordability Assets
There are additional programs throughout the State that help with affordability of internet services.

Table 10: Affordability Assets

Asset	Description
Indiana Code – Broadband Subsidy Program	A clause written into Indiana Code allows for Hoosiers to apply for an internet subsidy program. However, the act is not currently in use because it has a stipulation that federal programs must be utilized first. With the existence of the ACP, this program will continue to be dormant but is a possible resource if ACP is not renewed.
The Indiana Housing & Community Development Authority (IHCDA): Low Income Home Energy Assistance Program (LIHEAP)	The Indiana Housing & Community Development Authority (IHCDA) is responsible for standing up the LIHEAP. This program helps low-income households pay energy and water bills. It is federally funded through the U.S. Department of Health and Human Services and provides a one-time annual benefit. Households that make 60% of the state median income or less may qualify for these benefits. Programs such as these can help free up other dispensable income to spend on internet service. Additionally, this program has been identified as an

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[43] Federal Communications Commission. "FCC Launches Affordable Connectivity Program." January 4, 2022, https://www.fcc.gov/fcc-launches-affordable-connectivity-program

	opportunity to co-promote internet affordability programs such as the ACP.

3.3.4 Broadband Access

Broadband access is more than just having the necessary infrastructure in place. For example, affordability and digital literacy play a large role in ensuring individuals can take advantage of the internet opportunities that they have physical access to. Public Wi-Fi locations and Community Anchor Institutions (CAIs) are critical components of a community which help mitigate access issues. Public Wi—Fi locations provide individuals with a means to access the internet should they lack access at home, and oftentimes these locations, along with CAIs, provide a place for digital literacy trainings, have device programs, or help explain potential options for those who may not be able to afford the services offered at their address.

3.3.4.1 Indiana Public Wi-Fi

In 2020, the COVID-19 pandemic drastically transformed the lives of many Hoosiers, as numerous aspects of daily living shifted rapidly to a digital landscape. Work, education, family interactions, and leisure activities all moved online, underscoring the critical importance of broadband access. However, not all households had reliable internet access, creating a pressing need to support those affected.

To address this issue, various entities, including the Indiana Geographic Information Office (GIO), the Office of the Governor of Indiana, the Office of the Lieutenant Governor, Indiana Office of Technology, the Department of Education, 39 Degrees North, Internet Service Providers, and the Indiana Commission of Higher Education, collaborated to gather essential data. This collaborative effort aimed to create a comprehensive map pinpointing locations across the State where Hoosiers could access free Wi-Fi.

Figure 4. Indiana Public Wi-Fi Map

The initiative to map out areas with free Wi-Fi was a significant step towards promoting digital inclusion and bridging the digital divide. By providing this valuable resource, residents without reliable internet at home could find accessible locations to meet their online needs for work, education, and other essential
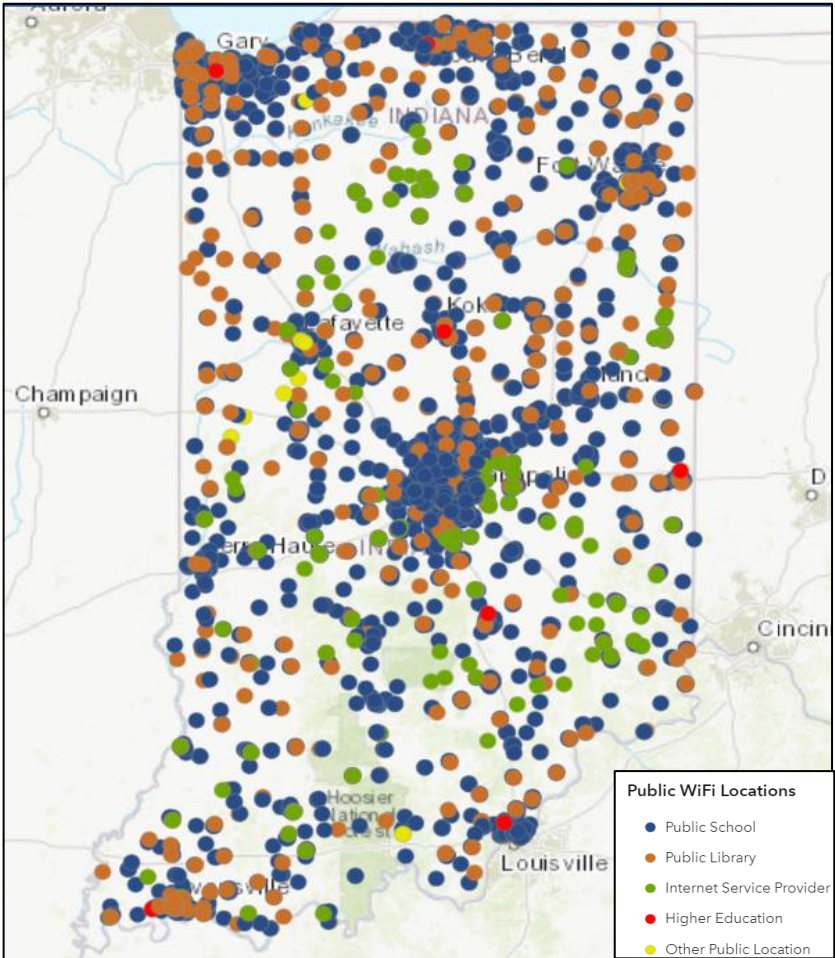
tasks. The map served as a practical tool to assist Hoosiers in navigating their digital lifestyles during a time when internet access became more critical than ever.

The efforts of the various organizations involved in this project showcased the power of collaboration and public-private partnerships in addressing pressing societal challenges. Moreover, this initiative demonstrated a commitment to ensuring that all individuals in Indiana had the opportunity to participate fully in the digital age, regardless of their location or socioeconomic status. The map referred to above can be viewed here.

Although the Indiana Public Wi-Fi map is a great start in identifying these locations, there are many other locations on which communities rely for services. Community Anchor Institutions are another example of where expanding access and attracting providers to build infrastructure in the State will bring Indiana one step closer to ensuring every Hoosier is connected.

3.3.4.2 Community Anchor Institutions

A Community Anchor Institution (CAI) is defined as "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"[44].

Empowering Community Anchor Institution connectivity through BEAD funding not only strengthens the capacity of these institutions to provide internet access but also enhances their role as information centers and community gathering places. This investment in broadband infrastructure will positively impact residents, businesses, students, and researchers, fostering digital inclusion and driving economic growth across the State. While the primary goal of the BEAD program is to get all Hoosiers connected to broadband, it is also important that locations that serve their community are equipped with service and training that will benefit residents waiting for connections directly to their homes. Community Anchor Institutions (CAIs) or other public locations can bridge this gap for Hoosiers who lack everyday access at their home or business.

Through the various Stakeholder Visioning Sessions completed by the IBO, the CAI definition was expanded; locations such as religious centers, outdoor parks, hotels, car parks/gas stations were added to the list. In rural areas, it is important to consider that these communities may not have access to the same resources and locations that other communities have, and places of community gathering may look quite different. A comprehensive list of these locations is listed below:

Table 11: Additional CAIs

Gas Stations	Churches / Religious Buildings	Airports	Hotels
Parks	WorkOne's	Childcare Facilities	Youth Centers

[44] Broadband USA. "Notice of Funding Opportunity Broadband Equity, Access, and Deployment Program." May 12, 2022, https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

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Fire Houses	Fairgrounds	Public Transportation Stations	Senior Centers
Entertainment Venues (i.e. movie theaters)	Campgrounds	Variety Stores	Homeless Shelters

The Indiana Geographic Information Office (GIO) has compiled datasets documenting location data on religious centers, hospitals, fire stations, EMS stations, law enforcement stations, city and town hall locations, public schools, higher education institutions, public libraries, and recreational facility locations. This data was compiled into a comprehensive map. As seen, urban centers tend to have a plethora of the typical CAI locations, while they are more sparse in rural areas.

In conjunction with the Stakeholder Visioning Sessions, CAI surveys were sent to communities to complete. These provided an opportunity for local communities to identify what they thought of as their community's anchor locations. Ultimately the IBO will be able to translate this crowd sourced information into a map that can help familiarize current and new residents with local resources.
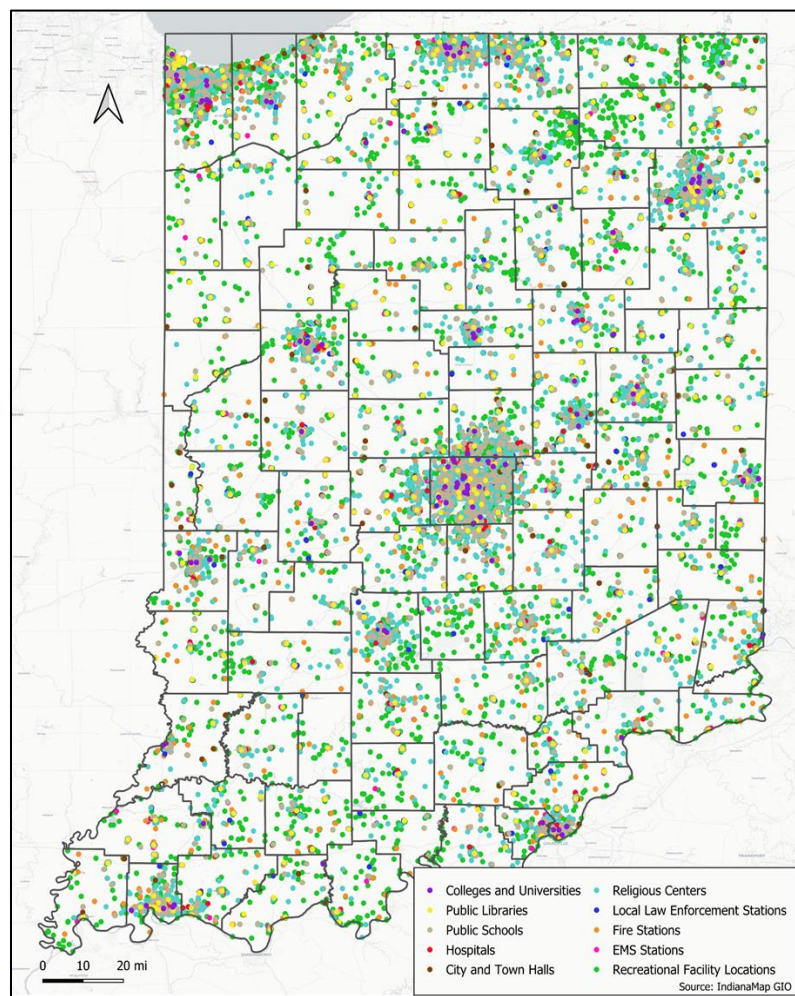

Figure 5. Community Anchor Institutions

3.3.5 Digital Equity

Digital Equity is a large component of connecting all Hoosiers. In tandem to the BEAD program, The IBO is currently in the development process of the Digital Equity Act Plan, which will be released in the Fall of 2023. For this plan, a Digital Equity Task Force was created to assist in the brainstorming, research, and creation of the final plan. The entities and individuals involved in the Task Force are not only helpful for plan development but will also be crucial in the deployment of both the DEA and BEAD plans.

In addition to creating the Task Force, PCRD in collaboration with the Indiana University Survey Research Center (IU-SRC) developed a survey. The survey was administered using a mixed-mode web and paper to an address-based household sample of Indiana residents. A total of 8,000 Indiana household addresses were randomly selected using an address-based sampling frame stratified by study-specific demographic and geographic target characteristics (e.g., covered populations). Data was gathered between November 2022 and February 2023.

A push-to-web phase consisted of a mailed invitation letter with a web link followed by a paper questionnaire to non-respondents. Approximately five weeks after the push-to-web invitation mailing, a 4-page paper survey with a cover letter was then distributed to the remaining eligible sample. A $1 dollar bill was included in both phases as an incentive and $15 VISA gift card were offered to respondents who submitted a web or paper survey.

The survey was weighted and calibrated based on respondent distributions on gender, age, education, race/ethnicity, and urban/rural status. A total of 1,225 responses were captured with an overall response rate of 15.4%.

Some variables were recoded for analytic purposes (e.g., educational attainment, age groups, household income, etc.). Urban and rural status was assigned based on the respondent's Census tract and its share of population living in urban areas defined by at least 425 housing units per square mile.

The results of this survey will be synthesized in Indiana's final Digital Equity Plan.

3.3.5.1 Local Digital Equity Plans

In recent years, the importance of digital equity has gained prominence, prompting numerous communities in Indiana to prioritize its development. Through strategic planning and collaborative efforts, these communities are striving to bridge the digital divide and ensure that everyone has equal access to digital resources and opportunities. The following delves into several key digital equity plans and initiatives in Indiana, highlighting their impact and significance in fostering an inclusive and digitally empowered society.

The Bloomington Digital Equity Plan stands as a shining example of a community-driven approach to achieving digital equity. Developed in consultation with residents, local businesses and educational institutions, the plan addresses the barriers hindering digital access and proficiency. It encompasses comprehensive strategies like affordable internet access programs, digital skills training workshops, and providing technology resources to underserved populations. By fostering collaborations with stakeholders and leveraging resources effectively, Bloomington is taking significant strides towards ensuring digital inclusion for all its citizens.

The South Bend Digital Equity Road Map is another inspiring initiative aimed at promoting digital literacy and inclusivity. By prioritizing education and training, this roadmap seeks to empower individuals with the necessary digital skills to thrive in the modern world.

Additionally, it focuses on bolstering broadband infrastructure and reducing the cost of internet services, making connectivity more accessible to all residents. Through partnerships with local organizations and government agencies, South Bend is on its way to bridging the digital divide and fostering a vibrant digital ecosystem.

Indiana's commitment to digital equity extends beyond individual communities. The Purdue Center for Regional Development (PCRD) has played a crucial role in coordinating and promoting various Digital Equity Plans across the state. These plans, including the Boone County 5-year Digital Inclusion Plan, the Carroll County Digital Inclusion Initiative, the Rush County Digital Inclusion Plan, and the Southeastern Indiana Regional Digital Inclusion Plan, showcase the concerted effort to address digital disparities in both rural and urban areas.

To bolster these regional plans and create a more unified approach, the Digital Equity Act Plan outlines a comprehensive framework for coordinating statewide efforts. This Plan ensures that resources are distributed equitably, progress is monitored, and encourages best practices to be shared among communities. By joining forces under the Digital Equity Act Plan, Indiana is building a solid foundation for collective success in the pursuit of digital equity.

Beyond official plans and initiatives, the success of digital equity endeavours also hinges on the active involvement of individuals. Solution Sessions provide a valuable platform for citizens to express their aspirations, concerns, and ideas regarding digital equity initiatives. These sessions empower communities to identify specific needs and tailor solutions that resonate with their unique challenges and opportunities. Moreover, involving stakeholders fosters a sense of ownership and commitment, ensuring sustained progress towards digital equity goals.

3.3.5.2 Indiana Broadband Ready Communities (BBRC)

Indiana has an existing program that allows local governments – towns, cities, and counties – to identify themselves as being broadband ready. This program operates with a clear objective: to empower each community with the tools and resources they need to become "Broadband-Ready." Communities actively engage in fulfilling a set of rigorous requirements, such as documenting their permitting processes and identifying a single point of contact for broadband issues and implementations. These key criteria pave the way for a smoother broadband deployment. Upon meeting these prerequisites, they earn the recognition and endorsement that they are ready to welcome Internet Service Providers (ISPs) for the expansion of broadband services. There are currently 82 units of local government that are certified. In addition to that, communities can have Broadband Task Forces, typically at the County level. Currently, there are 62 certified Broadband Task Forces. These lists are constantly updating and the steps to become a Broadband Ready Community can be viewed here.
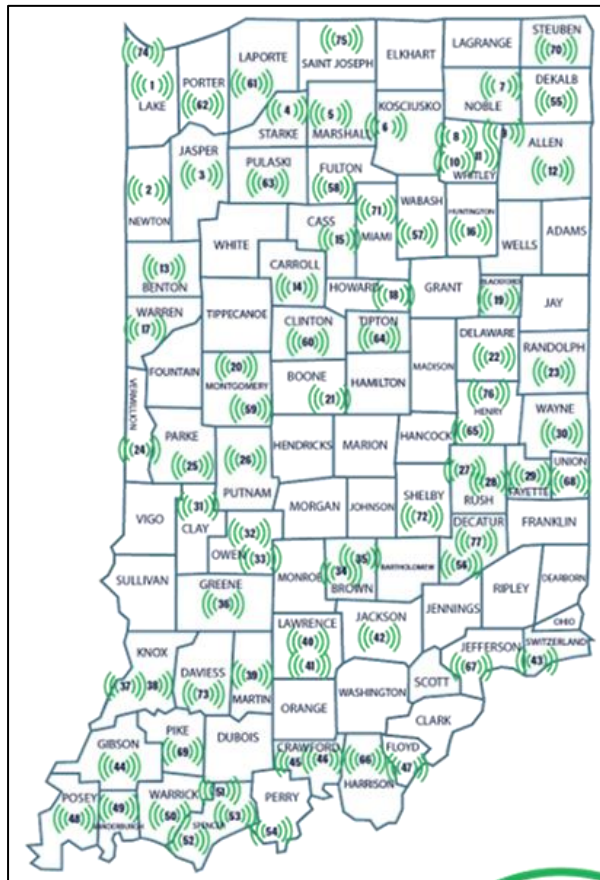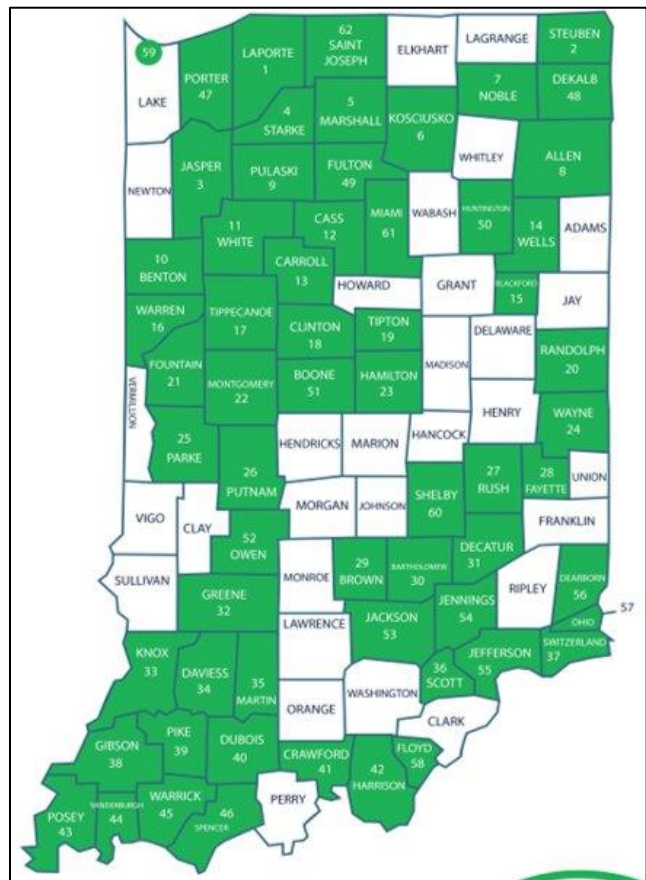
Figure 6. Broadband Ready Communities

Figure 7. Broadband Task Forces

3.3.5.3 Local Organizations

There are many organizations throughout Indiana that focus on digital equity. A complete list of those organizations will be provided in the Digital Equity Plan. The following list represents stakeholders who are currently engaged with advocacy and support Hoosiers in various ways.

Table 11: Local Organizations

Organization	Covered Population	Description of Work
AARP	Aging Individuals	AARP is the nation's largest nonprofit, nonpartisan organization dedicated to empowering Americans 50 and older to choose how they live as they age. With a nationwide presence, AARP strengthens communities and advocates for what matters most to the more than 100 million Americans 50-plus and their families:

		health security, financial stability and personal fulfillment. AARP also works for individuals in the marketplace by sparking new solutions and allowing carefully chosen, high-quality products and services to carry the AARP name. The Indiana AARP office works in partnership with volunteers across the state around expanding broadband access. Membership in Indiana is around 800,000.
Indiana Small and Rural Schools	Individuals who primarily reside in rural areas	The Indiana Small and Rural Schools Association is an Affiliate Organization of the National Rural Education Association. Designed to be a voice for the small and rural schools on state and federal issues.
United Way of Central Indiana	Individuals who are members of a racial or ethnic minority group	United Way of Central Indiana is a 501©3 U.S. nonprofit organization that is united with communities in opposing racial and ethnic discrimination. United Way is committed to listening, learning, and amplifying the voices of all their neighbors. United Way partners to design, support and grow systems that accelerate financial stability and upward mobility for individuals and families living in or near poverty and striving for a brighter future.
Indiana Rural Health Association	Individuals who primarily reside in rural areas	The Indiana Rural Health Association is a nonprofit organization developed for the purpose of improving the health of Hoosiers living in rural areas. The Indiana Rural Health Association is a member-driven organization composed of a diverse membership. Working to improve the health of all Hoosiers in rural settings, the mission of the Indiana Rural Health Association is to enhance the health and well-being of rural populations in Indiana through leadership, education, advocacy, collaboration, and resource development.
Ivy Tech Community College	Adult Learners	Ivy Tech Community College is the largest singly accredited community college in the United States. With 44 locations throughout Indiana, over 500 online classes, and 75 academic programs[45], Ivy Tech allows many Hoosiers to gain the necessary skills to enter the workforce. 67% of all Hoosier students age 25+ were enrolled at Ivy Tech[46], showcasing the importance the institution has on adult learners throughout the state.
Indiana Office of the Chief Equity, Inclusion, and Opportunity Officer	Individuals who are a member of a racial or ethnic minority group & Individuals who live in covered households	The Indiana Office of the Chief Equity, Inclusion, and Opportunity Officer (CEIOO) has the mission of normalizing and operationalizing equity, inclusion, and opportunity across all aspects of state workforce engagement and state services through guidance and support to other State agencies.[47] The CEIOO is dedicated to providing all Hoosiers the tools necessary to experience their best quality of life, including broadband services.
Indiana Office of Community and Rural Affairs	Individuals who primarily live in rural areas	The Office of Community and Rural Affairs was established in 2005 to help provide resources and technical assistance to communities in order to aid them in economic development and community growth. Roughly 40% of the state lives in rural areas, and OCRA's mission is to ensure these communities prosperity.[48]

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[45] Ivy Tech Community College. "About Ivy Tech." https://www.ivytech.edu/about-ivy-tech/

[46] Ivy Tech Community College. "Ivy Tech Community College Statewide Diversity, Equity, and Belonging Annual Report – 2020." November, 23, 2020, https://www.ivytech.edu/files/SYS_2020_DiversityAnnualPlan_11_23_20.pdf

[47] The State of Indiana. "Office of the Chief Equity, Inclusion, and Opportunity Officer." https://www.in.gov/equity/our-purpose/

[48] State of Indiana. " Indiana Office of Community & Rural Affairs, Who We Are". https://www.in.gov/ocra/about/

Indiana Philanthropy Alliance	Individuals who live in covered households	Indiana Philanthropy Alliance (IPA) is the largest network serving philanthropy in Indiana who offer guidance in policy and advocacy with a strong, unified voice at the state and federal level, help members access training and resources to guide them in philanthropic practices, and assist members connect with other community leaders.[49] They are champion of broadband and an advocate to get services to those who have barriers to adoption.
Indiana Department of Corrections	Incarcerated Individuals	Indiana Department of Corrections is the state agency responsible for incarcerated individuals. Discussion surrounding incarcerated individuals typically involves making sure these individuals have access to broadband workforce trainings, as a potential career path post-incarceration.
Indiana Department of Veteran Affairs	Veterans	The Indiana Department of Veteran Affairs is dedicated to supporting, serving, and advocating for the Indiana Veteran Community. Veterans are known to face challenges in re-adjusting to civilian life such as adjusting to providing necessities and establishing services[50]. The IDVA is in place to ensure Veterans have the assistance they need on re-acclimating to civilian life. Broadband services are a modern-day necessity, and it is critical veterans are provided services to help access it when needed.

3.4 Needs and Gaps Assessment

Addressing the digital divide and ensuring equitable broadband access in Indiana required a thorough needs and gap assessment. To achieve a thorough assessment, a multifaceted approach was adopted, which encompassed defining the vision for the future state of broadband in Indiana and conducting a comprehensive review of the current broadband landscape. This assessment involved analyzing supplemental speed test data to identify potential disparities between the information provided by Internet Service Providers (ISPs) and end-user experiences, and then reviewing the latest information provided from the FCC BDC maps. After analyzing the data, the assessment team reviewed the unserved and underserved locations' populations, topography, and other important attributes. The IBO knows that this work has many moving parts, so the rest of this chapter takes a holistic look at the entire process from deployment to adoption from start to finish.

Through this analysis, additional needs and gaps were methodically catalogued, providing critical insights into areas requiring urgent attention. To gain a complete understanding, stakeholders were actively engaged through interviews and collaborative Stakeholder Visioning Sessions, enabling communities to express their aspirations, concerns, and perspectives regarding broadband deployment.

By combining data from these diverse sources, the needs and gap assessment offers a detailed and accurate portrayal of Indiana's broadband infrastructure and the challenges that must be overcome. Armed with this comprehensive information, Indiana is better equipped to devise targeted strategies, foster partnerships, and prioritize

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[49] Indiana Philanthropy Alliance. "About Us." https://www.inphilanthropy.org/about-us
[50] U.S. Department of Veterans Affairs. "Veterans Employment Toolkit." August, 6, 2021, https://www.va.gov/vetsinworkplace/docs/em_challengesreadjust.asp

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initiatives that will lead to a more connected and digitally inclusive future for all its residents.

Indiana Farm Bureau Speed Test

The Indiana Farm Bureau conducted a speed test, beginning in May of 2021. All Hoosiers were encouraged to take this test to provide real-time data about the current state of internet in Indiana. Although unserved results could indicate factors other than the infrastructure not being present, such as participants not subscribing to the highest offered speed or that the router is in a suboptimal location, the results from this speed test look drastically different from the FCC maps. With this data, along with the continued state mapping efforts through Connecting Indiana, the IBO will be able to capture a more accurate, citizen-driven, picture of what service looks like in the State.
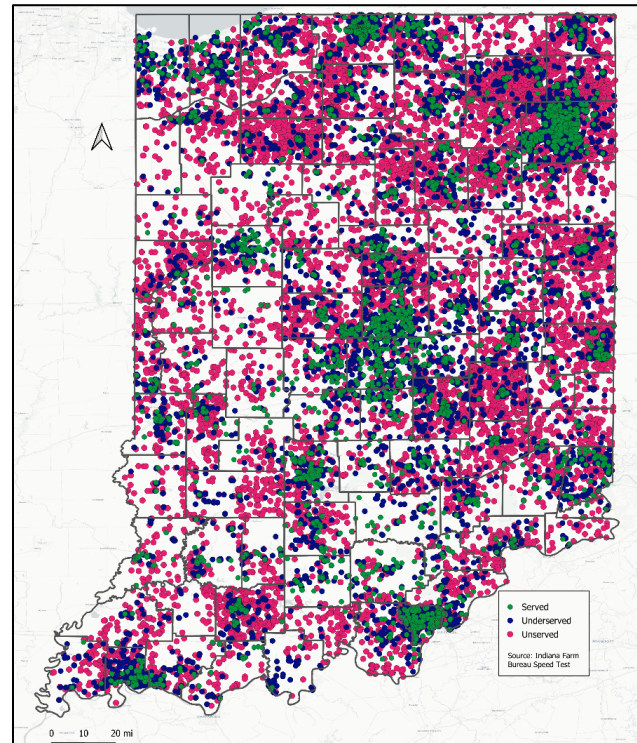

Figure 8. Indiana Farm Bureau Speed Test
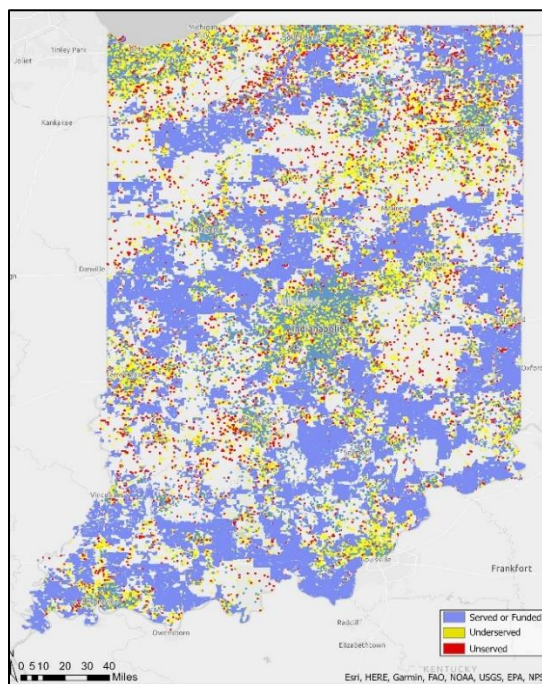
Additional Speed Tests

Figure 9. Ookla Speed Test

The Ookla Speedtest has been taken over 45 billion times worldwide since its inception in 2006 and is another method used to identify internet speeds at the address level. The Ookla Speedtest data adds another metric similar to the Indiana Farm Bureau Speed Test to measure the status of internet in the State. Overall, the trends presented in the Ookla data, and the Indiana Farm Bureau Speed Test data, are very similar, providing more proof of the addresses and areas which need to be prioritized and served through the BEAD program. Analyzing both sets of data confirms the importance of collecting on the ground, user-driven data to complement the FCC data and account for any gaps in accuracy.

3.4.1 Broadband Deployment

There are a variety of factors which encompass a successful broadband deployment. It is critical that the IBO understands where the State's broadband deployment needs lie, so that Indiana can deploy its over $868M in BEAD funding in the most effective way possible. Important elements to consider when beginning a deployment are the areas which need service, the existing public and private infrastructure, and broadband workforce.

3.4.1.1 Unserved and Underserved Locations

The FCC used their most up-to-date data on unserved and underserved addresses to determine each state's grant allocation. This data can be broken up to see how many identified unserved and underserved addresses there are in each census block and in each county. Figure 9 uses the FCC BDC data combined with the FCC fabric location data to represent the number of addresses in each census block which are either unserved or underserved. Table 12, then summarizes that information by county. In total, there are 161,466 unserved locations and 148,674 underserved locations. However, through Indiana's NLC program, along with other federal grant programs such as Rural Digital Opportunity Fund, CAF, and Reconnect a number of these addresses are, or will be served, and thus are ineligible for funding. With these additional sources of funding taken into account, there are an estimated 187,072 serviceable addresses eligible for BEAD funding.
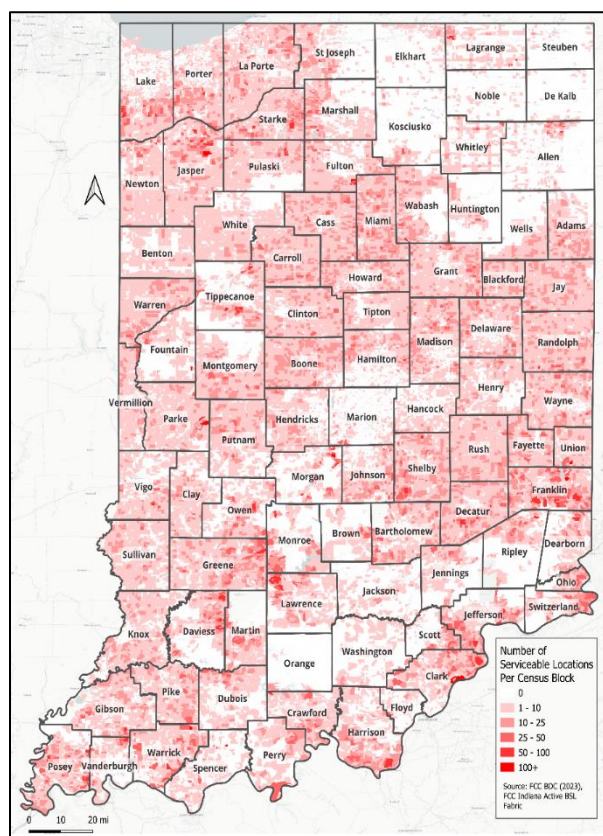

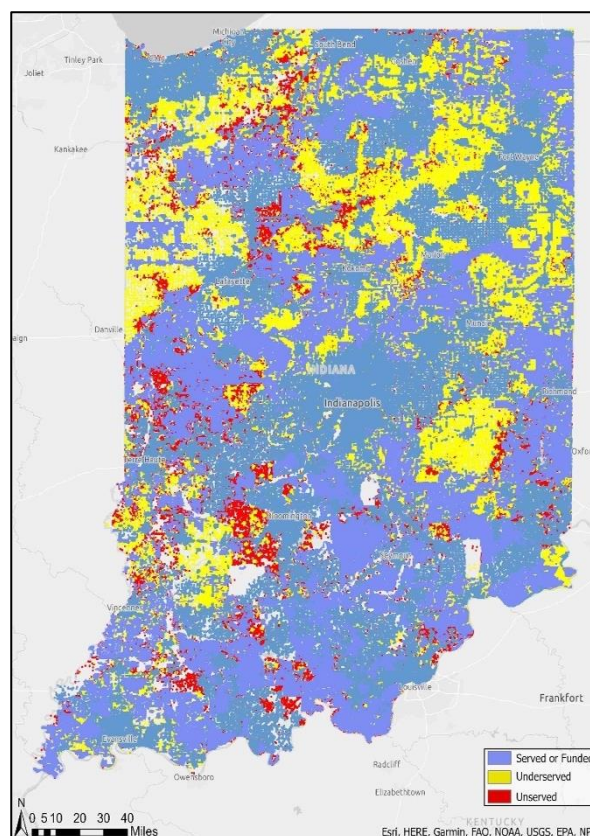Figure 11. Number of Serviceable Locations Per Census Block as of January 1, 2023

Figure 10. Service Status Accounting for Additional Funding Sources

Table 12: Unserved and Underserved Location Count by County [51]

County	Unserved Households	Underserved Households	Percentage Households Served	County	Unserved Households	Underserved Households	Percentage Households Served
Franklin	5758	1595	36%	Madison	1502	5174	89%
Putnam	5319	216	66%	Lake	1497	2632	98%
Starke	4637	1287	53%	Ripley	1471	1035	81%
Parke	4454	69	53%	Fulton	1466	2543	63%
Crawford	4331	216	33%	Lagrange	1419	665	89%
Owen	3968	126	63%	Posey	1349	2957	65%
Jefferson	3932	348	72%	Knox	1262	2130	81%
Greene	3906	2629	61%	Ohio	1237	11	57%
Montgomery	3824	1558	68%	Newton	1111	1237	68%
Vigo	3742	865	89%	Whitley	1104	211	92%
Dubois	3715	96	82%	Perry	1103	72	88%
Clark	3558	483	92%	Wabash	1087	2742	75%
Carroll	3434	1443	59%	Henry	1077	1771	87%
Pike	3311	396	47%	Hamilton	1041	2902	97%
Clay	3208	1505	65%	Brown	1023	1	89%
Shelby	3084	3871	65%	Spencer	1007	861	83%
Lawrence	3037	340	85%	Daviess	883	3039	73%
Cass	2984	2060	70%	Elkhart	836	126	99%
Bartholomew	2964	1305	87%	White	793	1320	86%
Wayne	2913	2371	82%	Scott	774	708	86%
Pulaski	2900	751	53%	Washington	733	155	94%
Harrison	2899	945	79%	Porter	731	2918	94%
La Porte	2796	3467	87%	Rush	690	3582	49%
Gibson	2535	2222	69%	Warrick	681	3545	84%
Fayette	2331	806	72%	Boone	640	5204	79%
Union	2264	1806	10%	Howard	627	3015	90%
Marshall	2230	2710	77%	Johnson	581	2831	94%

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[51] FCC BDC. Updated May 30, 2023

County				County			
Monroe	2204	125	95%	Randolph	572	4351	61%
Fountain	2098	499	72%	Allen	542	1085	99%
Morgan	2038	2347	86%	Jackson	516	236	96%
Switzerland	1996	730	50%	Kosciusko	495	851	97%
Sullivan	1970	2230	59%	Hancock	477	541	97%
Grant	1930	3384	82%	Tipton	408	2120	68%
Warren	1910	1951	21%	Blackford	401	2542	54%
Jennings	1885	272	83%	Floyd	401	141	98%
Clinton	1842	2806	69%	Jay	319	3605	62%
Jasper	1834	4032	61%	Marion	310	604	100%
St Joseph	1783	1203	97%	Orange	237	0	98%
Decatur	1780	3654	56%	Vanderburgh	176	1161	98%
Martin	1642	422	62%	Huntington	147	931	94%
Delaware	1600	3693	89%	Benton	124	1308	70%
Dearborn	1547	236	92%	Noble	119	17	99%
Miami	1545	4128	66%	Adams	95	3037	77%
Hendricks	1537	1655	95%	Wells	95	1297	89%
Tippecanoe	1529	1501	95%	Steuben	53	60	100%
Vermillion	1526	970	70%	De Kalb	24	76	99%

3.4.1.2 Distance from Fiber

Deploying fiber infrastructure can be expensive; some sources estimate that it can cost between $60,000 - $80,000 per mile to deploy[52]. Areas where fiber infrastructure does not currently exist will incur more costs due to the deployment of more fiber necessary to pass, and will ultimately be more challenging to serve with fiber.

The FCC has documented where existing fiber is located within Indiana, which is helpful in visualizing the areas where the infrastructure does not exist. To determine how far away locations without existing fiber infrastructure are to fiber, a *Distance to Nearest Hub* analysis was conducted. In this analysis the distance between the nearest census block with fiber to those without fiber services was measured. Any census block with existing fiber service was excluded from the analysis as the infrastructure is already present

Figure 12. Distance From Fiber

there. Areas with tan or yellow lines represent those census blocks which are further away from fiber infrastructure and may be more challenging to serve with fiber through the BEAD funding.
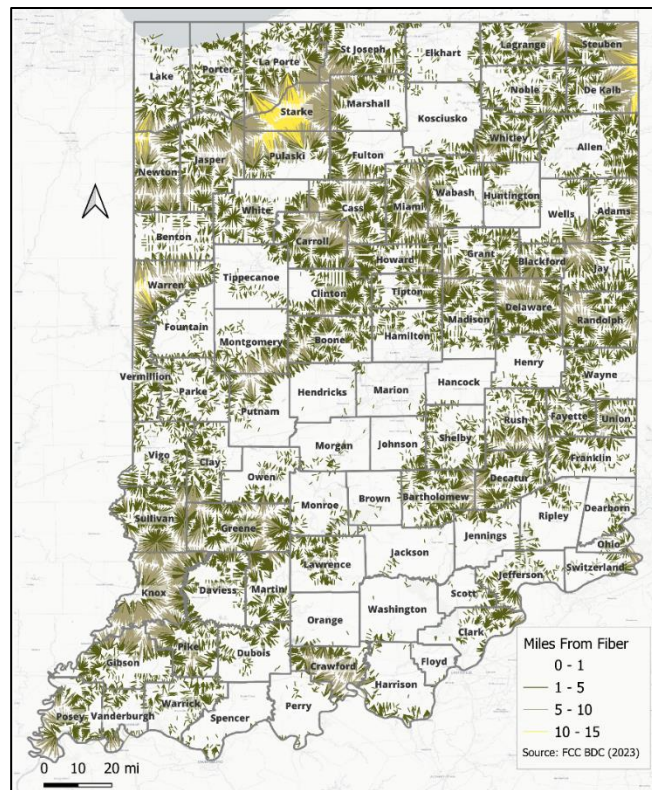
3.4.1.3 Public Safety

Public Safety is a priority among Hoosiers and can be greatly influenced by broadband. The Integrated Public Safety Commission's (IPSC) Safe-T Network is a "statewide, interoperable, wireless public safety communications system for Indiana local, state, and federal first responders/public safety officials"[53]. This is a highly effective, and important system; however, a majority of the network utilizes copper infrastructure. This is in the process of being upgraded, to help guarantee that Hoosiers, especially in areas where both broadband and wireless service are sparse, have connection to public safety information.

Additionally, the I-Light network, which connects higher education institutions, has the ability to participate in public safety communication and connections. This is a gap in its

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[52] Dgtl Infra. "Fiber Optic Network Construction: Process and Build Costs." July 28, 2022, https://dgtlinfra.com/fiber-optic-network-construction-process-costs/
[53] State of Indiana. "What is Project Hoosier SAFE-T?." March 2023, https://faqs.in.gov/hc/en-us/articles/115005056187-What-is-Project-Hoosier-SAFE-T-

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service as it is allowed to be used for those purposes but is currently being underutilized in that way.

3.4.1.4 Workforce

With over $868M heading to Indiana for broadband deployment, there are a variety of gaps in the broadband workforce that need to be addressed. To fill the demand in the coming years, the State has to consider the availability of broadband trained staff over the five-year deployment period. One avenue for this is for the State to explore workforce development opportunities such as expanding program opportunities at local higher education institutions, as well as in high schools, providing grants to ISPs for in-house training programs, and providing incentives for individuals to enter this workforce.

Many local stakeholders expressed dissatisfaction in ISP response times for network maintenance, indicating that there may already be a shortage of trained staff. This feedback provides further incentive to continue to develop and expand the broadband workforce.

It is predicted that Indiana will have a deficit in all broadband related jobs in the coming years, but will face the greatest shortage in software engineers, trenchers, laborers and material movers, surveyors and drafters, master and stage electricians, and inspectors. Identifying this now allows the State to prepare for these roles in particular and identify how to increase this workforce and fill the gaps. On the contrary, equipment operators, RF and field engineers, and fiber and wireless technicians will see the smallest deficit.
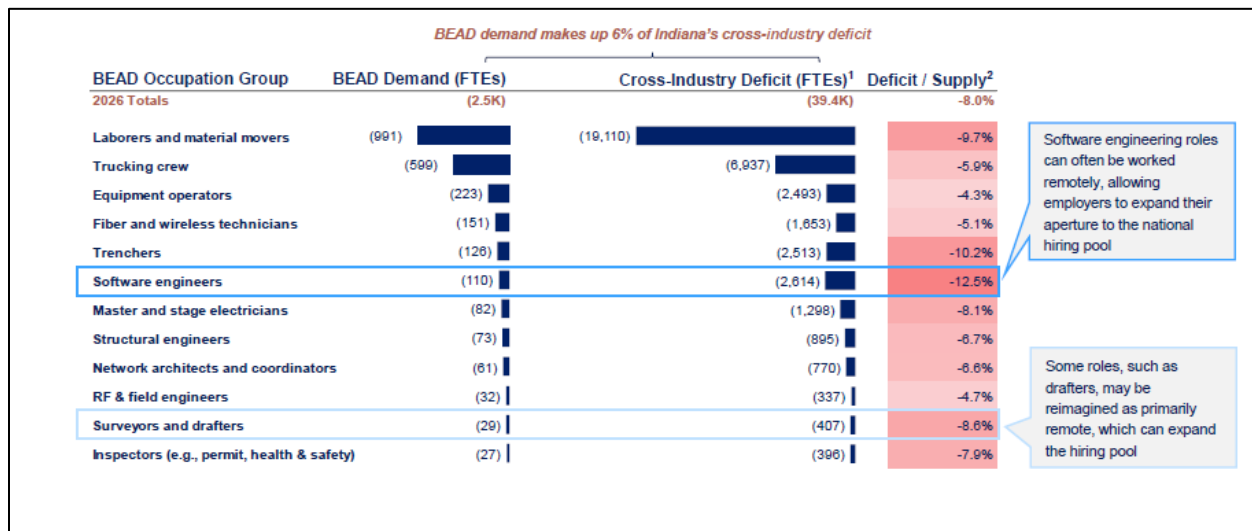

Figure 13. Workforce Development Analysis Provided by the NTIA

3.4.2 Broadband Adoption

3.4.2.1 Total Adoption

About 67.44% of all households in Indiana have a broadband subscription. Roughly 14.5% of Hoosiers do not have internet and nearly 13% of Hoosiers have a cellular data plan, but no other form of internet subscription. During the Stakeholder Visioning Sessions, many community leaders expressed the importance of cell phones and the access they provide to residents who do not have service otherwise. Although a cell phone is an extremely important tool in today's world, access to broadband in the home provides an large number of benefits, beyond what a cell phone can provide. Various software and websites are only available or are more user-friendly, on a desktop device, allowing individuals to pay bills, complete workforce training, compete an employment application, learn a new digital skill, or type emails, with ease.

Table 13: Internet Subscription[54]

Types of Subscription	Households	Percentage of Households
Dial-up with no other type of Internet subscription	7,551	0.29%
Broadband such as cable, fiber optic, or DSL	1,768,719	67.44%
Satellite Internet Service	201,158	7.67%
Cellular data plan	2,011,466	76.70%
Cellular data plan with no other type of Internet subscription	333,032	12.70%
Without an Internet Subscription	380,132	14.49%

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[54] US American Census Survey. "S2801: Types of Computers and Internet Subscriptions 2021 5-Year Estimates." 2021, https://data.census.gov/table?text=S2801&g=040XX00US18

3.4.2.2 Indiana's Amish Population

A unique need for Indiana to consider is how to ensure thoughtful inclusion of the Amish population. Indiana ranks 3rd among all U.S. states in total Amish population[55]. Typically, Amish individuals who observe a traditional and self-sustaining lifestyle, may have unique perspectives on technology and internet usage. By addressing their specific needs and concerns, the State can strive for true digital inclusion, ensuring that no community is left behind in the digital age. Additionally, while some information is known about where Amish settlements exist, individual Amish homes are scattered throughout communities, meaning that the number of individuals interested in a broadband subscription may be lower than anticipated. It may also mean that some houses are passed due to a resident's choice. This will be important when ISPs are considering their return on investment and may require additional support from the State. The map above represents a rough estimate of the number of Amish individuals in each county[56]. The IBO understands more information needs to be gathered to address the concerns, specific needs of the Amish population, and the impact on deployment overall.
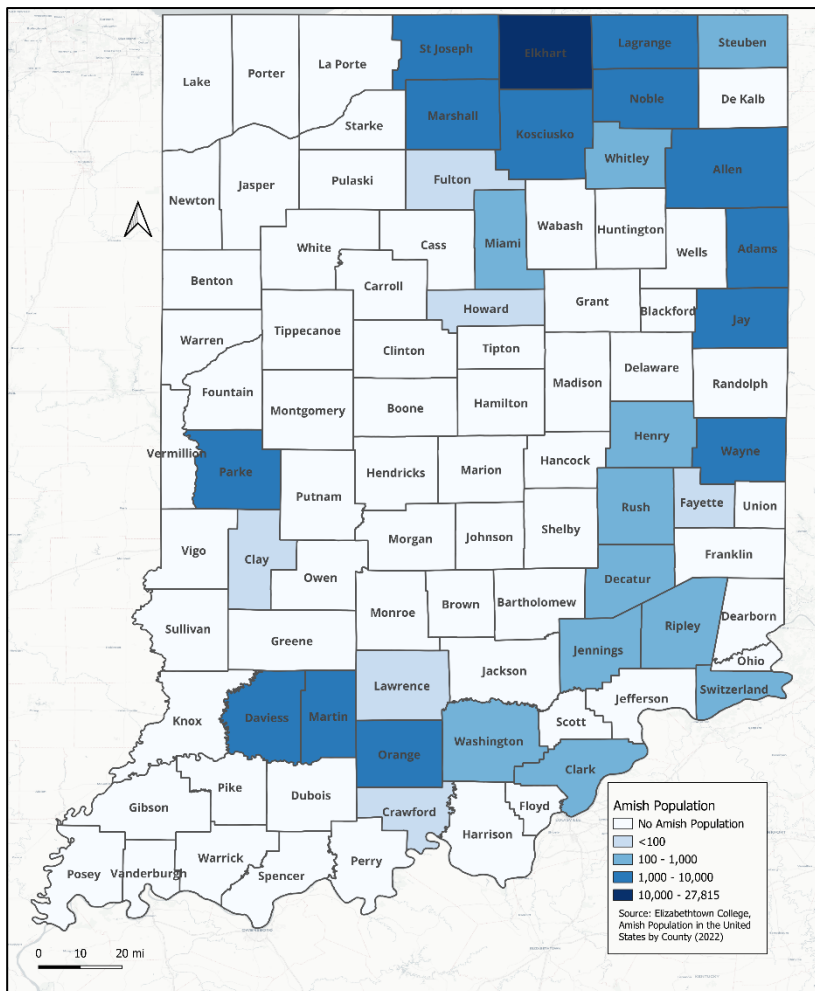

Figure 14. Amish Population

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[55] Wisevoter. "Amish Population by State." https://wisevoter.com/state-rankings/amish

[56] Population estimates are based on settlements, not county. The populations where settlements cross county boarders had the settlement population divided evenly among the identified counties

3.4.3 Broadband Affordability

According to the [Universal Service Administrative Co](#). ACP Enrollment and Claims Tracker, approximately 327,787 Indiana households (as of April 2023) are enrolled in the ACP. As of 2021, 28.9% of Indiana Households were below 200% of the poverty level[57] and are thus eligible for the ACP. Another source indicates that there are 1,084,184 total houses which are eligible, 750,151 of which are not enrolled[58]. This leaves 31% of eligible households enrolled, which is below the national average of 34%. The following maps show the ACP adoption rate per county along with the estimated number of households which are eligible but not enrolled per county.
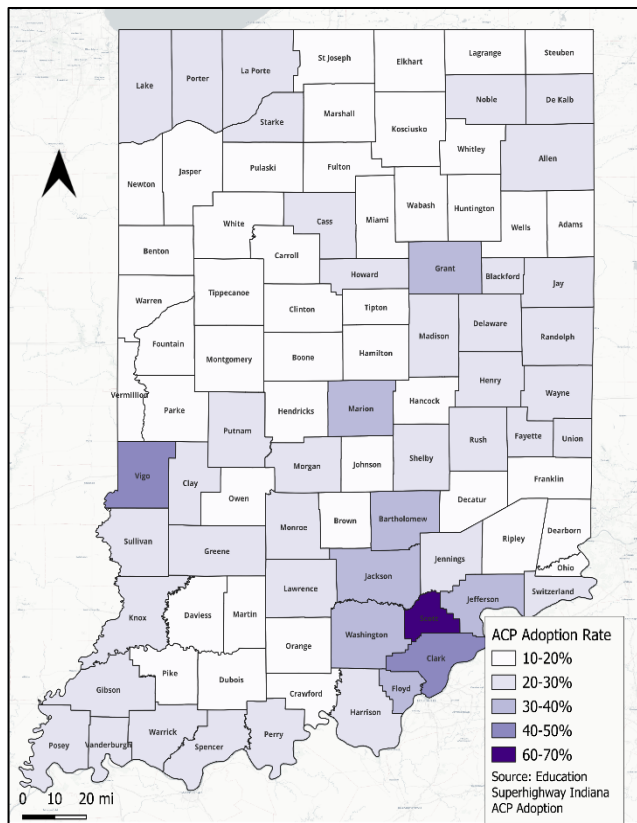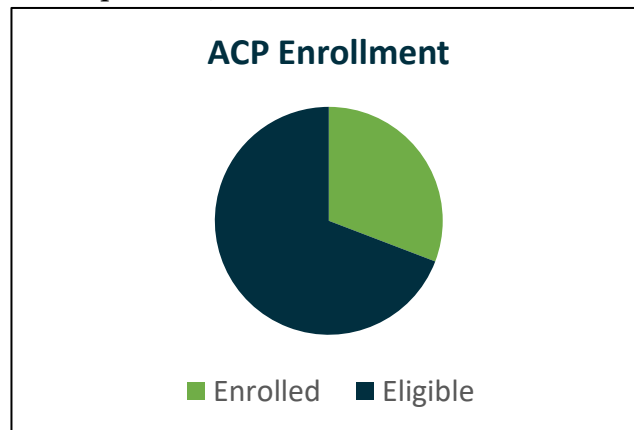

ACP Enrollment

■ Enrolled   ■ Eligible
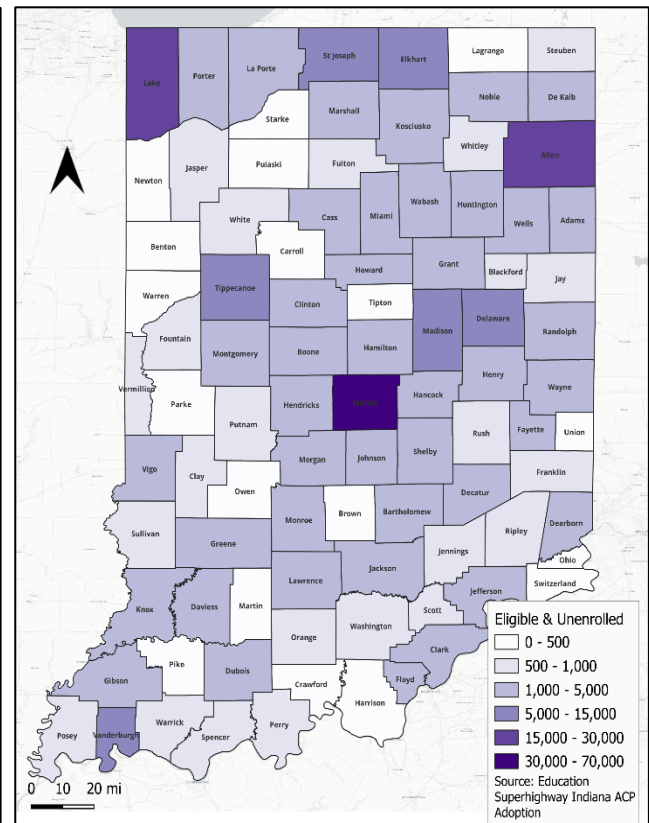

Figure 15. ACP Adoption Rate by County

Figure 16. Number of Households Eligible & Unenrolled for ACP by County

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[57] US American Census Survey. "S1702: Poverty Status in the Past 12 Months of Families 2021 5-Year Estimate." 2021, https://data.census.gov/table?q=s1702&g=040XX00US18&tid=ACSST1Y2021.S1702
[58] Education Superhighway. "Indiana ACP Adoption." April 2023, https://www.educationsuperhighway.org/no-home-left-offline/acp-data/

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The ACP is predicted to run out of funds around the summer of 2024[59] at its current adoption rate. While having received strong bipartisan support across the country, it has yet to be expanded. It has been a key component of connecting Americans who otherwise would not be able to afford these services. Should the ACP run out, many Hoosiers will again be left without internet. This is a critical component to developing Indiana's plan and approach for broadband affordability throughout the State. All Hoosiers must be provided with options and resources towards affordable broadband subscriptions to ensure no resident is left unconnected.

3.4.4 Broadband Access

3.4.4.1 Device Access

Access to devices is a large component of connecting to the internet. Broadband subscriptions are expensive, but so are devices. Those without a computer will struggle to receive the benefits that using broadband has to offer. About 8% of Hoosiers do not own a computer, and about 10% of Hoosiers have a smartphone, with no other computing device. These households, should access to broadband infrastructure be another barrier they face, will still not be able to access their new services once the BEAD deployment is complete.

Table 14: Device Access[60]

Device	Households	Percentage of Households
Desktop or laptop	1,972,025	75.19%
Smartphone	2,219,374	84.62%
Smartphone with no other type of computing device	261,990	10%
Tablet or other portable wireless computer	1,584,032	60.40%
Other computer	55,026	2.1%
No computer	217,702	8.3%

3.4.4.2 Lack of Both Broadband Access and Cellular Service

Areas where both broadband access and cellular service are not accessible, have an even greater barrier to access. Without access to either of these connections, these individuals face a greater risk of being impacted by natural disasters, public emergencies, or other emergency situations without alerts that are distributed through broadband or wireless services.

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[59] Benton Institute for Broadband and Society. "The End of ACP." January 17, 2023, https://www.benton.org/headlines/end-acp

[60] ACS Table S2801

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Through the State's Visioning Sessions, communities that lacked reliable broadband and cellular service had certain commonalities, such as having topographical or geological barriers including hills, trees, and ground that is a challenge to excavate. These commonalities, along with various unique challenges these areas are faced with, will be considered when creating the State's high-cost deployment plan through the grant process. The State will continue to utilize their various community outreach and collaboration efforts throughout the entire program.

3.4.5 Digital Equity

Indiana's Digital Equity Plan addresses a variety of needs and gaps related to digital equity. The plan envisions an Indiana where all residents, businesses, and organizations trust and use innovative connectivity for improved quality of life that results in inclusive, resilient, and impactful communities.

Broadly speaking, the plan addresses barriers in three overarching categories. The first category addresses the need for affordable, accessible, reliable, and equitable connectivity that is available in public and private spaces. The plan goes on to address the necessity for affordable devices that meet residents' needs to live, work and thrive. The final category focuses on communities, recognizing that Indiana residents are a part of broader communities that need to be digitally resilient and equitable to provide the ecosystems necessary for Hoosier prosperity. The need for education and skill development is woven throughout each of these categories.

In addition, the plan is in alignment with the Notice of Funding Opportunity (NOFO) provided by the NTIA and addresses specific barriers for the covered populations. These are addressed under each of the categories above. The Digital Equity Plan will continue to identify and address barriers to digital equity for the general public and specific, identified populations as needed.

4   Obstacles or Barriers

Indiana has detailed several significant challenges in the widespread deployment of broadband infrastructure. High-speed internet access is crucial for economic growth, education, healthcare, and social connectivity. However, numerous obstacles and barriers hinder the state's efforts to achieve universal broadband coverage. This chapter explores the multifaceted challenges Indiana encounters in its pursuit of expanding broadband access. From workforce development and permitting issues to environmental concerns and cybersecurity threats, understanding these barriers is essential for devising effective strategies to bridge the digital divide and enhance the overall quality of life for its residents. By identifying these obstacles and barriers, the IBO can collaborate with its partners in the government, private sector, and nonprofit space to overcome these hurdles and empower residents with the broadband access they need.

4.1 Labor and Workforce Development

4.1.1   Labor Shortages

With the large amount of broadband infrastructure being deployed in the next five years, the NTIA has predicted a labor shortage. Software Engineers, Trenchers, Laborers and Material Movers, Surveyors and Drafters, and Master and Stage Electricians were identified as the positions in Indiana which will experience the largest deficit of workers. As it stands, the State

does not have substantial training programs in place to alleviate this demand. The IBO, in collaboration with the Indiana Department of Workforce Development, is currently in the process of creating a pilot program in partnership with Ivy Tech. This program aims to offer specialized certifications in broadband operations. By spearheading this effort, the State aims to encourage more Indiana residents to pursue a career in broadband operations, not only to meet the growing demand over the next 5 years, but to help maintain and upgrade this technology for years to come so that Indiana can continue to be a leader in broadband infrastructure.

4.1.1.1 Davis Bacon and Apprenticeship Programs

Through stakeholder interviews, it became evident that the local broadband workforce places a strong emphasis on the significance of Davis Bacon Laws and Apprenticeship programs. They emphasized that neglecting these regulations could deter a substantial existing workforce from participating in any Broadband Expansion and Deployment (BEAD) projects and might lead to compromised quality builds or safety issues. In response to these valid concerns, the IBO is actively considering the inclusion of these regulations in the final plan's implementation.

4.1.1.2 Ongoing Operations and Maintenance

Ensuring efficient broadband deployment is crucial for the success of the Five-Year Action Plan. Nevertheless, Indiana must also consider the ongoing operations and maintenance of this infrastructure in order to protect their investment. Numerous Indiana communities have highlighted the significance of timely upkeep for existing infrastructure as a major barrier to achieving quality service. As a result, the upcoming plan must take this aspect into careful consideration to address the needs of both new and existing broadband systems effectively. A short-term increase in skilled labor alone will not be enough to properly address ongoing operation. The State hopes to ensure that local labor resources can provide an enduring solution.

4.1.2 Permitting

Deploying broadband infrastructure necessitates collaboration and agreements from multiple parties, as it often involves crossing private properties to connect everyone to the network. This complexity of permitting was recognized as a significant barrier through stakeholder interviews and Community Visioning Sessions, where various instances of challenges were brought to light. The process of obtaining permits to deploy broadband infrastructure can be intricate and time-consuming. Addressing these permitting barriers is vital for the successful deployment of broadband in Indiana. It requires fostering open communication between broadband providers, property owners, local authorities, and community stakeholders to streamline the process and expedite infrastructure expansion. For more information on this matter, refer to steps 2 and 4 in the Indiana Broadband Office's Steps to Success.

4.1.2.1 Railroads

Railroads, which are privately owned, pose a significant challenge for ISPs seeking to expand their broadband infrastructure. Locations that require ISPs to pass railroad demand costly permits. Consequently, railways become a critical dividing line between locations that can access broadband service and those that cannot. Recognizing the implications of this barrier, the IBO is actively collaborating with railroad companies to develop effective solutions that alleviate the burden imposed on deployment efforts.

Figure 17. Indiana Railways

By fostering constructive dialogues and exploring alternative approaches, the IBO aims to address this issue and create a more conducive environment for broadband expansion. Lowering the barriers related to railroad permits can lead to more inclusive and comprehensive broadband coverage, benefitting communities on both sides of the railway divide.
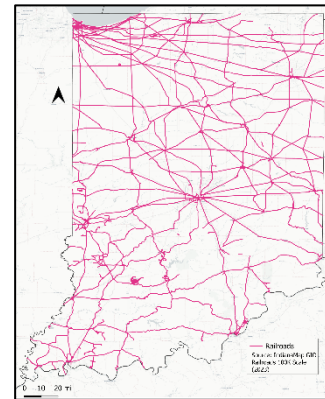
4.1.2.2 Right of Ways

In Indiana, right of way laws vary by county. In certain counties, there is an easement on each side of the road, no greater than 20 feet in width, which can be used for services such as public utilities, public safety, drainage, etc. However, certain counties lack this leeway. The need to get approval from property owners creates an additional barrier for ISPs and can delay deployment. To address this, the IBO encourages counties to understand their right of way policies and communicate with the community prior to ISPs engagement, so that companies will be less likely to bypass or delay deployment in the area. For more information on this matter, refer to steps 2 and 7 in the Indiana Broadband Office's Steps to Success.

Local communities can establish clear and fair right-of-way agreements between local governments and ISPs. These agreements should outline access rights, installation procedures, maintenance responsibilities and dispute resolution mechanisms. Communities can also take on education and outreach efforts so that members of the community understand the benefits of broadband and the importance of right-of-way access.

4.1.2.3 Infrastructure Leasing

It is common for ISPs to utilize and build upon existing infrastructure in their deployment which can decrease overall costs. In this case, the ISP will typically pay the owner of the particular asset a monthly fee. Prior to using any owned infrastructure, an ISP must get approval, by completing the proper steps to ensure that their new technology does not impede the existing technology or infrastructure. Rural areas typically have less attached to the utility poles, and thus have quicker grant processes and approvals than urban areas, however, companies still must be willing to lease the infrastructure out and work with ISPs for these steps to be completed.

4.1.2.4 Broadband Corridors

The Broadband Corridors Program plays a vital role in facilitating ISPs' broadband deployment by leveraging existing conduits along interstates and highways. This approach significantly simplifies access to deployment since ISPs no longer need to undertake the complex task of laying underground conduits from scratch.

However, one aspect that concerns many ISPs is the requirement to pay for permits when building infrastructure through this program. While it is generally more cost-effective than building the entire infrastructure independently, the permit pricing has become a point of hesitation for some ISPs.

To address these concerns effectively, it is crucial for stakeholders to carefully assess the permit pricing structure. Table 15 provides valuable insights by indicating the pricing based on different broadband service types. Analyzing this table can help ISPs better understand the financial implications and make informed decisions about participation in the Broadband Corridors Program.

Figure 18. Broadband Corridors

To ensure accurate and up-to-date information, it is advisable for ISPs to consult with the program administrators or relevant authorities regarding the current permit costs and any possible updates. Keeping an open line of communication and staying informed about policy changes will enable ISPs to navigate the program more efficiently and contribute to the expansion of broadband access for communities across the region.
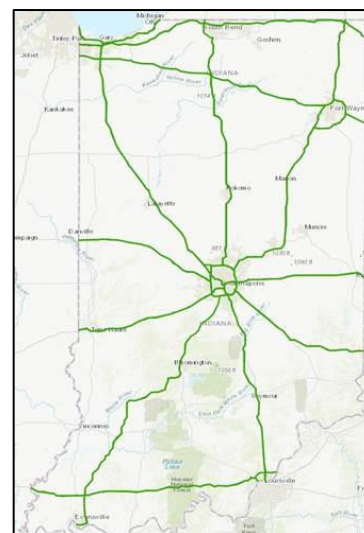
Table 15: Broadband Corridors Permit Fees[61]

Broadband Service Type	Non-Recurring Administrative Fee	Recurring Broadband Access Fee	Broadband Permit Required	Broadband Agreement Required
Longitudinal Fiber	$1,000.00	$500.00 per mile annually	Yes	Yes
Longitudinal Fiber within I-465 Right of Way	$1,000.00	$581.00 per mile annually	Yes	Yes
Transverse Fiber Crossing - Buried	$1,000.00	$0.00	Yes	Yes

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[61] Indiana Department of Transportation. "Broadband Corridors." https://www.in.gov/indot/doing-business-with-indot/permits/broadband-access-permit-$55/broadband-corridors/#:~:text=Broadband%20Infrastructure%20Coordination%20%26%20Registration,broadband%20infrastructure%20throughout%20the%20state.

Transverse Fiber Crossing - Aerial	$0.00	$0.00	Yes	No
Macro Cell- Urban	$1,000.00	$2,000.00 per month	Yes	Yes
Macro Cell- Rural	$1,000.00	$1,500.00 per month	Yes	Yes
Small Cell - Existing Pole Attachment	$500.00 for up to five (5) sites, $100.00 for each additional site beyond five (5)	$270.00 per attachment annually	Yes	Yes
Small Cell - New Pole	$1,000.00	$270.00 per attachment annually	Yes	Yes

4.1.2.5 NEPA and NHPA Permitting Processes

The National Environmental Policy Act (NEPA), passed in 1970, along with the National Historic Preservation ACT (NHPA), "requires that Federal agencies understand the impact of their proposed actions before taking them"[62]. This permitting process helps determine if any significant impacts to the environment would occur through, or because of, the build out. The levels of the NEPA Review include a Categorical Exclusion, Environmental Assessment, and an Environmental Impact Statement.

Through the 3rd round of Indiana's Next Level Connections Grant Program, ISPs were required to complete these permitting processes, and were often highlighted in stakeholder interviews as a large barrier, particularly for smaller companies. Smaller ISPs struggled with this more than larger ones due to the time intensive nature of the process and high costs associated with it. This barrier is important to note as it can halt ISPs progress in deployment, or even avert certain companies from pursuing these build outs, ultimately leading to delayed, or no, build out of service.

4.2 Supply Chain and Materials

4.2.1 Timeline

It is estimated that since 2018, the cost of fiber optic cables have gone up by about 15-50%[63]. In addition, fuel prices and wages have been higher, creating more expensive builds. This sentiment was reciprocated in the conducted BEAD Stakeholder Visioning Sessions: providers are feeling the strain of higher build costs. While the 3rd round of the Next Level Connections Grant Program had an approximate timeline of 8 months, the IBO recognizes that price of both supply and labor can fluctuate in that time frame and present a barrier to ISPs who's proposed deployment cost rises from their application submission to award date.

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[62] Internet for All. "Preparing for Permitting to Accelerate Broadband Deployment." December 2022, broadbandusa.ntia.doc.gov/sites/default/files/2022-12/IFA_Permitting_101_PDF.pdf

[63] USA News. "Inflation Drives Up Cost of Broadband Internet Projects." June 12, 2023, https://us.firenews.video/us-news/inflation-drives-up-cost-of-broadband-internet-projects-mitchell-republic/

4.2.2 Build American, Buy America

The ability to acquire materials from a domestic company is not always timely, or possible. The Build America Buy America Act establishes a "domestic content procurement preference for all federal financial assistance obligated for infrastructure projects" and that "all iron, steel, manufactured products, and construction materials used in covered infrastructure projects are produced in the United States" [64]. In 2021, the U.S. was the world's highest importer of fiber-optic cable, importing roughly 20% of the global supply[65]. Hindering the ability to import materials that the country is already quite reliant on, could result in a delay or halt to deployment, especially in the short term build out timeline designated by the program.

4.3 Environmental Factors

The natural environment can impact both broadband deployment and broadband service. The three main environmental factors that can present as barriers to deployment include topography, geology, and ground cover.

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[64] Office of Acquisition Management. "Build America Buy America." https://www.commerce.gov/oam/build-america-buy-america

[65] Telecoms. "Why 'Build America, Buy America' Might Hinder the Rollout of Rural Broadband." https://telecoms.com/opinion/why-build-america-buy-america-might-hinder-the-rollout-of-rural-broadband/

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4.3.1 Topography

Topography refers to the elevation in a given area. Indiana's topography varies by region; the southern parts of the State are known for its hilly nature, while northern Indiana is flatter. When looking at the map, there are regions of higher elevation in the southeast corner and central parts of the State. These differences are impactful in broadband deployment as rolling hills and changes in elevation create more challenges in broadband deployment due to increased labor and costs in underground infrastructure deployment. Additionally, wireless options may be challenging in these areas as the elevation can create obstacles in the line-of-sight signal. Wireless infrastructure relies on direct line of sight to its service areas, causing rolling hills and elevation changes to be a barrier in access to these services.
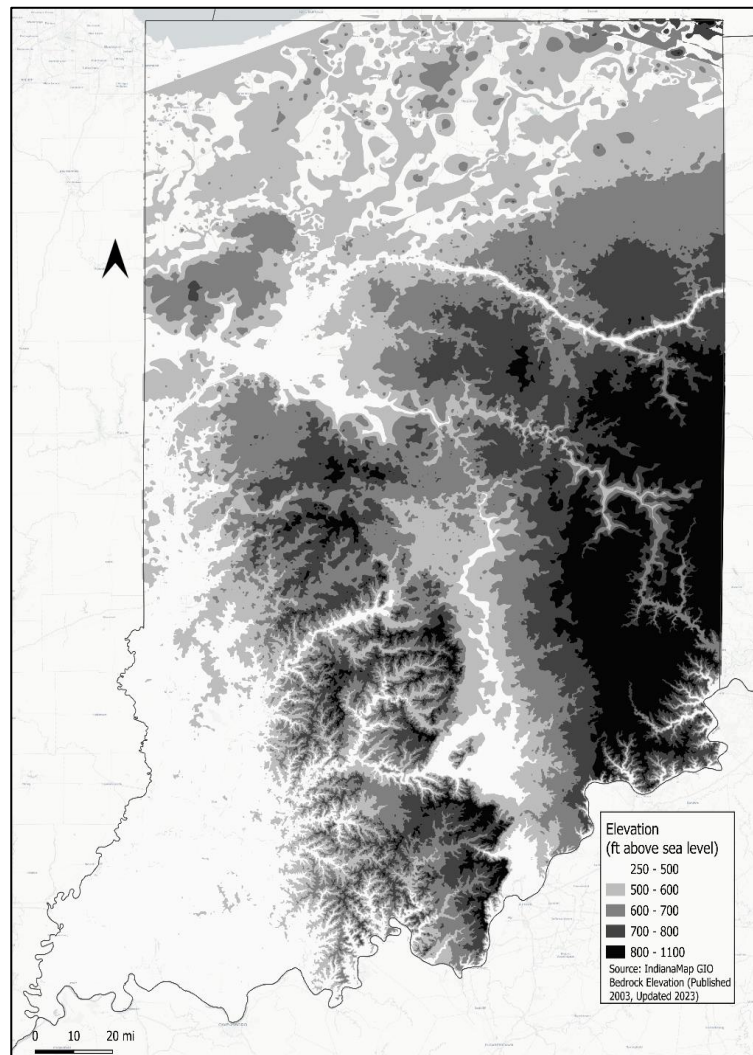

Figure 19. Elevation

4.3.2 Geology

Indiana's geology presents challenges to underground broadband infrastructure installation due to factors such as karst topography with sinkholes and underground drainage systems, glacial deposits that can be loose and poorly compacted, wetland areas with saturated soils, floodplains prone to periodic flooding, and shallow bedrock close to the surface. These factors make it difficult to create stable pathways for cables and conduits, increase excavation costs, require special measures for environmental protection, and can lead to disruptions and conflicts with existing infrastructure. Of particular concern is the existence of limestone bedrock that can make underground broadband deployments costly. In areas with limestone present, ISPs may choose to pursue aerial broadband deployment solutions, but a lack of existing poles and community sentiment may also make this alternative a costly option. Additionally significant changes in elevation can impact line-of-sight, cable lengths, and excavation cost. The IBO will

work on utilizing the map below to identify areas that may require additional attention and alternative delivery methods. The areas outlined in red include limestone and are highly correlated with the higher elevation areas.
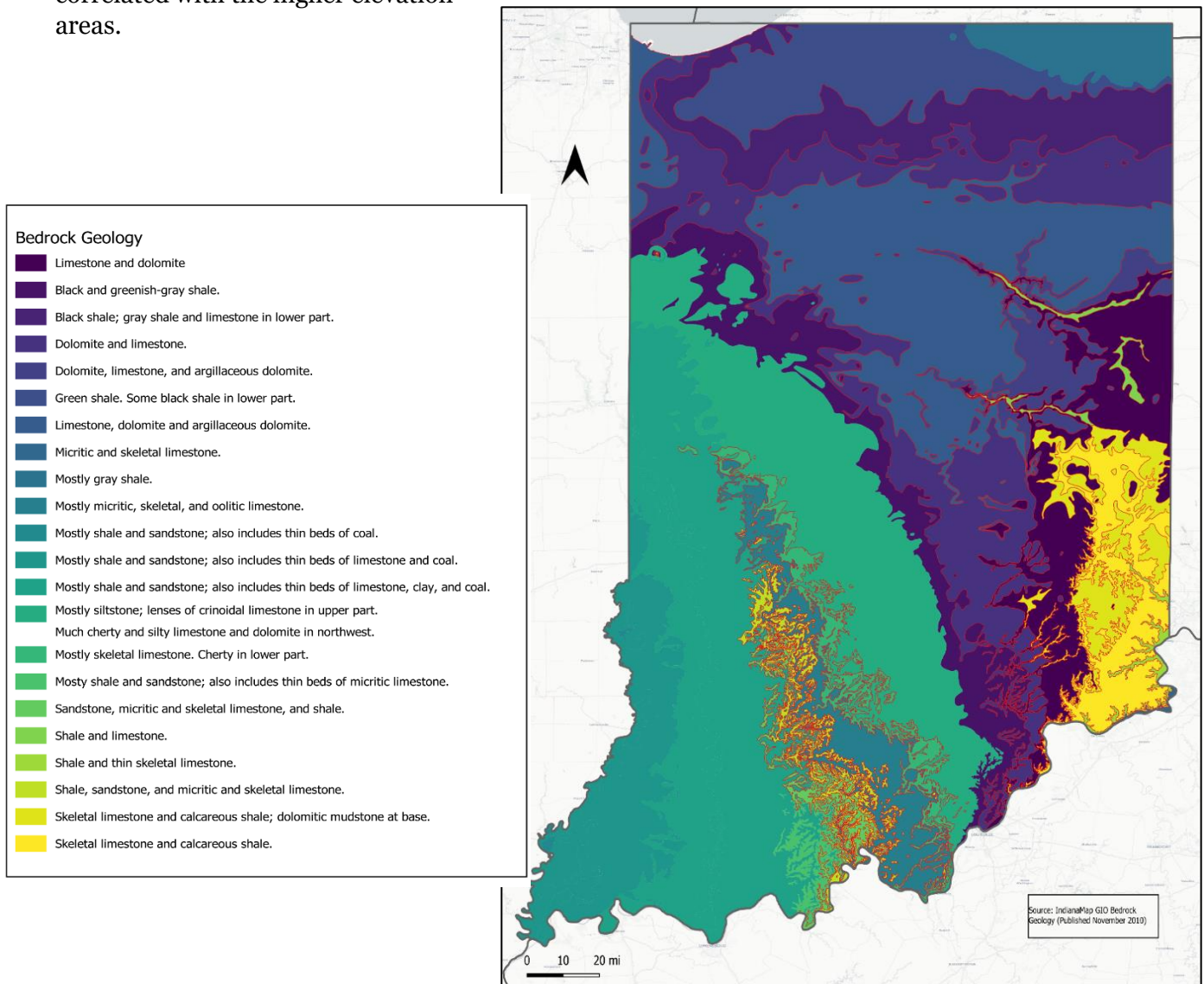

Figure 20. Bedrock

4.3.3 Land Cover

A majority of Indiana is covered in cropland, however a large portion of the southern half of the State is covered in a variety of forests. Tree covering presents the biggest challenge for wireless broadband deployment. Similar to elevation, tree coverage can impact wireless signals to homes, preventing wireless solutions from being a suitable solution for unserved and underserved areas

Many of the counties in the southern/central portion of the State have all three environmental barriers facing them, in addition to lower population densities, resulting in challenges to implementation to be addressed .

Land Cover

- Temperate or sub-polar needleleaf forest
- Tropical or sub-tropical broadleaf evergreen forest
- Tropical or sub-tropical broadleaf deciduous forest
- Temperate or sub-polar broadleaf deciduous forest
- Mixed Forest
- Tropical or sub-tropical shrubland
- Temperate or sub-polar shrubland
- Tropical or sub-tropical grassland
- Temperate or sub-polar grassland
- Wetland
- Cropland
- Barren lands
- Urban
- Water
- Snow and Ice

Source: Commission for Environmental Cooperation, North American Land Cover, 2020 (Landsat, 30m)
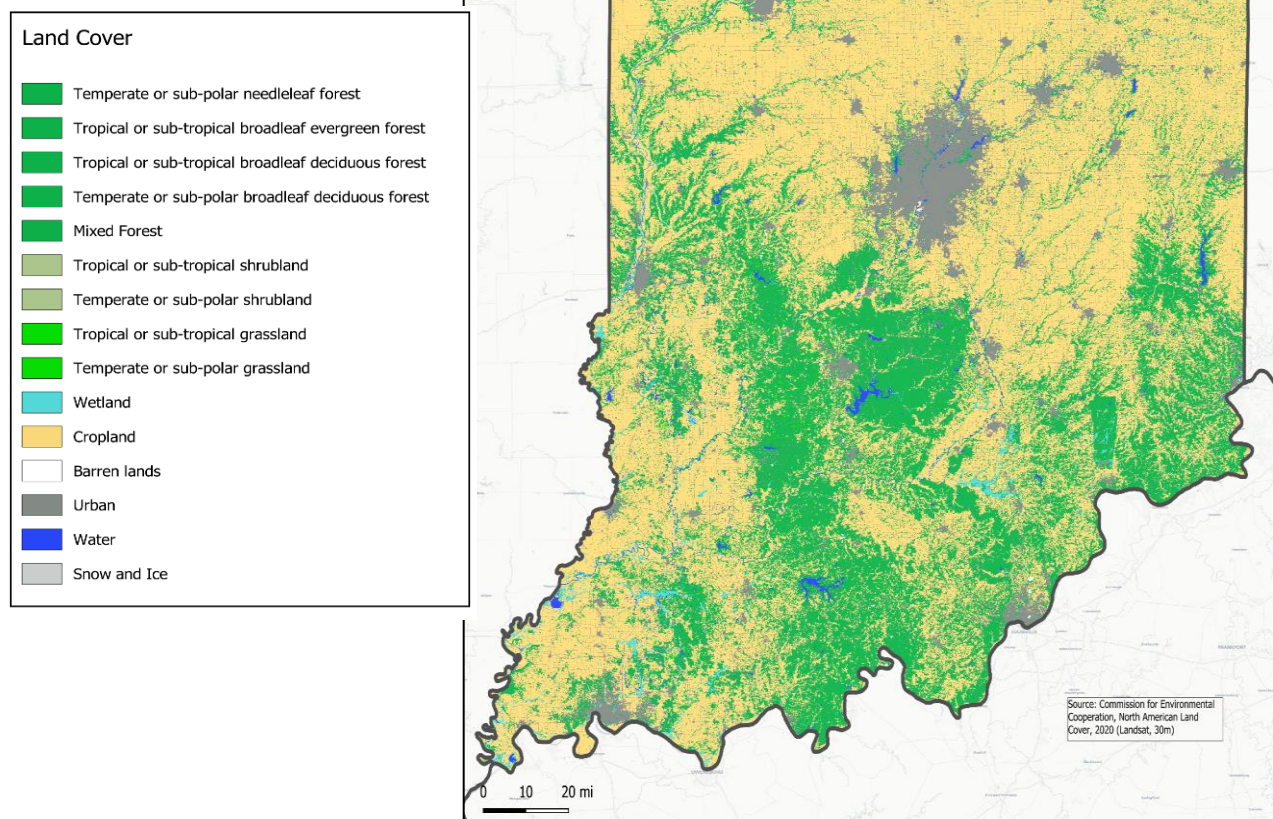
0   10   20 mi

Figure 21. Land Cover

4.4 Population Density

More densely populated areas tend to have more extensive broadband infrastructure because there are more households, businesses, and community organizations that will utilize the services, creating a larger return on investment (ROI) for the ISPs. A good portion of the State that is unserved and underserved are rural areas, where population density is lower. The following map visualizes the population per county, overlayed with city population. The darker areas represent higher population density, while lighter areas represent more rural areas. Density is an important barrier to consider because communities which are less populated may be more challenging to serve. These may also be the areas where alternative technologies need to be explored due to extremely high-cost thresholds. The counties listed in Table 16 all have a total population below 30,000 people. A majority of these counties have a city which makes up at least 25% of their population, indicating the remaining parts of the county's population may be quite dispersed.
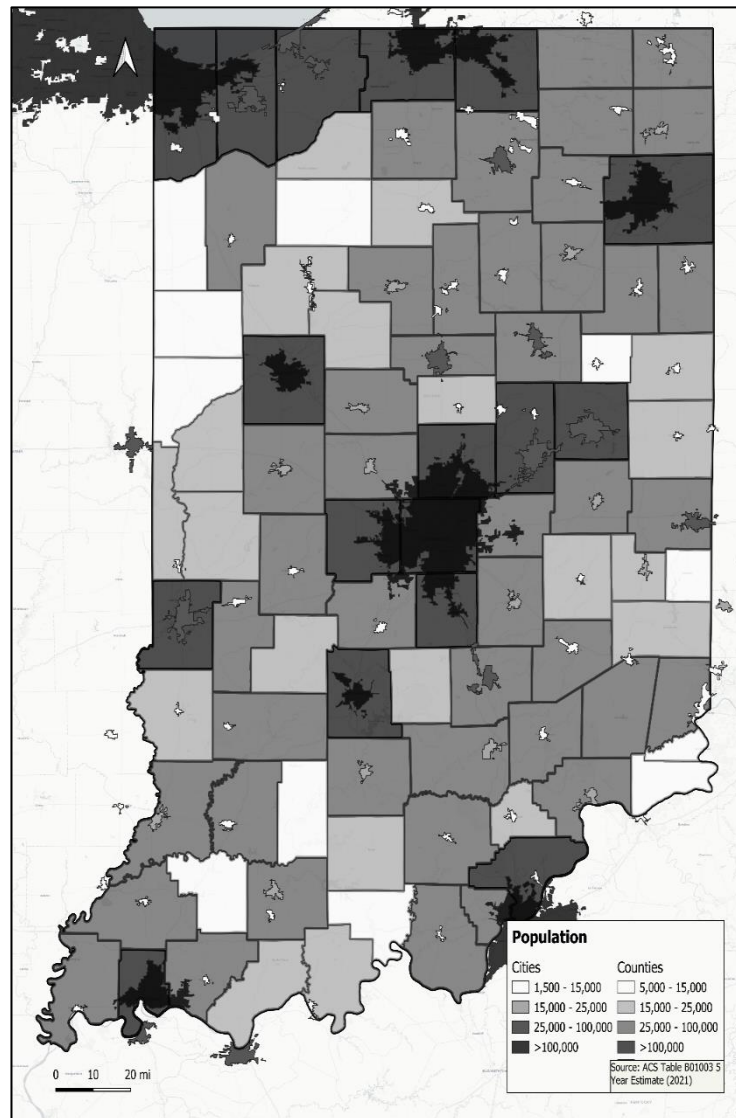
Figure 22. Population Density

Table 16: Counties Under 30,000 People[66]

County	County Population	Biggest City	City Population	% County Located in the Biggest City	Pop. Per Sq. Mile
Ohio	5,931	Rising Sun	2,246	38%	71
Union	7,098	Liberty	1,995	28%	43

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[66] StatsIndiana. https://www.stats.indiana.edu/index.asp

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Warren	8,430	Williamsport	1,951	23%	23
Benton	8,687	Fowler	2,347	27%	21
Switzerland	9,870	Vevay	1,777	18%	45
Martin	9,885	Loogootee	2,592	26%	29
Crawford	10,511	Marengo	828	8%	34
Blackford	12,139	Hartford City	6,067	50%	72
Pike	12,220	Petersburg	2,278	19%	36
Pulaski	12,496	Winamac	2,307	18%	29
Newton	13,865	Kentland	1,614	12%	34
Tipton	15,290	Tipton	5,279	35%	59
Brown	15,444	Nashville	1,258	8%	50
Vermillion	15,477	Clinton	4,816	31%	60
Parke	16,316	Rockville	2,572	16%	37
Fountain	16,422	Attica	3,205	20%	42
Rush	16,706	Rushville	6,135	37%	41
Perry	19,151	Tell City	7,447	39%	50
Orange	19,752	Paoli	3,601	18%	49
Spencer	19,949	Santa Claus	2,601	13%	50
Carroll	20,288	Delphi	3,004	15%	55
Fulton	20,400	Rochester	6,212	30%	55
Jay	20,570	Portland	6,234	30%	53
Sullivan	20,814	Sullivan	4,232	20%	46
Owen	21,280	Spencer	2,466	12%	56
Franklin	22,769	Brookville	2,641	12%	60
Starke	23,275	Knox	3,624	16%	75

Fayette	23,393	Connersville	13,292	57%	109
Scott	24,290	Scottsburg	7,369	30%	129
White	24,593	Monticello	5,483	22%	49
Randolph	24,681	Winchester	4,827	20%	54
Posey	25,301	Mount Vernon	6,383	25%	61
Clay	26,397	Brazil	8,176	31%	74
Decatur	26,466	Greensburg	12,377	47%	71
Jennings	27,619	North Vernon	6,562	24%	73
Washington	28,025	Salem	6,307	23%	55
Wells	28,103	Bluffton	10,379	37%	77
Ripley	28,953	Batesville	7,288	25%	65

4.5 Affordability

Affordability poses a significant obstacle to adoption nationwide, and the IBO recognizes that broadband services can be particularly expensive in rural areas where multiple service options may be limited.

4.5.1 Affordable Connectivity Program

Despite the efforts of the Affordable Connectivity Program, a considerable number of Hoosiers remain without internet access due to the high cost. Approximately 31% of eligible households[67] are currently enrolled in the ACP, leaving the remaining 69% either unconnected or paying excessive amounts for their services. The IBO encourages all Hoosiers to explore the ACP requirements to determine their eligibility and apply if qualified.

However, some individuals are hesitant to sign up for the program, citing various reasons such as resistance to change, lack of awareness about the program, insufficient knowledge or resources to enroll, and satisfaction with their existing cellular devices.

4.5.2 Late Fees

Stakeholder Visioning Sessions have revealed further obstacles to affordability, particularly in areas where utility or cable companies offer broadband services. Late fees associated with other

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[67] Education Superhighway. "Indiana ACP Adoption." April 2023,
https://www.educationsuperhighway.org/no-home-left-offline/acp-data/

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services can pose a significant barrier for individuals seeking access to broadband. This concern is especially pertinent for lower-income subscribers, particularly in communities with limited ISP options. Late fees have the potential to substantially increase costs and may even lead to service disconnection or the inability to establish a connection at all. When this situation arises, affected individuals face additional challenges in accessing essential services.

4.5.3 PCRD Affordability Research Findings

The affordability of home internet service is a significant barrier to bridging the digital divide in Indiana and nationwide. To address this issue, projects funded by the Broadband Equity, Adoption, and Deployment (BEAD) program must include plans for middle-class affordability and low-cost broadband options. While ultra-fast internet availability is important, it does not solve the divide if people cannot afford the service. Economists, researchers, and digital equity practitioners have long sought answers to the affordability question. One method to gauge affordability is conducting a willingness to pay (WTP) study, which found that Indiana residents were willing to pay an average of $0.10/Mbps per month. Another approach is examining the average monthly cost of home internet subscribers, with DSL costing $50.15 and cable $58.62 per month in Indiana.

Affordability varies based on factors like rural or urban location, employment status, age, and household composition. To contextualize affordability at the local level, an analysis using different household types and broadband costs was also proposed. PCRD conducted additional analysis by comparing broadband costs with other household discretionary expenditures, to assess the cost burden of broadband. Using the data for various household types and counties in Indiana from the Economic Policy Institute (EPI) Family Budget Calculator shows how families still require an understanding of the value specific households place on broadband, while also accepting that modest but adequate incomes are necessary.[68]

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[68] Purdue Center for Regional Development. "How Affordable Is Home Broadband Service?" July 2023, https://pcrd.purdue.edu/how-affordable-is-home-broadband-service/

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4.6 Weather and Climate

Indiana's location provides it some shelter from severe weather and natural disasters such as hurricanes and earthquakes, however it is still susceptible to other forms of extreme weather along with general conditions that can cause challenges for broadband deployment, maintenance, and even service with wireless solutions. Indiana has an average of 22 tornadoes per year[69], which could impact deployment timelines as well as damage existing infrastructure. On top of that, Indiana can face other severe storms in the spring and summer months, or ice and snow challenges in the winter months. All these issues can cause delays and barriers to both broadband deployment and maintenance. Additionally, certain parts of Indiana are susceptible to flooding, especially when extreme, or frequent storms are involved. As broadband is deployed to new communities, it is important for these areas to understand their risk of flooding and that certain types of fiber deployment could result in the need for more caution surrounding underground utility maintenance. With buried cable, communities may need to invest in new machinery to ensure that buried cable is not interfered with when conducting activities like dredging.
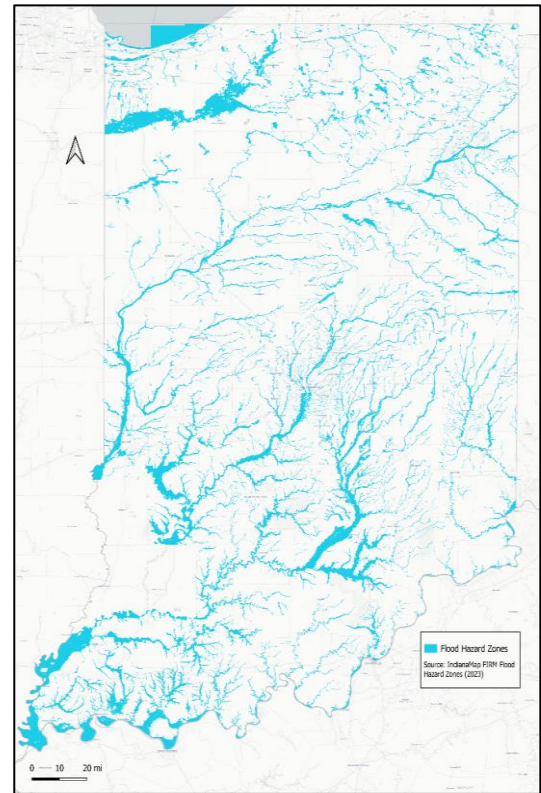

Figure 23. Flood Zones

As extreme weather continues to persist, it is even more critical for households to have access to broadband services so that immediate information surrounding extreme weather events can be shared to all Indiana residents in a timely fashion. The State is dedicated to ensuring that every Hoosiers can be prepared and react accordingly to any immediate dangers that may present themselves.

4.7 Farm Specific Concerns

Agriculture is a large part of Indiana's economy, contributing roughly $35.1 billion to the economy every year[70]. Thus, it is important to ensure deployment does not negatively impact existing farmland, technology, and infrastructure. Through the Stakeholder Visioning Sessions, a variety of concerns were expressed.

4.7.1 Infrastructure Height
Agricultural machinery such as tractors and plows can reach heights of over 10 feet tall. In certain areas, aerial broadband cables are hung too low causing farmers to struggle moving their

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[69] National Weather Service. "Indiana Tornado Climatology." https://www.weather.gov/ind/tornadostats
[70] Indiana State Department of Agriculture. "About Indiana Agriculture." https://www.in.gov/isda/about/about-indiana-agriculture/#:~:text=Agriculture%20contributes%20an%20estimated%20%2435.1%20billion%20to%20Indiana's%20economy.

vehicles onto their land from the road. It is important for deployments to take agricultural machinery heights and restrictions into consideration, so that the economy can continue to flourish from an agricultural perspective, while not discouraging the economic growth that will occur through broadband deployment.

4.7.2 Farmland vs. Right of Ways

Many farms in Indiana have existed for generations, and thus have very established land and practices. Deploying broadband requires access to public lands along with cooperation between ISPs and community members. In areas where this infrastructure may not yet exist, it is critical that ISPs and community members work together to ensure that the infrastructure is deployed without infringing on anyone's land.

4.8 Cybersecurity Threats

As broadband infrastructure continues to expand, the risk of cybercrime also increases. It is of utmost importance that this infrastructure is deployed securely, and that new users receive proper education to navigate the digital landscape safely. The BEAD funding primarily targets areas with inadequate broadband infrastructure, which means that recipients of this program may lack sufficient understanding and experience in cybersecurity and privacy. Therefore, it is crucial to prioritize cybersecurity to enable individuals to safeguard their personal data online. Indiana is currently ranked 11th in online identity theft[71], indicating the growing presence of cybercrime in the State. Consequently, the Indiana Broadband Office (IBO) must provide tools and resources to assist residents and businesses, particularly those who are new to broadband services, in remaining vigilant. This concern is amplified in areas where access is limited to smaller providers relying on outdated equipment. The IBO will implement measures to ensure that broadband equipment is not susceptible to attacks from malicious actors.

4.9 Nature of Megaprojects

Megaprojects are "large-scale, complex ventures that typically cost US $1 billion or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people"[72]. The BEAD program in its entirety is considered a megaproject, and thus comes with some specific challenges. Some of these challenges include timeline discrepancies, relationship and stakeholder management, compliance tracking, and the dynamic nature of a multi-year multi-billion dollar project. While Indiana will be receiving only a portion of the $42 billion dollars that is being dispersed throughout the country, the State must consider impacts on demand and availability of material. Also, it must consider adaptable and scalable infrastructure that can accommodate future advancements to broadband technology by anticipating emerging technologies and ensuring the network's capacity. Additionally delays in this project will cause significant impacts on budget

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[71] [Indiana ranks 11th in cybercrime increase | news - Indiana Public Media](#)

[72] Indiana Public Media. "Indiana Ranks 11th in Cybercrime Increase." May 9, 2023, https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/pmj/early-edition/dec-jan-2017/j20171205.pdf

by addressing the permitting, right-of-way, and other regulatory challenges detailed above the IBO will be able to preempt foreseeable delays.

5   Implementation Plan

5.1   Stakeholder Engagement Process

Since its inception, stakeholder engagement has been a critical component of the IBO's success. Multiple stakeholders were engaged in the development of the Five-Year Action Plan to capture a variety of perspectives and to get a wholistic view of the current state of broadband. Future communication and engagement will build on this initial outreach so that various viewpoints are expressed throughout the duration of the program's implementation.

5.1.1   Five-Year Action Plan Stakeholder Engagement

5.1.1.1 1-on-1 Interviews

A variety of stakeholders were engaged for 1-on-1 interviews. These interviews served two purposes: (1) to understand the interviewee's existing or potential role in assisting in broadband deployment, and (2) how the interviewee's constituents are impacted by broadband. The internal stakeholders were identified as entities who play a role in reaching a large number of Hoosiers and who have a direct impact on the plan development. External stakeholders were identified as those who may be impacted by this program and will have a more indirect role in the plan development. The interviews conducted through the BEAD planning process, along with those conducted for the Digital Equity Plan, included entities from all covered populations, ensuring that no Hoosier is left behind.

Table 17: Stakeholder Interviews

Internal Stakeholders		External Stakeholders	
Office of Community and Rural Affairs (OCRA)	Wabash Heartland Innovative Network	AT&T	Indiana Economic Development Association
Indiana Destination Development Corporation (IDCC)	Indiana Department of Education (DOE)	Indiana State Building & Construction Trade Council	The American Association of Retired Persons (AARP)
Indiana State Department of Agriculture (ISDA)	Former State Broadband Director	United Way of Central Indiana	Indiana Association of Regional Councils/Commissions
Purdue Center for Regional Development (PCRD)	Indiana Small & Rural Schools Association	Indiana Laborers District Council	Indiana School Board Association
Association of Indiana Counties (AIC)	Indiana Office of Technology (IOT)	Indiana Bond Bank	Indiana Department of Veteran Affairs

Association of Indiana Municipalities (AIM)	Indiana Wide Area Network (WAN)	Indiana Wireless ISP Association	Charter Communications
Indiana Association of County Commissioners (IACC)	Indiana Geographic Information Office (GIO)	Indiana Rural Health Association	Meridiam
Indiana Farm Bureau	Indiana Integrated Public Safety Commission (IPSC)	Accord	Indiana Housing & Community Development Authority
Indiana Electric Cooperative	Indiana Department of Transportation (INDOT)	Alta Fiber	Starlink
Indiana Cable & Broadband Association	Indiana Tollway	Becks Hybrid	Hawk Networks
Indiana Rural Broadband Association	Indiana Economic Development Corporation (IEDC)	Frontier Communications	
Indiana Broadband Technology Association	Indiana Department of Workforce Development	Comcast	
I-Light		Hoosier Net	

5.1.1.2 Stakeholder Visioning Sessions

From May – July 2023, the IBO conducted a road show of Stakeholder Visioning Sessions. Reaching every corner of the State, the IBO held 2-hour meetings with local stakeholders. The purpose of these sessions was to both explain the BEAD program to local stakeholders, but more importantly to hear targeted feedback from every area of the State. Attendees were asked to fill out a brief survey[73], reflect on up-to-date FCC maps, discuss existing challenges, barriers, and successes, identify community anchor institutions, and brainstorm ideas for the future state of broadband deployment. In total, 18 sessions were completed. All 92 counties were invited to a regional session and representatives from 62 counties were in attendance. One virtual session was completed as well to engage with individuals across the State who were unable to attend the in-person option.
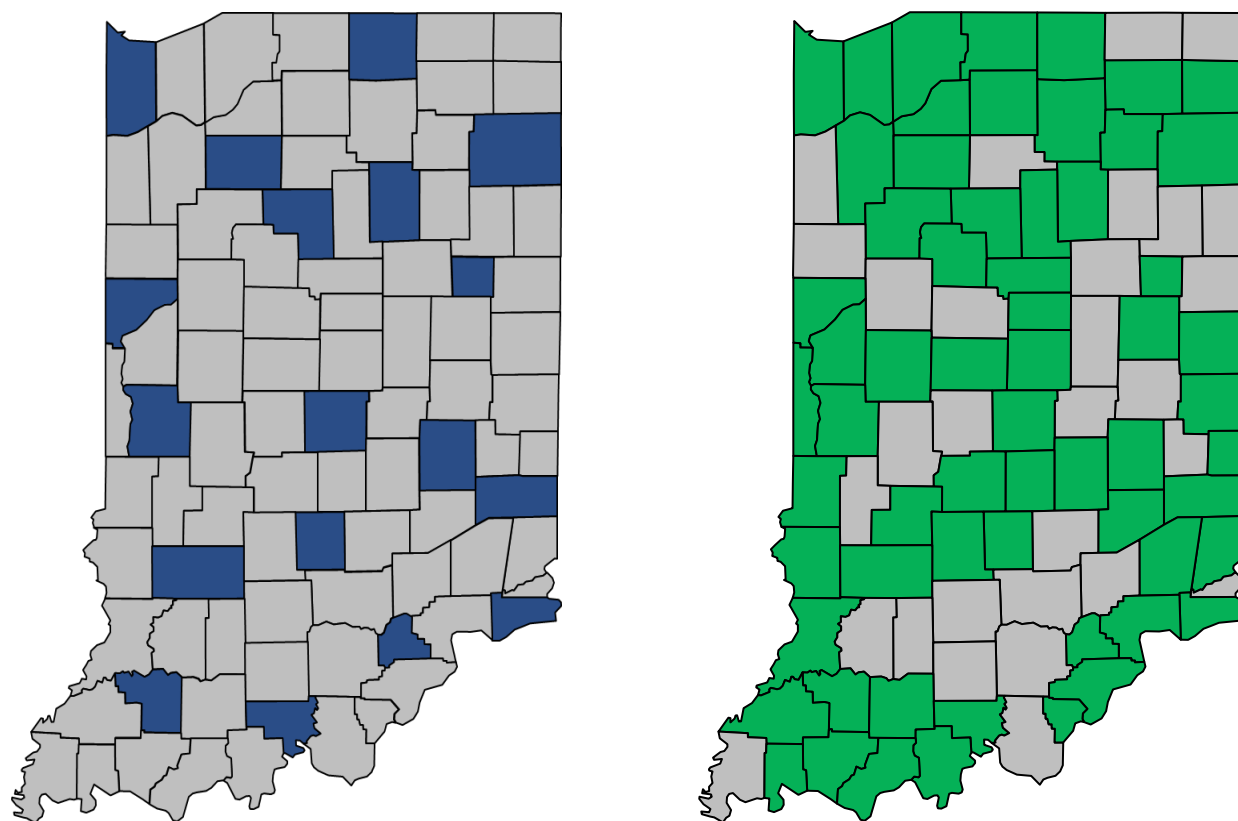

Figure 24. Stakeholder Visioning Session Locations and County Representation

Table 18: Stakeholder Visioning Session Schedule

Session Location	Date	Invited Counties
Rush County	5/16/23	Rush, Shelby, Decatur
Franklin County	5/17/23	Franklin, Union, Fayette

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[73] Appendix A.

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Crawford County	5/23/23	Crawford, Orange, Washington, Dubois, Perry, Spencer
Floyd County	5/24/23	Floyd, Clark, Scott, Harrison
Switzerland County	5/25/23	Switzerland, Dearborn, Ohio, Ripley, Jennings, Jefferson
Parke County	5/30/23	Parke, Vermillion, Vigo, Clay, Sullivan, Owen, Putnam, Montgomery, Fountain
Pike County	5/31/23	Pike, Gibson, Warrick, Vanderburg, Posey
Greene County	6/1/23	Greene, Knox, Daviess, Martin, Lawrence
Wabash County	6/5/23	Wabash, Grant, Huntington, Whitley, Wells, Adams
Blackford County	6/6/23	Wayne, Randolph, Delaware, Madison, Henry, Jay
Allen County	6/7/23	Allen, Dekalb, Steuben, Noble, Lagrange
Cass County	6/14/23	Cass, Carroll, Miami, Howard, Fulton, Tipton, Clinton
Warren County	6/15/23	Warren, Tippecanoe, Fountain, Montgomery, Benton
Pulaski County	6/21/23	Pulaski, Jasper, Newton, White, Carroll, Starke
Lake County	6/22/23	Lake, Porter, Laporte
Brown County	6/26/23	Brown, Morgan, Bartholomew, Monroe, Jackson, Lawrence
Elkhart County	6/27/23	Elkhart, Kosciusko, Marshall, St. Joseph
Marion County	7/14/23	Marion, Hamilton, Boone, Hendricks, Hancock, Johnson

5.1.1.3 Digital Equity Act Plan Collaboration

The IBO, in partnership with the Purdue Center for Regional Development, took proactive steps to engage the community in overcoming the digital divide in Indiana through 6 Regional Solution Sessions held in July. These sessions specifically targeted covered populations and sought their valuable input to bridge the digital gap effectively.

Emphasizing community engagement, Indiana's digital equity plan commenced with the formation of a digital equity task force, comprising representatives from various covered populations and key state partners in essential sectors like rural & workforce development, healthcare, philanthropy, and education. Community involvement was

further strengthened during the data collection process, with 1,225 surveys gathered from a randomly selected sample stratified by the covered populations. Additionally, 46 interviews were conducted, involving individuals from the covered populations and those who serve them. These insights and data have formed the foundation for drafting the digital equity plan.

Continuing their efforts, the task force is actively promoting Digital Equity Solution Sessions, where participants are encouraged to provide feedback on identified barriers and propose solutions to tackle them. The state is hosting six regionally-focused sessions, with a possibility of a seventh virtual session. These gatherings also celebrate Digital Ambassadors, nominated for their exceptional work in overcoming digital equity barriers and championing the cause. Additionally, the task force is working on a digital equity asset map, documenting organizations offering digital equity services, such as device lending programs or digital skills classes, their locations, and target audiences. The final draft of the plan is expected to be open for public comments in the Fall of 2023.

To ensure cohesive planning, the IBO facilitated collaboration between the BEAD and DE plans. Recognizing the interdependence of broadband deployment and digital equity components, the IBO ensured that information flowed seamlessly between both plans, incorporating relevant details where needed. This unified approach ensures a holistic and effective strategy to bridge the digital divide in Indiana.

5.1.1.4 Participation and Sharing of Speed Tests

The Indiana Farm Bureau Speed Test, which ran from approximately May 2021 – March 2023 was an extremely helpful way to visualize the state of broadband in Indiana. The IBO has since transitioned to a new speed test platform, ConnectingIndiana.com. This new platform conducts 4 speed tests at once and simultaneously asks the user to answer a variety of questions to make results more defensible. The IBO also recognizes that many Hoosiers who may need to take this test to express their inadequate or lack of internet, may not have the service to do so. For those in this situation, please text "internet" to the number **463-946-4699** to provide the IBO accurate information about your service. This speed test will be critical to Indiana's challenge process, and a large push for individuals to take this test will begin in early 2024.

5.1.1.5 Community Anchor Institution Survey

The IBO released surveys to local leaders to document Community Anchor Institutions in their community. The definition of a CAI is broad and allows for a bit of customization from state to state. Indiana has allowed these individuals to identify not only what types of locations should qualify as a CAI, but also what areas in each community are crucial to getting access to broadband. The suggested list of additional CAIs was documented in Section 3.3.4.2.

5.1.1.6 ISP, Municipality, and County Surveys

Entity-specific surveys were sent out to ISP's[74], municipalities[75], and counties[76].

Surveys engaging ISPs requested information about the company's history with broadband deployment in the State including involvement in the NLC program. Additionally, these surveys helped identify companies providing low-cost options, and identified challenges faced by ISPs.

Surveys engaging municipalities and counties asked for more specific information surrounding each community's existing broadband efforts, including programs, data, resources, and challenges.

5.1.1.7 Indiana Tribes and Tribal Lands

There are two tribes that have land in Indiana: the Pokagon Band of Potawatomi and the Miami Tribe of Oklahoma.[77] The Pokagon Band of Potawatomi have received a small portion of their land back and the Miami Tribe of Oklahoma have land which is home to a Cultural Extension Office for their tribal members living in Indiana. Collaboration with local Tribal Communities is important to the State and the IBO is open to all communication with these tribes, along with any of the 25,000 Native American individuals residing in the State.

Figure 25. Indiana Tribal Lands

5.1.1.8 IBO Outreach

The IBO is active in engaging with Hoosiers on multiple platforms. Their website is kept up to date for all to find news surrounding the current programs and opportunities the office has to offer. Additionally, the IBO sends out a monthly newsletter, which details the efforts of the office from that month. During the duration of the Stakeholder Visioning Sessions, the newsletter promoted the event and discussed what it entailed. Finally, the IBO is active on social media. These various methods of communication

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[74] Appendix B.

[75] Appendix C.

[76] Appendix D.

[77] State of Indiana. "Are there any Native American Tribes in Indiana?" February, 2023, https://faqs.in.gov/hc/en-us/articles/360033547051-Are-there-any-Native-American-tribes-in-Indiana-#:~:text=There%20are%20two%20tribes%20that,from%20their%20removal%20in%20Indiana.

attempt to reach as many Hoosiers as possible. You can find them on any of the following platforms:

Facebook   Instagram   Twitter   Youtube   LinkedIN   Email

5.1.2 Planned Stakeholder Engagement

Continued stakeholder engagement is critical to the success of the BEAD deployment and is a priority of the IBO. The IBO wants to ensure that all Hoosiers have a seat at the table as the deployment of this award of over $868 million is distributed. This dedicated stakeholder engagement will help the IBO develop and implement a final plan which is successful in deploying the infrastructure quickly, safely, and to the areas of most need.

5.1.2.1 Community Feedback

Throughout the development and deployment of the BEAD program, the IBO intends to engage with communities to receive feedback, specifically on the creation of the grant program. This will help local communities address ongoing barriers and obstacles as they prepare for infrastructure deployment. Using the steps to success that the IBO has created, counties will be grouped based on where they are in their process. The State will then help build capacity for those communities to prepare for broadband deployment. This effort will be led by dedicated personnel who are focused on helping communities eliminate barriers and understand topics such as permitting, right of ways, and inspections.

5.1.2.2 ISP Engagement

The IBO is proud of the positive relationships held with their ISP partners and understand that these companies will play a large role in the success of this program. The IBO intends to continue these conversations so that ISPs, both local and national, pursue future business within the State.

The BEAD program is the first nationwide broadband deployment of this size. With the novelty of the program, the IBO understands new challenges and barriers are likely to arise and that issues such as labor or supply chain shortages will likely fluctuate over the span of the five-year period of deployment. With that in mind, the IBO plans to communicate with ISPs frequently to understand any new topics of concern and will be a flexible partner in creating effective solutions.

5.1.2.3 The IBO as a Connector

Through the new subgrantee program, address groupings may cross county or city lines. As communities prepare their constituents for broadband deployment, there will be times when communities must collaborate with one another, and ISPs and communities will ultimately have to work together to find solutions. The IBO will serve as a mediator for these two stakeholders and help foster positive relationships.

5.1.2.4 Partnership Establishment

Once the challenge process begins, the IBO is committed to gathering the most accurate data. A large part of doing so is communicating to all Hoosiers the importance of documenting the availability of service at the address level. The IBO will work to market the new Indiana Speed Test and will establish partnerships with local communities and organizations that will be utilized to gather the information needed for the most precise map.

5.1.2.5 Third Party Engagement

Many stakeholders are involved in carrying out a successful broadband deployment. Although ISPs and local communities are the key stakeholders, there are a variety of third-party entities that will typically be engaged at some point during the process. The IBO intends to keep conversations open with these third-party entities to ensure that possible delays or pain points in the construction process are considered proactively.

5.1.2.6 Workforce Development

As previously mentioned, workforce development is a crucial aspect to successfully completing this plan. The IBO will work with other internal departments such as the Department of Workforce Development (DWD) to identify workforce development partnerships with educational entities and ISPs. The State may explore partnerships with public institutions like Ivy Tech and local community high schools.

5.2   Priorities

Priorities were assigned for location selection, grant scoring, state activities, and CAI selection.

5.2.1 Location Selection

Below are the priorities identified for location selection. While the IBO is committed to serving all locations, this prioritization ensures that the locations of highest need receive a first review.

Table 19: Priorities for Location Selection

Priority Area	Description
Locations which are both unserved or underserved and lack cell service	Bring reliable connection to Hoosiers who lack it in multiple forms
Locations which have taken the steps to become broadband ready	Incentivize communities to become broadband ready to help lower challenges and delays during build outs
High poverty areas	Create solutions to help mitigate the barrier of internet affordability
Default Rural Digital Opportunity Fund (RDOF) locations	Locations that were funded through RDOF but the ISPs have since defaulted
Locations with CAIs that are also unserved	Locations that are unserved and/or underserved and have CAIs that are also underserved/unserved

5.2.2 Grant Scoring

While none of the criteria below are required, the priorities listed may give internet service providers the opportunity for additional points on their grant application.

Table 20: Priorities for Grant Scoring

Priority	Description
Have a strong history of completing projects timely, successfully, and safely in Indiana	Prioritizing ISPs which have demonstrated substantial success in Indiana will help ensure future success and community support
Provide a fiber deployment solution	As stated by the BEAD Notice of Funding Opportunity (NOFO), fiber solutions must be prioritized
Provide low-cost options and actively advertise ACP/existing affordability programs	Encourage ISPs to provide, and showcase their commitment to, providing internet to Hoosiers of every economic status
Have a local workforce for ongoing operations and maintenance	Ensure that both new and existing infrastructure has the local workforce capacity to maintain it

Have received positive local feedback	Capture local sentiments to assist communities in engaging with ISPs whom they have a positive relationship with
Have a high Net Provider Score	Allow an avenue for historical performance to elevate ISPs who have demonstrated strong performances in the past

5.2.3 State Activities

The IBO has prioritized a series of activities necessary in the deployment process.

Table 21: Priorities for State Activities

Priority	Description
Address grouping with consultation from local communities	Establish address bundles for ISPs to bid on
Identify local or state-owned assets	Identify assets which will help the State in its deployment efforts
Increase opportunities for community-based organizations and other stakeholders to support broadband adoption and digital inclusion.	Utilize the State's Digital Equity Plan research to identify unique community needs and find targeted solutions
Allow ISPs to bid on project areas, but also allow individual residents to submit their address for a last mile connection	Establish a grant program based on the NLC model, while leaving the option open for individuals to pursue the ICP program
Advertise the new speed test and find creative ways to reach as many Indiana residents as possible	To assist with the challenge process, administer the Indiana speed test to as many Hoosiers as possible, utilizing local governments, community-based organizations, and other interested parties
Establish a state workforce development program to increase broadband expertise in Indiana	Work with other state agencies to create a workforce program in order to satisfy the workforce demands.
Collaborate with and understand farmers needs throughout the deployment process	Ensure that farmers needs are heard

Create a dynamic program that allows the IBO to quickly adapt to change	The megaproject nature of the BEAD program is likely to result in some unaccounted-for bumps in the road; the IBO will ensure that the resulting grants program, along with their office, is flexible when dealing with these challenges
Hiring/building up staff	The Indiana Broadband Office is focused on building capacity to help support local communities with their local deployments

5.2.4 Community Anchor Institutions Selection

Table 22: Priorities for Community Anchor Institution Selection

Priority Criteria	Description
Locations in extremely high-cost areas	Ensure areas which may need to be served with fixed wireless solutions have community anchor institutions with a 1 gig fiber connection
Most access to the public (i.e. open 24/7)	Locations which are the most available to the public will be prioritized so that community members have the most access to broadband services as possible
Coverage extends beyond the building walls (i.e. public Wi-Fi from the parking lot)	Locations where individuals can access services from the parking lot are important for those who need to attend meetings, classes, or other personal matters in private

5.3   Planned Activities

Utilizing the $868 million of BEAD funding, the State is expected to connect every last address. The IBO has identified 7 activities necessary for standing up their grant program. Although the IBO will be the main facilitator of this program, there will be a variety of other key players.

5.3.1 Data Gathering
Key Players: IBO, local communities & community-based organizations, Hoosiers

To ensure every address that needs service is served, the State must first get the most accurate data. The funding allocation of $868 million, awarded on June 30, 2023, was calculated using the NTIA formula based on the FCC maps released in June 2023. However, the State recognizes this is just a starting place; there are still many households and businesses who were inaccurately reported on this map. Beginning in the new year, Indiana will begin a challenge process which will allow challenges to the accuracy of the address data. Through this process, the State will be able to gain more precise data to utilize for a funding map. In conjunction with this, the State will collaborate with partners at the local level to get a complete list of broadband serviceable locations that can be serviced by BEAD funding.

5.3.2 Address Grouping
Key Players: IBO, local communities

The State will work with local communities to group all addresses into suggested project areas. During this phase of the project, the IBO will be sure to connect local units of government when these groupings cross county or municipal boundaries. This allows local communities to collaborate and make sure their area is as prepared as possible for the infrastructure deployments headed their way.

5.3.3 Identify High Priority & High-Cost Locations
Key Players: IBO, ISPs

Based on the requirements listed in Section 5.2.1, the IBO will begin identifying the highest priority addresses. The IBO understands that there will likely be serviceable addresses which fall under an extremely high-cost threshold which will be unable to be served by fiber. Before releasing groupings to ISPs, the IBO will identify these locations. These addresses will be released in the first round of the grant process. ISPs offering eligible technologies will be allowed to bid on these addresses to ensure they are not left out of the bidding process.

5.3.4 Release Addresses for ISP Bidding
Key Players: IBO, ISPs

All addresses will be released in multiple rounds of grant funding. During the first phase of the grant program, ISPs providing a fiber solution will be eligible to apply. Subsequent rounds of the grant program will take any remaining addresses which were not served by fiber, and allow ISPs who offer either a fiber or a fiber-fixed wireless hybrid solution to participate. During final rounds of the grant program, the IBO will open addresses up to ISPs offering all eligible

technologies – fiber, hybrid, fixed wireless – to apply. If addresses are not bid on with fiber, they will be automatically recategorized as a high-cost addresses.

5.3.5 Grade Applications
Key Players: IBO

After each round, the IBO will grade the grant applications based on the grant scoring metrics identified in Section 5.2.2. Any addresses which were not bid on will roll over into the subsequent round of the program.

5.3.6 IBO and ISP Communication
Key Players: IBO, ISPs

In between grant scoring and the final award announcement, the IBO will meet with ISPs to share community priorities and to capture the ISPs planned activities for a successful deployment. The IBO will also use these discussions to encourage ISPs to pick up additional, hard to service, addresses which were not originally chosen.

5.3.7 Monitoring and Compliance
Key Players: IBO, ISPs

The ultimate success of this program will be determined by quality and timely deployments from the State's ISP partners. To ensure this is occurring, the State will monitor progress and grant compliance through the duration of the award period. The grants to ISPs will be distributed on a reimbursable basis, which will also help ensure deployments are being carried out as intended.

5.4   Key Execution Strategies

The IBO has identified key execution strategies that align with each of the State's broadband objectives. The four goals are broken down into broader missions of establishing a Subgrantee Program, helping Hoosiers navigate broadband services and creating digital equity, facilitating continued stakeholder engagement, and contributing to economic development at both the state and local level.

5.4.1   Establishing a Subgrantee Program

Goal:	Ensure futureproof broadband deployment to serve every household, business, farm, and community anchor institution in the State of Indiana		
Strategies:	Using the State's mapping software, the IBO will provide an accurate list of eligible addresses based on defensible speed tests and existing funding data	The IBO will define a new subgrantee program which will include new scoring criteria and address grouping	The IBO will work to define a cost threshold through existing data and stakeholder/ISP engagement

5.4.2   Helping Hoosiers Navigate Broadband Services and Create Digital Equity

Goal:	Help all Hoosiers effectively navigate the internet and use digital services, adoption, and affordability		
Strategies:	The IBO will continue to work with communities, ISPs, and local entities to understand area-based affordability definitions. Additionally, the IBO will continue to work with, and rely on, PCRD's research surrounding affordability	The IBO will hold meetings with community stakeholders to identify the largest roadblocks in a given area and brainstorm solutions to overcome them	The IBO will highlight the perspectives attained through the Digital Equity Solution Sessions conducted in July and use those to spearhead digital equity in the State

5.4.3   Facilitate Continued Stakeholder Engagement

Goals:	The IBO will build off its past work to continue to foster a collaborative environment that responds, connects, and addresses challenges facing community stakeholders and local government.		
Strategies:	Through the BEAD program, the IBO will expand their office, so that they have more capacity to engage with the community	The new subgrantee program will include a scoring metric that considers local community sentiment for ISP applicants	The IBO will use stakeholder engagement to strengthen the future of the office

5.4.4 Contribute to Economic Development at the State and Local Level

Goals:	Provide Hoosiers, current and future, quality jobs, quality of life, business opportunities, and dynamic cities and towns throughout the State of Indiana. The State recognizes broadband is at the center of making Indiana an attractive place to live, work, and play. This investment will have ripples throughout various sectors in the State			
Strategies:	The IBO will broadcast the benefits of broadband by working with local communities to market their new services. This will help encourage economic development through attraction of small and medium sized businesses and new workforce talent	The IBO, along with other state agencies, will collaborate to create and market a variety of workforce development programs. This will encourage the uptake of broadband related jobs, as well as expose Hoosiers to new skills trainings	The IBO will catalogue and analyze the CAI surveys completed by local community members. This will ensure that the BEAD funding is making the largest impact possible	The State will capture how many new businesses and employees are created as a result of the BEAD funding to measure the economic impact the program has on the State as a whole

5.5   Estimated Timeline for Universal Service

The previous subgrantee program administered by OCRA, Next Level Connections (NLC), had an approximate timeline of 8 months from the application deadline to the award announcement. From here, projects must be completed 24 months after the contract is signed[78]. Given this information, projects funded by the NLC should be complete by the end of 2025.

The timeline for the BEAD funding is a bit different. The State is responsible for completing an initial proposal by the end of 2023. This phase requires the IBO to establish a statewide challenge process, develop scoring criteria for a subgrantee program, and determine a high-cost threshold. Throughout 2024, the State will then be required to work on the final proposal. This step encompasses the beginning of the selection process; the IBO will start holding discussions with ISPs about project areas and the inclusion of addresses not picked up in the process. By the beginning of 2025, the first round of grants should be awarded. Given that ISPs are used to completing projects within 24 months through the NLC program, build outs should be complete by the 2028 deadline.

Dec. 2023 — Initial Proposal Completed

Dec. 2024 — Final Proposal Completed

Jan. - Dec. 2025 — BEAD Grants Awarded + NLC Wrap Up

2028 — BEAD Build Outs Complete

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[78] State of Indiana. "Next Level Connections Broadband Grant." 2021, https://www.in.gov/ocra/nlc/files/NLC-One-Pager-Rd-3.pdf

5.6 Estimated Cost for Universal Service

The Indiana Broadband Office estimates that the cost for universal services is approximately $1.5B - $1.6B. The following approach was utilized:

1. **Using the FCC database (published May 2023), the IBO identified all unserved and underserved addresses.** As of January 1, 2023, Indiana had 161,466 unserved addresses and 148,674 underserved addresses. However, multiple rounds of state and federal grants have been awarded and any address which has received funding of this nature is not eligible for BEAD money. An estimate was calculated both with these addresses included and with them removed. Accounting for various rounds of funding such as RDOF, CAF, and NLC, an approximate 187,072 addresses will be eligible for BEAD funding. The eligible addresses were then grouped by census block.

2. **The IBO next utilized working assumptions from recent Next Level Connections projects.** These cost assumptions include aerial vs buried per mile costs, engineering costs, and specific address deployment costs.

3. **Working at a census block level, a *Distance to Nearest Hub* analysis was conducted using GIS software to determine the distance (in miles) between a census block with no fiber to the nearest census block with fiber.** The IBO utilized the center point of each block to conduct this analysis, creating the assumptions that serviceable locations are evenly dispersed from the center of the block and that awarded ISPs will have access to the closest fiber infrastructure. The IBO understands these assumptions are not fully accurate, however given there are 204,568 census blocks in Indiana, and the State has a square mileage of 36,418, the average block size is 5.612 mi[2] and thus the cost should not differ drastically based on specific address locations within a block. The same analysis was done with railways; the distance from the center point of each census block and the nearest railroad were measured to determine the likelihood the build out would need to purchase a railway permit.

4. **The IBO then considered the difference in pricing between buried and aerial fiber deployments.** One of the most common reasonings to divert from buried fiber is if the bedrock layer is a material which makes drilling extremely difficult[79, 80]. Approximately 59% of Indiana is covered with limestone of some nature, a material which ISPs typically avoid drilling into. To account for this, each census block was assigned as an aerial deployment if limestone is present and a buried deployment if limestone is not present.

5. The number of serviceable locations, the distance from fiber, the distance from railways, and the county's population density were recorded for every census block. These are the variables utilized in calculating the estimated cost.

6. Using the assumptions from local providers, the IBO assigned each serviceable address the appropriate individual drop costs. An engineering cost was also calculated per mile.

7. **The buried/aerial deployment costs, engineering costs, and individual household costs were then added together and an additional variable for population density was accounted for.** The sum of the total costs were then divided by the number of serviceable locations multiplied by the Log of the County's household density (total cost / (#serviceable locations* LOG10(county household density)). A logarithmic regression was utilized to estimate the effect household density has on the cost to pass in a given location[81] and normalize this exponential relationship. The fewer addresses there are in each area, and the less dense a county is, the more expensive the total build will be. These higher cost areas are also typically the areas that have been left behind in previous broadband deployments due to lower, or no, return on

[79] PPC Broadband, Inc. "Key Factors When Choosing Between Buried and Aerial Fiber Deployments." May 2020, https://www.ppc-online.com/blog/key-factors-when-choosing-between-buried-and-aerial-fiber-deployments

[80] NOANET. "The 'Ups and Downs' of Deploying Fiber: Aerial vs. Underground." October 28,2022, https://www.noanet.net/insights/the-ups-and-downs-of-deploying-fiber-aerial-vs-underground/

[81] Cartesian. "All Fiber Deployment Cost Study 2019." September 10, 2019, https://www.portsmouthri.gov/AgendaCenter/ViewFile/Item/6247?fileID=9477

investment (ROI) for ISPs. [82] Thus, it is critical this variable is captured in the final costs as it helps determine areas where builds will be more costly.

8. Railway permits can be an expensive barrier for ISPs. Private permitting costs were analyzed for a variety of different railways which operate within the state. These costs vary based on the service requested and the private railway engaged. **To account for this, a permitting fee was added to any census block which is closer to a railway than a source of fiber.** After a thorough analysis of these fees throughout the State, an estimated average of $20,000 was used.

9. An estimated cost for each census block was calculated, the cost was analyzed at a county level, and then a cumulative total. Below is the estimated breakdown by county on the estimated cost and number of serviceable locations.

Table 23: Estimated Costs (Not Accounting for Existing Federal and State Awards)

County	Estimated Cost	# Serviceable Locations	County	Estimated Cost	# Serviceable Locations
Adams	$ 10,069,639.10	3,120	Lawrence	$ 7,502,054.06	2,650
Allen	$ 4,095,034.16	1,458	Madison	$ 17,386,185.47	6,223
Bartholomew	$ 16,755,778.76	3,514	Marion	$ 2,015,926.20	837
Benton	$ 14,105,054.75	1,432	Marshall	$ 24,527,808.58	4,004
Blackford	$ 14,348,056.75	2,898	Martin	$ 10,821,222.64	1,593
Boone	$ 24,500,717.81	5,712	Miami	$ 30,148,350.07	5,146
Brown	$ 1,166,605.41	649	Monroe	$ 1,783,959.10	1,517
Carroll	$ 45,485,342.69	4,574	Montgomery	$ 29,325,020.63	4,356
Cass	$ 32,806,091.62	4,720	Morgan	$ 4,220,387.49	3,989
Clark	$ 6,763,684.42	2,883	Newton	$ 51,841,038.27	2,160
Clay	$ 21,282,942.89	3,129	Noble	$ 3,280,855.75	90
Clinton	$ 30,055,413.45	4,585	Ohio	$ 1,306,424.57	748
Crawford	$ 29,425,219.51	1,492	Orange	$ 438,763.17	101
Daviess	$ 12,314,372.22	3,887	Owen	$ 6,780,804.48	2,257
De Kalb	$ 5,036,333.44	94	Parke	$ 19,845,157.03	2,354
Dearborn	$ 3,134,996.16	1,120	Perry	$ 1,708,587.49	943

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[82] Congressional Research Service. "The Persistent Digital Divide: Selected Broadband Deployment Issues and Policy Considerations." April 18, 2023, https://www.everycrsreport.com/files/2023-04-18_R47506_ac59258fa0ba4f2756d3909dad1ac516eb2d8c98.pdf

County	Amount	Value	County	Amount	Value
Decatur	$ 18,908,840.71	5,096	Pike	$ 36,308,477.46	2,840
Delaware	$ 38,052,195.33	4,862	Porter	$ 12,445,427.95	3,637
Dubois	$ 9,818,518.85	1,908	Posey	$ 20,218,730.42	4,037
Elkhart	$ 2,012,943.69	380	Pulaski	$ 55,319,292.00	3,383
Fayette	$ 9,591,612.40	2,024	Putnam	$ 18,780,957.07	3,234
Floyd	$ 546,003.20	482	Randolph	$ 42,919,971.48	4,731
Fountain	$ 7,194,208.78	1,523	Ripley	$ 4,344,508.63	1,960
Franklin	$ 11,215,755.27	5,543	Rush	$ 22,856,486.58	4,059
Fulton	$ 17,605,825.67	3,444	Scott	$ 2,077,403.46	1,100
Gibson	$ 32,548,108.93	4,120	Shelby	$ 9,533,943.83	6,244
Grant	$ 22,316,801.47	5,196	Spencer	$ 3,532,967.44	1,476
Greene	$ 53,134,617.23	5,264	St Joseph	$ 17,402,443.56	2,227
Hamilton	$ 4,920,673.47	3,742	Starke	$ 82,334,307.52	4,698
Hancock	$ 1,201,599.97	951	Steuben	$ 8,879,564.21	101
Harrison	$ 4,209,057.69	2,574	Sullivan	$ 55,194,492.03	3,394
Hendricks	$ 4,004,561.44	2,671	Switzerland	$ 6,470,589.25	1,739
Henry	$ 6,926,826.66	2,400	Tippecanoe	$ 6,552,293.59	2,510
Howard	$ 15,028,587.69	3,569	Tipton	$ 12,775,803.35	2,464
Huntington	$ 2,848,631.38	1,068	Union	$ 12,677,173.71	2,551
Jackson	$ 2,288,054.91	664	Vanderburgh	$ 4,548,733.38	1,268
Jasper	$ 39,922,161.39	5,632	Vermillion	$ 22,571,105.43	1,951
Jay	$ 29,961,951.45	3,873	Vigo	$ 12,983,630.63	2,394
Jefferson	$ 7,246,811.41	3,166	Wabash	$ 17,096,133.02	3,546
Jennings	$ 4,308,307.76	1,458	Warren	$ 69,794,314.96	3,492
Johnson	$ 3,214,260.63	3,309	Warrick	$ 9,737,228.22	3,741
Knox	$ 70,890,966.61	3,168	Washington	$ 1,854,124.70	537

Kosciusko	$ 2,113,379.42	1,119	Wayne	$ 11,910,990.61	4,347
La Porte	$ 38,330,113.89	5,559	Wells	$ 6,518,411.74	1,368
Lagrange	$ 18,682,188.40	1,646	White	$ 22,532,565.10	2,037
Lake	$ 13,360,976.55	4,080	Whitley	$ 13,904,003.95	990
Grand Total	**$ 1,600,758,445.67**			**256,782 Addresses**	

When eliminating the addresses estimated to be served through an additional source of funding (RDOF, CAF, NLC), the total cost of universal services drops to approximately $1,506,707,292 for 187,072 addresses. This would result in an approximate cost per passing price of between $6,233.92 - $8,054.16. Although the total cost of service is lower when eliminating potentially served addresses, the cost per passing is higher. This is most likely due to harder to serve, higher cost addresses often being left behind, resulting in the cost of serving that address to increase as the number of serviceable addresses in its vicinity dwindle. From these estimates, approximately 85% – 90% of addresses will be able to be served with a cost per passing of less than $10,000.
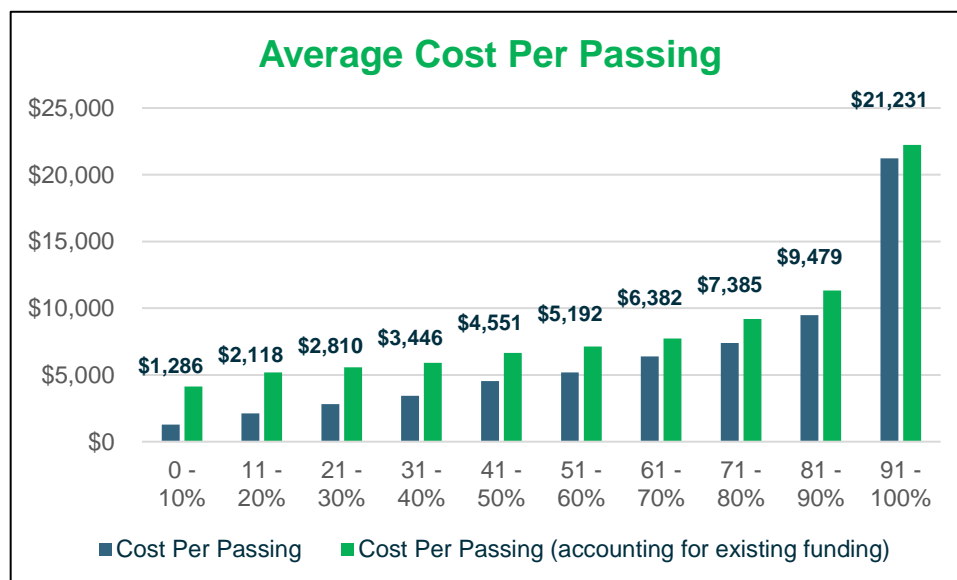

Figure 26. Percentage of addresses served with an average cost per passing. The annotated cost estimates indicate the average cost per passing when not accounting for the potential addresses served through additional sources of funding

These cost estimates were benchmarked across additional public cost for universal service estimations and historical data. The number of $1.5 - $1.6B is within the expected range for total costs in Indiana. Cartesian estimates that Indiana will need approximately $1.5B to serve every Hoosier[83]. This would result in an average cost per passing of $7,682. Next Level Connections

[83] ACA Connects, Cartesian. "BEAD Program: A Framework to Allocate Funding for Broadband Availability. State Broadband Report: Indiana." June 2023, https://acaconnects.org/index.php?checkfileaccess=/wp-content/uploads/2023/06/Indiana_BEAD_Funding_Cartesian_ACA_06_20_23_v3.0.pdf

Round 3 served 46,751 addresses with a total investment (state cost and provider match included) of $388,281,622.38, resulting in a cost per passing of approximately $8,305 per passing[84].

The total cost for universal services will be further built out through the Initial Proposal as the State further refines its list of serviceable addresses.

5.7   Alignment

Increasing broadband access across the State will have enormous benefits for all and a variety of state agencies have existing initiatives which will be positively impacted by the BEAD program. While the IBO has expertise in broadband infrastructure, other agencies specialize in their respective fields and will provide important insight into ensuring the full benefits of broadband are achieved.

5.7.1   Indiana Economic Development Corporation

The Indiana Economic Development Corporation (IEDC) has the mission of "growing the state economy, driving economic development, helping businesses launch, grow, and locate in the state" [85]. Bringing broadband to communities will help the IEDC promote this mission; overall growth in both broadband adoption and broadband speeds can contribute to GDP growth as it is demonstrated that increases in broadband access and adoption have positive effects on an economy. For example, from 2010 to 2020, approximately 22.4% of the total U.S. GDP growth was due to increases in broadband adoptions and technology improvements[86]. Getting broadband to more communities throughout the State will help the IEDC encourage new business growth, recruit new talent, and keep existing Hoosiers by creating lively and bustling local economies.

5.7.2   Department of Workforce Development

The Department of Workforce Development is committed to being "completely prepared for the next phase of the state and country's economic growth"[87]. With over $42 billion being awarded to states nationwide, the deployment of broadband infrastructure will impact the workforce market with extreme demand. This provides DWD the opportunity to help prepare for a new chapter in the U.S./Indiana economy by developing creative solutions to mitigate potential workforce shortages. Additionally, the BEAD program provides more opportunities for training statewide. By increasing broadband access, DWD will be able to reach, educate, and train more Hoosiers to fill the workforce needs of the State.

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[84] State of Indiana. "NLC Round 3 Funding." July 11, 2023, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.in.gov%2Focra%2Fnlc%2Ffiles%2FNLC-3-071123.xlsx&wdOrigin=BROWSELINK

[85] Indiana Economic Development Corp. "About Us." https://iedc.in.gov/about

[86] Telecompetitor. "Study Finds Broadband Has a Major Impact on U.S. Economic Growth" June 29, 2022, https://www.telecompetitor.com/study-finds-broadband-has-a-major-impact-on-u-s-economic-growth/

[87] State of Indiana. "Indiana Department of Workforce Development Theme, Goals, and Overall Strategy. https://www.in.gov/dwd/about-dwd/mission/

5.7.3 Indiana Department of Health

Health First Indiana, passed by the 2023 Indiana General Assembly in Senate Enrolled Act No. 4[88], is the State's initiative to prioritize public health and safety, focusing on providing core services, lead screening, food protection, trauma and injury prevention, and more. The goal of this program is to ensure every Hoosier has access to the resources they need to achieve their optimal health and well-being. One aspect of health that is becoming increasingly more important to have is access to telehealth. Telehealth allows individuals to access healthcare wherever they may be located, encouraging more frequent check-ins with medical professionals, and cutting down on transportation costs[89]. This is extremely important for aging individuals and those in rural communities. With a broadband connection, citizens will have the ability to access healthcare online when they may not have been able to before, preventing long drives to healthcare facilities and allowing senior populations to age in place.

5.7.4 Department of Education

The Indiana Department of Education (DOE) is committed to making sure every student has access to a quality education. There are approximately 1.1 million Indiana students attending over 2,200 schools throughout the State, all of which have different access to technology. The world today is extremely digital, and part of setting students up for success is ensuring they have access to broadband. This allows them to learn how to navigate the digital world and prepare them for a variety of potential careers. The DOE keeps track of individual school's state of technology through their Digital Readiness Dashboard. Through the BEAD program, Indiana plans to highlight the importance of these metrics. By getting schools and their students the proper access to high-speed broadband, both in school and at home, the State can help set up Indiana students for a successful career and teach valuable life skills.

5.7.5 Indiana State Department of Agriculture

Broadband is extremely important for agriculture. In 2020, the Indiana State Department of Agriculture (ISDA) prioritized increasing access and deployment of broadband services needed to support on-farm and farm household activities[90]. There are still many farmers who do not have access to these services, and thus cannot complete their operations to the fullest. Through the BEAD program, the IBO and ISDA can work together to make sure every last Hoosier farmer is served.

5.7.6 Office of Community and Rural Affairs

The Office of Community and Rural Affairs (OCRA) has been responsible for leading the broadband grant programs, NLC and ICP, thus far. Although the IBO will be leading the next round of funding through the BEAD program, it is critical the two departments continue to work together, and that the IBO builds on the success of OCRA. OCRA is committed to constructing

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[88] State of Indiana. "Indiana Department of Health, Health First Indiana. https://www.in.gov/health/directory/office-of-the-commissioner/gphc/

[89] Department of Health and Human Services. "What is Telehealth?." https://telehealth.hhs.gov/patients/understanding-telehealth

[90] Indiana State Department of Agriculture. "Rural Road to Recovery." 2020, https://www.in.gov/isda/files/rural-road-recovery-agriculture.pdf

relevant and economically thriving places where people want to live, work, and grow[91], and broadband is, and will continue to be, a large part of ensuring that happens.

5.7.7 Indiana Office of Technology

The Indiana Office of Technology (IOT) is currently focused on the state's cybersecurity. They recently completed a roadshow visiting all 92 counties, where they had conversations surrounding cybersecurity with local community IT representatives. Cybersecurity and ensuring cyber safety are critical components of the BEAD program. It will be very important for the IBO and IOT to work together in order to provide all Hoosiers with the services and programs necessary to help individuals understand safe internet practices.

5.7.8 Integrated Public Safety Commission

The Integrated Public Safety Commission's (IPSC) mission is to facilitate statewide public safety communication[92]. A critical component of getting all Hoosiers necessary information in a timely manner is having the network to do so. Increasing Hoosier's access to broadband will allow areas which were previously disconnected, to have the most effective and reliable networks at their fingertips to receive live public safety communications.

5.8 Technical Assistance

The Indiana Broadband Office greatly appreciates the level of technical assistance provided by the NTIA thus far and has identified a few areas of concern where further assistance from the NTIA may be necessary.

5.8.1 Buy America

As identified in Section 4, there are numerous materials which may create timeline delays if required to be purchased in America. The IBO would appreciate further guidance on this requirement, especially in situations where the materials are unavailable or would result in large delays or increases in cost.

5.8.2 Communities Who Do Not Want Services

Indiana ranks 3rd in the United States for highest Amish populations. These populations typically avoid modern technologies and may be averse to adopting these services. Indiana would appreciate further guidance on what to do in this scenario for future planning purposes.

5.8.3 Subgrantee Waivers

Indiana likely has extremely high-cost addresses and locations which will be unable to be served by fiber. The IBO would appreciate further guidance on what requirements are necessary to acquire a waiver in these scenarios.

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[91] State of Indiana. "Indiana Office of Community & Rural Affairs." https://www.in.gov/ocra/
[92] State of Indiana. "Integrated Public Safety Commission." https://www.in.gov/ipsc/

Connecting Indiana – Five Year Action Plan

6 Conclusion

Indiana, a national leader in broadband, is dedicated to ensuring every Hoosier has access to high-speed internet[93]. With initiatives like the Broadband Ready Communities Program[94] and substantial investments in infrastructure deployment, the state is well-prepared to efficiently manage the BEAD program. The goal is to connect all Hoosiers to reliable and affordable broadband, meeting their internet needs and fostering economic development.

Indiana has needs different from those of other states; with 22.1% of the population over the age of 60 [95] and over 80% of the land dedicated to farms, forests, and woodland[96], Indiana has a high aging population and a very rural landscape. However, the Broadband Equity, Access, and Deployment Plan, alongside the Digital Equity Act Plan, will address these challenges while prioritizing affordability, technology selection for different regions, and investment in dedicated broadband workforce initiatives.

The impact of broadband access on daily life is profound, enabling students to access education remotely, facilitating telecommuting, and connecting families and friends across distances. Improved access also aligns with other state missions, positively influencing economic development, health initiatives, and public safety communication.

Indiana's Five-Year Action Plan outlines the crucial details to successfully implement the BEAD program and ensure all Hoosiers are connected cost-effectively and promptly. Concurrently, the Digital Equity Act Plan ensures that everyone has the means to adopt these services. The existing Next Level Connections Subgrantee program and efforts by OCRA provide a strong foundation for launching the new program.

The Indiana Broadband Office, collaborating with various stakeholders such as state agencies, community-based organizations, local governments, and ISPs, aims to create a digitally connected and thriving state. The mission is to establish an environment where every Hoosier and visitor can enjoy all that Indiana offers, starting with reliable internet access from the comfort of their homes.

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[93] BroadbandNow Research. "Best & Worst States for Broadband, 2023." May 9, 2023, https://broadbandnow.com/research/best-states-with-internet-coverage-and-speed

[94] Pew. "How 5 States Are Creating Broadband-Ready Communities." March 23, 2023, https://www.pewtrusts.org/-/media/assets/2023/04/broadband-ready-communities-ta-memo-pdf.pdf

[95] US American Census Survey. "S0101: Age and Sex 2021 5-Year Estimate." 2021, https://data.census.gov/table?q=S0101&g=040XX00US18&tid=ACSST5Y2021.S0101

[96] State of Indiana. "About Indiana Agriculture." https://www.in.gov/isda/about/about-indiana-agriculture/#:~:text=Agriculture%20contributes%20an%20estimated%20%2435.1%20billion%20to%20Indiana's%20economy.

7 Appendices

7.1 Appendix A – Stakeholder Visioning Session Survey

1. What county do you reside in?
2. What is your experience with broadband quality of service in your area?
   - ➢ Very good
   - ➢ Good
   - ➢ Fair
   - ➢ Poor
   - ➢ Very Poor
3. What is your experience with broadband providers in your area?
   - ➢ Very good
   - ➢ Good
   - ➢ Fair
   - ➢ Poor
   - ➢ Very Poor
4. How many Internet Service Providers (ISPs) are available in your area?
5. How much are you paying for broadband access per month?
6. How much would you be willing to pay per month for high-quality, reliable broadband access?
7. What broadband or digital inclusivity programs (if any) work well in your community? Are there any programs you would like to see added or expanded?
8. Are there any broadband assets in your community that are underutilized? (Example: Middle mile that hasn't been tapped into, a task force or council that hasn't gotten traction, etc.)
9. Do you have any other thoughts or feedback?

7.2 Appendix B - ISP Survey

1. Which internet service provider do you represent?
2. What is your role at the company?
3. Have you participated in any rounds of the Next Level Connections program?
   a. If yes:
      i. Please describe how you selected which addresses to pursue?
      ii. What changes to the program might encourage you to include additional address?
      iii. What is your anticipated rate of adoption?
      iv. What is the maximum number of years you expect until ROI for grant funding?
   b. If no, why?
4. Does your company have direct experience coordinating with Indiana local and/or county officials in the deployment of broadband?
5. Does your company offer an income-restricted low-cost offering for customers?
   a. If yes:
      i. Please provide information on that offering.
6. Does your company provide consumer general education on broadband and specific services provided by the company including income-restricted low-cost options?
7. Has your company faced challenges in hiring staff for broadband deployment?
   a. Can you please list the specific positions and the biggest obstacle in hiring for each position.
   b. Does your company offer training for these positions?
   c. Would you be willing to work with an educational entity on creating a workforce development curriculum for a certification program for these positions
   d. Would you be willing donate equipment for these certification programs?
8. Has your company experienced supply chain issues when deploying broadband?
   a. If so, what materials have been difficult to source?
9. Please provide any other challenges to deploying broadband throughout the state of Indiana.

7.3 Appendix C – Municipality Survey

1 What is the name of your municipality?
2 Does your municipality have specific goals for broadband – access, upload and download speeds?
3 Does your municipality keep an up-to-date list of addresses or areas that do not have broadband access?
4 Tell us about the challenges your residents face when accessing broadband.
5 Which community anchor institutions do not currently offer public access to free high quality broadband and would benefit from the ability to do so?
6 Are there programs that provide devices for free or at a discount to residents in your municipality?
7 To the best of your knowledge, do all local government buildings have access to adequate broadband?
8 What support would be helpful to the municipality in expanding broadband access to all residents?
9 What resources do you have that could enable further broadband deployment in your community?
10 What ISPs, if any, have actively worked with the municipality towards local broadband expansion efforts?

7.4 Appendix D – County Survey

1. What is the name of your county?
2. Does your county have specific goals for broadband – access, upload and download speeds?
3. Does your county keep an up-to-date list of addresses or areas that do not have broadband access?
4. Tell us about the challenges your residents face when accessing broadband.
5. Which community anchor institutions do not currently offer public access to free high quality broadband and would benefit from the ability to do so?
6. Are there programs that provide devices for free or at a discount to residents in your county?
7. To the best of your knowledge, do all government buildings have access to adequate broadband?
8. What support would be helpful to the county in expanding broadband access?
9. What resources do you have that could enable further broadband deployment in your community?
10. What ISPs, if any, have actively worked with the county towards local broadband expansion efforts?

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