

Connecting All Missourians

Five-Year Plan



Missouri Department of
Economic Development

Five Year Action Plan

State of Missouri

Table of Contents

1	Executive Summary.....	2
2	Overview of the Five-Year Action Plan.....	3
2.1	<i>Vision</i>	3
2.2	<i>Goals and Objectives</i>	3
3	Current State of Broadband and Digital Inclusion.....	5
3.1	<i>Existing Programs</i>	5
3.2	<i>Partnerships</i>	16
3.3	<i>Asset Inventory</i>	20
3.4	<i>Needs and Gaps Assessment</i>	29
4	Obstacles or Barriers	48
5	Implementation Plan.....	52
5.1	<i>Stakeholder Engagement Process</i>	52
5.2	<i>Priorities</i>	63
5.3	<i>Planned Activities</i>	64
5.4	<i>Key Execution Strategies</i>	66
5.5	<i>Estimated Timeline for Universal Service</i>	68
5.6	<i>Estimated Cost for Universal Service</i>	70
5.7	<i>Alignment</i>	71
5.8	<i>Technical Assistance</i>	73
6	Conclusion	75
7	Appendices	76

Five Year Action Plan

State of Missouri

1 Executive Summary

This document represents an important stage in the State of Missouri’s ongoing efforts to connect all Missourians to high quality internet coverage. Missouri has been allocated \$1.7 billion in funding for broadband deployment through the Broadband Equity, Access, and Deployment (BEAD) program. The Connecting All Missourians Five-Year Action Plan is a BEAD program requirement for states receiving BEAD planning funds. The Five-Year Action Plan provides a broad overview of the broadband access situation in the State of Missouri and the state’s plan to improve connectivity across its state. It is the synthesis of more than a year of research and engagement efforts by the Office of Broadband Development and its partners, including Missouri’s Regional Planning Commissions and the University of Missouri system. The policies that will govern the spending of BEAD funds in Missouri will be detailed in the state’s Initial Proposal, which will be published later this year and submitted to the National Telecommunications and Information Administration (NTIA) after a comment period. That Initial Proposal will be informed by the goals, challenges, and strategies identified in this document.

Missouri will submit an additional report that satisfies the planning requirements associated with the Digital Equity Act with a special focus on the state’s plans for addressing non-infrastructure barriers to broadband access and adoption. Planning efforts associated with BEAD and DEA and the resulting plans have been closely coordinated within the Office of Broadband Development, in recognition of the fact that these newly built networks will only be valuable to the extent Missourians are able to make meaningful use of the opportunities they enable.

Five Year Action Plan

State of Missouri

2 Overview of the Five-Year Action Plan

2.1 Vision

The State of Missouri will connect every Missourian with high-quality, affordable broadband internet. OBD strives every day to realize the vision of a Missouri where every citizen, regardless of their financial, geographic, or demographic background, has access to the complete set of digital skills, technology, and resources necessary to realize their full potential within the digital economy.

2.2 Goals and Objectives

Goals

Infrastructure and Availability: Missouri will connect all Missourians to high quality, affordable broadband irrespective of their location within Missouri.

Sustainability: Missouri will build the ecosystem necessary to sustain those connections and ensure that connectivity in Missouri continues to improve beyond the lifetime of current broadband programming.

Adoption and Impact: Missouri will reduce digital inequities and ensure all Missourians are able to take full advantage of the opportunities afforded to them by broadband expansion.

Objectives

Broadband Deployment: In 2019, Missouri’s Broadband Plan committed to “prioritize activities to achieve universal access to high-speed Internet, with speeds of at least 100 Megabits per second (Mbps) download and 20 Mbps upload, for all Missouri citizens by 2028” with a related milestone of 25/3 Mbps connections to 95 percent of Missourians by 2025. As of the end of 2022, the FCC National Broadband Map shows reliable 25/3 Mbps service to 84% of Missourians and reliable 100/20 Mbps service to 78% of Missourians.

Missouri was the recipient of several previous funding programs. With the provision that some already existing funding programs with a large footprint in Missouri, including the FCC’s Rural Digital Opportunity Fund (RDOF), do not require completion of projects before 2028, Missouri recommits to this goal. In the case that every location cannot be reached by that date, Missouri further commits secure reliable, high-speed broadband internet service or a specific plan to provide service (an identified provider, project, timeline, and source of funding) for every unserved and underserved Missourian within the next five years through the strategies outlined in this Five Year Plan. The Office of Broadband Development (OBD) will document and publish records of these commitments so members of the public can understand the plans for their home or business and to promote accountability for broadband funding agencies, including OBD, and funded providers.

Five Year Action Plan

State of Missouri

Sustainability: Missouri will identify and develop strategies to sustain coverage in areas at risk of losing service beyond the five year window. OBD will track trends in reported broadband data to identify locations losing coverage and locations where coverage has not kept up with evolving demands for broadband connectivity. Missouri will build an ecosystem beyond the Office of Broadband Development and across the non-profit, for-profit, and government sector to continue the work of connecting all Missourians. OBD will attempt to formulate “succession plans,” including identification of a new responsible organization, for OBD activities that are still of value for promotion of connectivity in Missouri (including, for instance, maintenance of relevant datasets, public-facing resources for understanding Missouri’s broadband availability, and technical support resources for broadband stakeholders) that the office cannot continue to perform in the future due to resource or capacity constraints.

Broadband Adoption: Missouri will develop strategies to promote uptake of new and existing broadband options. OBD will aim to achieve adoption rates on future OBD awarded grant-funded projects meaningfully higher than the rate achieved by previous grant programs.

Digital Equity: Through the strategies documented in this document and in Missouri’s Digital Equity Plan, Missouri will reduce the relationship between poverty, rurality, and poor broadband access and adoption rates as documented in the American Community Survey, FCC National Broadband Map data about broadband availability, and the 2023 Missouri Internet Survey. Without discounting the importance of home internet access, Missouri will also encourage investments in improved connections for community anchor institutions which often serve as a connection-of-last-resort for otherwise unconnected Missourians. OBD will document baseline broadband availability and need for community anchor institutions across the state, improve the share of community anchor institutions with broadband availability that matches their needs, and publish information about community anchor institutions to ensure Missourians can take full advantage of these resources.

Affordability: Missouri will leverage grant funding and other office activities to promote affordable access to the internet across the state of Missouri. Missouri will take measures to increase the share of locations with multiple high-speed, reliable broadband service options, as documented on the FCC National Broadband Map, promoting competition and lowering costs. For unserved and underserved locations where grant funding can subsidize only one new broadband provider, OBD will prioritize funding to providers that make commitments that will ensure broadband availability. Missouri will encourage enrollment in programs that subsidize broadband access for low-income people, including the Affordable Connectivity Program (ACP). Missouri will also create a Middle Class Affordability Plan to make internet more affordable for more Missourians.

Economic Growth and Job Creation: Missouri will encourage the creation of a healthy ecosystem of internet service providers capable of sustaining new broadband development using diverse funding streams beyond the lifetime of current broadband grant programs. Missouri will foster the development of a highly-skilled, stable workforce based in Missouri capable of establishing and expanding the state’s broadband infrastructure.

Five Year Action Plan

State of Missouri

3 Current State of Broadband and Digital Inclusion

3.1 Existing Programs

Current Activities that the Broadband Program/Office Conducts

Activity Name	Description	Intended Outcomes
Advisory Council	Plays a crucial advisory role as OBD engages in the planning process for BEAD and DEA funding. Each member brings years of expertise in their field which we hope to use as a guiding force for our planning and implementation efforts. The council's input will be critical to enhancing broadband access and digital inclusion throughout the State of Missouri, as well as ensuring the planning process is efficient and transparent.	Will provide guidance and serve in an advisory capacity during OBD's planning process. Council members will contribute to the state's plan for BEAD and DEA during implementation of the plans. They will also represent their geographic and professional communities and the interests of the public throughout the planning process.
Stakeholder Outreach and Engagement	OBD hosts monthly stakeholder calls to update the public on current events. OBD also hosts a yearly in-person broadband meeting for all stakeholders to attend. A comprehensive list can be found in the appendix A.	A transparent view of progress and what is to come for broadband implementation for Missourians.
Development of state broadband map	OBD is in the state procurement process of contracting with a company to develop a state broadband availability map.	OBD will be able to maintain and regularly update the broadband availability map internally as projects are awarded and completed. MO citizens will have one map to locate current projects and service providers for their location.
Administration of NTIA and ARPA Broadband Infrastructure (BIP) Grant programs	OBD is administering the ARPA and NTIA BIP programs and is now in the grant success stage, monitoring and reimbursing	This will ensure broadband funding is implemented efficiently and effectively to achieve the overall goal of connecting all Missourians. Lessons learned will be

Five Year Action Plan

State of Missouri

	the sub-recipients of these awards.	carried forward to the BEAD program. The ARPA BIP will connect 55,979 locations and NTIA BIP will connect 12,595 locations.
Agency coordination	<p>OBD regularly coordinates with other state agencies to align state broadband goals and strategies.</p> <p>For APRA BIP, OBD had to coordinate with the state's Office of Administration (OA) in order to obligate the SLFRF funds and send monitoring and reporting to (federal) Treasury. We had to work with the MO State Treasurer's office to draw down Capital Projects Fund funds into the state bank account and worked with (federal) Treasury to directly draw down funds.</p>	The coordination efforts will help ensure the state's broader goals are achieved and roadblocks to implementation are removed.

Current and Planned Full-Time and Part-Time Employees

Current/Planned	FT/PT	Position	Description of Role
Current	FT	Director	The director will have oversight responsibilities for the planning project and will ensure coordination between BEAD planning and other state broadband activities. The position duties will include day-to-day project activities to manage OBD, as well as completion of final BEAD project deliverables, including the 5-Year Action Plan. The Director will coordinate with stakeholders, host meetings with telecom partners, conduct data analysis on broadband deployment and digital inclusion metrics, interpret the data, and be responsible for overall program and project evaluation and success.

Five Year Action Plan

State of Missouri

Current	FT	Project Manager	The project manager will support the Office of Broadband Development with day-to-day project activities, data requests, and managing community outreach and stakeholder activities and events.
Current	FT	Community Development Specialist	The Community Development Specialist will focus on broadband infrastructure and play a key role in the BEAD program efforts. The Community Development Specialist will interface directly with communities and providers as they prepare broadband expansion proposals.
Current	FT	Digital Inclusion Specialist	The Digital Inclusion Specialist will focus on digital equity and inclusion and play a key role in the DEA program efforts. This position will be tasked with compiling the state digital equity plan and managing the Digital Demonstration Project Grant Program.
Current	FT	Grants Manager	This position will have overall responsibility for overseeing the competitive grant process and will supervise Grant Success Specialist positions.
Current	FT	Sr. Grants Specialist (1 current, 2 planned)	The position will be responsible for administering the competitive grant and challenge process over multiple rounds of BEAD grant funding.
Current	FT	Grant Success Specialist (4 current, 6 planned)	Grant specialists will be responsible for administering the competitive grant and challenge process over multiple rounds of BEAD grant funding.
Current	FT	Grant Success Specialist	Grant specialists will be responsible for administering the competitive grant and challenge process over multiple rounds of BEAD grant funding.

Five Year Action Plan

State of Missouri

Current	FT	Grant Success Specialist	Grant specialists will be responsible for administering the competitive grant and challenge process over multiple rounds of BEAD grant funding.
Current	FT	Grant Success Specialist	Grant specialists will be responsible for administering the competitive grant and challenge process over multiple rounds of BEAD grant funding.
Current	FT	GIS Coordinator	The GIS coordinator will provide in-office expertise in support for broadband mapping efforts, including broadband speed mapping and asset mapping.
Current	FT	Administrative Assistant	The Administrative Assistant will provide general office functions, including answering incoming phone calls and emails, scheduling travel accommodations, and supporting the OBD team as needed.
Planned	PT	Legal Counsel	The legal counsel will provide legal reviews and expertise.
Planned	FT	Accountant	The accounting position will focus solely on IIJA funded programs and provide accounting support and expertise.

Current and Planned Contractor Support

Current/Planned	Time	Position	Description of Role
Current	PT	University of Missouri System	Broadband household survey, digital asset map, Focus Group study, stakeholder awareness and engagement, data collection and support, broadband vulnerability "footprint" tool, weather and climate study, assistance in finalizing deliverables to NTIA

Five Year Action Plan

State of Missouri

Current	PT	Boonslick Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Bootheel Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	St. Louis County Public Library	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Green Hills Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Harry S. Truman Coordinating Council	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Kaysinger Basin Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Lake of the Ozarks Council of Local Governments	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional

Five Year Action Plan

State of Missouri

			reporting, and outreach to stakeholders
Current	PT	Mark Twain Council of Government	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Meramec Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Mid-America Regional Council	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Mid-Missouri Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Mo-Kan Regional Council	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Northeast Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Northwest Missouri Regional Council of Governments	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional

Five Year Action Plan

State of Missouri

			reporting, and outreach to stakeholders
Current	PT	Ozark Foothills Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Pioneer Trails Regional Planning Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	South Central Ozark Council of Governments	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Southeast Missouri Regional Planning and Economic Development Commission	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders
Current	PT	Southwest Missouri Council of Governments	Host and promote regional engagement meetings, assistance with digital asset mapping and broadband mapping, regional reporting, and outreach to stakeholders

Broadband Funding

Source	Purpose	Total	Expended	Available
ARPA Broadband Infrastructure Program-funds originate from the U.S.	Missouri Broadband Infrastructure Grant Program helps providers, communities,	\$265,000,000.00	\$261,000,000.00 awarded	\$3,860,416.37 in SLFRF pole replacement funds (funds have been obligated and
		\$250,000,000.00 Infrastructure		

Five Year Action Plan

State of Missouri

Department of the Treasury's Coronavirus Capital Projects Fund and the Coronavirus State Fiscal Recovery Fund.	counties, and regions invest in building broadband infrastructure in unserved and underserved areas of the state through competitive grants.	\$15,000,000 Pole Replacement		the state is planning to use)
ARPA Cell Towers Program-funded through the U.S. Department of the Treasury Coronavirus State Fiscal Recovery Fund	Cell Towers Grant will fund the construction, retrofitting, or refurbishment of towers on public lands improving access for those who depend on cellular service for internet. The program will target areas with less than 50 persons per square mile.	\$20,000,000.00	\$0	TBD- application cycle closed July 30, 2023
Coronavirus Relief Fund Emergency Broadband Investment Program (federal funds)	Provides resources that help providers, communities, counties, and regions invest in building broadband infrastructure in unserved and underserved areas of the state.	\$5,000,000.00 appropriated	\$3,882,030.00 awarded	\$0
FCC - Affordable Connectivity Program	Provides eligible households with a discount of up to \$30/month for high-speed internet service	\$112,760,373.00		

Five Year Action Plan

State of Missouri

	and up to \$100 discount toward a desktop, laptop, or tablet computer offered by participating ISPs.			
FCC- Connect America Fund (CAF)	Designed to ensure that consumers in rural, insular, and high-cost areas have access to modern communications networks capable of providing voice and broadband service, both fixed and mobile, at rates that are reasonably comparable to those in urban areas.	\$254,773,117.90	n/a – Federally administered program directly to providers	
FCC - Emergency Connectivity Fund	Supports internet services and connected devices for students, school staff, and library patrons.	\$1,385,625.00	n/a – Federally administered program	
FCC -E-Rate	Connects schools and libraries to broadband. It is the government's largest educational technology program.		n/a – Federally administered program	
FCC- Rural Digital	Designed to bring high speed fixed broadband	\$174,576,111.00	n/a – Federally administered	

Five Year Action Plan

State of Missouri

Opportunity Fund (RDOF)	service to rural homes and small businesses that lack it.		program directly to providers	
FCC-Affordable Connectivity Program Outreach Grant	Provides eligible households with a discount of up to \$30/month for high-speed internet service and up to \$100 discount toward a desktop, laptop, or tablet computer offered by participating ISPs.	\$1,675,000.00	n/a – Federally administered program directly to sub-grantees	
NTIA, Dept. of Commerce-Broadband Equity, Access, and Deployment (BEAD) Program Planning Grant	Provides funds for eligible entities to carry out planning activities including outreach and engagement for the BEAD capacity funds.	\$2,147,304.59	\$233,874.92	\$1,913,429.67
NTIA, Dept. of Commerce-Broadband Equity, Access, and Deployment (BEAD) Program	Provides funds to bring affordable, reliable high-speed internet to unserved and underserved locations and community anchor institutions.	\$1,734,155,403.80	\$0	n/a-Sub-grantee selection process has not begun
NTIA, Dept. of Commerce - Broadband Infrastructure Program	Provided for ISPs to expand internet access to areas without service, especially to rural areas.	\$42,241,427.00	\$12,662,796.92	\$29,578,630.08 all funds have obligated

Five Year Action Plan

State of Missouri

NTIA, Dept. of Commerce - Connecting Minority Communities Pilot Program	Helps colleges and institutions that serve minority and Tribal communities.	\$2,980,070.84	n/a – Federally administered program	
NTIA, Dept. of Commerce - Digital Equity Act Capacity Grant	Funding to ensure that all people and communities have the skills, technology, and capacity needed to reap the full benefits of our digital economy.	TBD		
NTIA, Dept. of Commerce - Digital Equity Act Planning Grant	Provides funds to eligible entities to develop state digital equity plans.	\$827,338.00	\$218,838.48	\$608,499.52
NTIA, Dept. of Commerce - Enabling Middle Mile Broadband Infrastructure Program	Provides funds to help reduce cost of bringing high-speed internet service to unserved and underserved communities by connecting local networks to major networks.	\$26,478,583.51	n/a – Federally administered program directly to providers	
State appropriation- Missouri Broadband Grant Program	Provides state resources that help providers, communities, counties, and regions invest in building broadband infrastructure in unserved and underserved areas of the state.	\$5,000,000.00 appropriated	\$3,049,075.00 awarded	\$0

Five Year Action Plan

State of Missouri

USDA - ReConnect Loan and Grant Program	Provides funds for the cost of construction, improvement, or acquisition of facilities and equipment needed to provide high-speed internet service in eligible rural areas.	\$149,966,244.00	n/a – Federally administered program directly to providers	
---	---	------------------	--	--

3.2 Partnerships

Partners

Partners	Description of Current or Planned Role in Broadband Deployment and Adoption
Regional Planning Commissions	18 regional planning commissions assisted with in-person regional public engagement, regional reporting on assets, resources, and availability, and circulating correspondences from OBD to stakeholders in their region.
University of Missouri System (including MU Extension)	Assisted with the BEAD and DEA planning process producing many final deliverables including; statewide broadband survey, focus groups, climate and weather study, asset mapping, data collection and analysis and other broadband related material. Extension promoted and provided in-person assistance for the FCC map challenge process and statewide broadband survey. Regional extension specialists joined our in-person regional public engagement meetings and compiled notes/data from these meetings.
Internet Service Providers (ISPs)	Missouri cable and telecommunications companies, electric cooperatives and service providers making broadband access available across the state. A full list in appendix B.
State Librarian –public libraries	Promotion of and in-person assistance for the FCC Map challenge process and statewide broadband survey. Provides public access to Wi-Fi and devices, as well as digital skills trainings and lending of hot spots.

Five Year Action Plan

State of Missouri

St. Louis County Library System	Assist with in-person regional public engagement, regional reporting on assets, resources, and availability, and circulating correspondences from OBD to stakeholders in their region.
MO Department of Economic Development (DED)	Missouri’s Department of Economic Development houses the Office of Broadband Development and plays a crucial role in the planning process and decision making.
MO Department of Higher Education and Workforce Development (DHEWD)	Missouri’s Department of Higher Education and Workforce Development has been involved and will continue to be in workforce conversations and presented during our statewide workforce stakeholder call.
MO Department of Transportation (MoDOT)	In support of federal and state investments in extending broadband infrastructure, the Missouri Department of Transportation provides their Statewide Transportation Improvement Plan (STIP) which sets forth the specific construction projects MoDOT will undertake in the next five years.
MO Department of Agriculture (MDA)	Agriculture plays a vital role in the economy in the state of Missouri, and the impact of broadband on the agricultural sector is significant. MDA has been involved and will continue to be in broadband conversations throughout the life of the BEAD program.
MO 811	Utility locate company that will play an active role in the success of BEAD implementation. They have presented during a statewide ISP stakeholder call and made themselves available to assist ISPs and subcontractors during the locate process.
Missouri Municipal League	Non-profit representing municipal government and administration who have been actively involved in promoting and sharing information to cities, towns, and villages across the state.
Missouri Association of Counties	Non-profit providing assistance to member counties and have been actively involved in promoting and sharing information from OBD to county elected officials across the state.
Advisory Council	Will provide guidance and serve in an advisory capacity during OBD’s planning process. Council members will contribute to the state’s plan for BEAD and DEA. They will

Five Year Action Plan

State of Missouri

	also represent their geographic and professional communities and the interests of the public throughout the planning process.
MO School Board Association	Missouri's school system plays an integral role in bridging the digital divide. It is also a means to teach school age children the digital skills necessary to thrive in the economy and a way to communicate with families across the state.
MO Farm Bureau	Missouri Farm Bureau has been an active participant in stakeholder engagement meetings, hosting our statewide kick-off event, and a voice for rural Missourians throughout the planning process.
MO Primary Care Association	MPCA serves vulnerable, hard to reach citizens and an advocate for telehealth access for its members across the state.
Community Action Agencies	Community Action Agencies are a crucial part of underrepresented communities across the state. Several have been awarded Digital Demonstration Project grant funds and are working to bridge the digital divide.
Digital Equity and Inclusion Organizations	Various organizations helping with digital skills training and education, affordability, devices, and other collaborative efforts with OBD.
Communication Workers of America	CWA represents working people in the telecommunications industry and have been an active voice during our stakeholder engagement meetings.
Missouri and local Chambers of Commerce	OBD will partner with Chambers of Commerce across the state to increase local stakeholder participation and outreach and inform local community members of broadband effort updates from OBD.
United States Department of Agriculture (USDA)	OBD will coordinate with the agency on their funding opportunities and OBD mapping efforts.
Federal Communications Commission (FCC)	OBD will coordinate with the agency on their funding opportunities and OBD mapping efforts.
Kansas City Federal Reserve St. Louis Federal Reserve	Hosted multiple state digital equity workshops and conducted study on digital equity for MO.
National Digital Inclusion Alliance (NDIA)	Hosted state digital equity workshops to assist states in writing digital equity plans. Hosts bi-monthly cohort calls to allow states

Five Year Action Plan

State of Missouri

	to share and collaborate ideas, issues, and thoughts around digital equity.
MO citizens	MO citizens play a crucial role in ensuring we <i>connect all Missourians</i> . OBD wants to hear from those who experience the challenges and barriers across the state. They were engaged during the FCC challenge process and will be able to participate in the state mapping challenge process to ensure their location is listed accurately on the availability map.
Show Me Broadband	Missouri coalition that will monitor issues in communities and work to develop solutions, promote oversight and accountability of public funds for broadband, advise OBD on deployment and oversight, work with state legislators to identify and evaluation broadband legislation, and identify issues with federal programs while advocating for improvements. This coalition is funded by Pew/Benton Institute.
MOREnet	The Missouri Research and Education Network (MOREnet) is both a data network as well as a human network. They provide Internet connectivity, access to Internet2, technical services, resources and support, as well as technical training to Missouri's public sector entities, including K-12 schools, colleges and universities, public libraries, health care, government and other affiliated organizations.
Show-Me ECHO	Show-Me ECHO (Extension for Community Healthcare Outcomes) is a state-funded telehealth project operated by the Missouri Telehealth Network at the University of Missouri School of Medicine. Show-Me ECHO uses videoconferencing to connect interdisciplinary teams of experts with primary care clinicians and other professionals. They collaborate in interactive case-based learning to develop advanced skills and best practices, which improves patient care access, quality and efficiency.

Five Year Action Plan

State of Missouri

3.3 Asset Inventory

The Office of Broadband Development (OBD) conducted significant outreach and engagement October 2022 through compilation of this Plan to understand the assets available across the state. Our stakeholder and engagement events include the following.

- Statewide listening tour covering all 19 regions of the state based on Regional Planning Commissions with a total of 43 in-person meetings each with a virtual option
- Statewide internet survey which collected over 7,500 completed responses
- 20 focus groups facilitated by University of Missouri St. Louis (UMSL)
- Targeted audience stakeholder calls to include, digital equity organizations, workforce and internet service providers

In partnership with the University of Missouri system, the Center for Applied Research and Engagement Systems (CARES) integrated and contextualized broadband data during the planning efforts. CARES designed and developed a dynamic data collection tool to support rolling information capture about broadband related resources. A Qualtrics survey was developed to capture digital assets and create the digital asset map. The Digital Asset Map aims to collect assets and attributes such as digital literacy programs, basic and advanced computer classes, locations of public computers, organizations or programs that distribute hotspots, public Wi-Fi services, libraries, one-on-one technical assistance centers, and adult/workforce education programs, to not only assist in statewide planning, but to also assist public consumers in connecting to digital resources in and around their communities. An interactive mapping interface displays validated crowdsourced data and related attributes. Visitors on desktop can use zoom and search functions to view digital assets at or near a location or view a statewide map. On mobile and small screen devices, digital asset map data displays in an easy-to-read and easy-to-scroll interface with a smaller map option.

The sections below outline the key broadband deployment, access, adoption, affordability, and digital equity assets that will need to be built upon to connect all Missourians. (Please note that the inventory is not an exhaustive list of all assets in the state of Missouri and there may be additional assets not included in the current inventory that OBD is working towards identifying.)

Broadband Deployment Assets

Internet service providers

There are over 120 broadband providers that provide service throughout the state. They utilize a variety of technologies to make broadband available to their customers. Broadband access has been expanding at a rapid rate over the past several years as the demand for access has increased.

Community Anchor Institutions

Community anchor institutions, including schools, libraries, and healthcare providers, are vital links for otherwise unconnected Missourians and have specialized broadband needs. These

Five Year Action Plan

State of Missouri

needs are recognized in the BEAD program through its provision for 1 Gbps symmetrical service to community anchor institutions without access to that level of service. Limited data collection about the extent to which these locations lack access make it challenging to document the extent of the gap between the services needed by these institutions and the service available with currently deployed infrastructure. Leveraging capacity and existing assets/efforts from community anchor institutions around the state will be key to overall success.

Mapping and Data Analysis

OBD has access to the FCC Broadband Serviceable Location Fabric under license and has developed internal tools to map and visualize this data in conjunction with availability data from the FCC National Broadband Map for BEAD planning purposes. OBD also has dedicated funding for a statewide address level broadband mapping effort involving data collection from Missouri's internet service providers and validation of submitted data. As of the drafting of this report, OBD has not yet selected its mapping contractor from among several responses to the state's request for proposals. These ongoing mapping efforts represent a major asset in the state's deployment efforts.

Deployment Funding

As mentioned in Table 4, section 3.1 there are many sources of broadband funding currently assisting ISPs in the deployment of infrastructure. Deployments funded by other federal and state programs include, but are not limited to U.S. Treasury American Rescue Plan Act (ARPA), National Telecommunication and Information Agency Broadband Infrastructure Program (NTIA BIP), FCC Rural Digital Opportunity Fund (RDOF), USDA ReConnect, and FCC Connect America Fund (CAF). Broadband deployment under BEAD will continue to leverage these programs and partnerships.

Workforce Development

The analysis of data reviewed by Missouri's Department of Higher Education and Workforce Development (DHEWD) and presented to OBD focused on two relevant job categories: Telecommunications Equipment Installers and Repairers and Telecommunication Line Installers and Repairers found that Missouri employees appears to employ a relatively large number of individuals in both categories (relative to the state's share of the nation's population) and that the state's mean wage is somewhat below the wage of the median state.

The Missouri Economic Research and Information Center, a research division within the Department of Higher Education and Workforce Development, had projected a small decline in employment in these two occupations between 2020 and 2030 in Missouri, as did a nation-wide projection over the same period published by the Bureau of Labor Statistics (BLS). More recently published BLS figures covering the period from 2021 to 2031 projected substantial gains in employment in these categories.

Tower locations

A 2022 report commissioned by OBD from Tilson, an engineering firm, reviewed some crucial broadband deployment assets in the state of Missouri. A total of 180 sites for

Five Year Action Plan

State of Missouri

telecommunications towers were identified in mobile broadband gaps. Of these sites, 112 are existing towers that could be used to provide expanded coverage and the other 68 are on raw land. Of these existing towers, 48 are on land owned by the State of Missouri. There are 64 sites with existing commercial towers. Of the 68 raw land sites 14 are on Conservation lands.

Utility Assets

Utilities are potential partners in the effort to expand broadband. This is true even when the utility is not directly involved in the expansion of broadband service. Utilities hold key infrastructure used in broadband expansion, most significantly utility poles. Effective partnerships between utilities and broadband providers are not inevitable. Fully taking advantage of these efforts will require cooperation between the owners of these assets and the organizations involved in deploying broadband.

Missouri Department of Transportation Fiber Assets

The Missouri Department of Transportation uses extensive fiber assets across the state, some owned by the department and some secured from a private fiber company in exchange for the right to lay fiber in MODOT's right of way. Some of these assets also support the needs of other state agencies. In response to questions from the Missouri House of Representatives Special Interim Committee on Broadband Development, MODOT indicated that the terms of its contract and restrictions on the use of state and federal construction funds on non-transportation assets limits its ability to use these fiber assets to support broadband deployment more broadly.

Broadband Access Assets

Middle Mile

Middle mile networks connect local access networks and major traffic aggregations points. Without a middle mile presence, last-mile broadband deployment is not possible. The Tilson report reviewed the presence of middle mile assets in the state of Missouri and identified networks associated with Bluebird Networks, United Fiber, Sparklight, Brightspeed, and Sho-Me Technologies.

NTIA's Middle Mile program represented one opportunity to shrink the gap of middle mile infrastructure in the state of Missouri. OBD supported several applicants for middle mile funding as part of that program. Bluebird Networks has been awarded a NTIA Middle Mile Award for 325 miles of fiber to grow and strengthen connectivity across 21 Missouri counties. However, middle-mile gaps remain in other parts of the state, without an immediate prospect for dedicated grant funding to help resolve it.

Mobile and Wireless Connectivity

Missourians need better connectivity in all forms and access types. Precision Agriculture in the state is increasingly depended on wireless connectivity. Access is a challenge whether addressing mobile broadband, public Wi-Fi and networks, or wired technology. The mobile and wireless data sets available to OBD are through the FCC's Broadband Map.

Five Year Action Plan

State of Missouri

OBD is currently running a Cell Towers Grant program to fund construction, retrofitting, or refurbishment of towers to improve access for those who depend on cellular service for internet.

Public libraries

Libraries have been a long-standing resource to communities and have been actively engaged in digital inclusion programs. Public libraries in Missouri offer free access to the internet, facilitate digital skills training, as well as lend devices and hotspots. Many libraries offer Wi-Fi access in their building and from their parking lots.

Broadband Adoption Assets

Adoption rates

The 2017-2021 American Community Survey reports that 85.1% of Missourians have a broadband subscription and it estimates 92.1% of Missourians have a laptop or desktop.

Missouri Internet survey

The statewide internet survey indicated a high percentage (87%) of respondents paid for home internet service. Low-income and smartphone-only households were least likely to pay for service (78% and 52%, respectively). Smartphone-only respondents also tend to be lower income. Respondents in low broadband access areas, or rural low-access households, were less likely to pay for home internet as service was not available (82%). However, only 4 percent of respondents chose not to purchase available internet services, an important finding that services are in very high demand.

Digital equity organizations

As part of the stakeholder outreach and engagement process throughout the planning phase, OBD made contact with many entities and organizations doing digital equity planning and work across the state. One of the most common refrains encountered during the Connecting All Missourians outreach tour reflected the general belief that the connectivity needs of rural communities are often ignored and in favor of more urban locations, where digital equity organizations are more prominent. OBD plans to approach this concern with a statewide approach that would be designed to ensure that there are digital inclusion resources available for members of the public in all regions/counties without digital inclusion focused entities and organizations. OBD also encourages the approach of letting locals lead which is built upon the idea that the members of a specific community are best equipped, in knowledge, capacity, and proximity, to design programming to serve that community. This approach will be upheld during the digital equity competitive grant process held through our office.

Broadband Affordability Assets

Affordable Connectivity Program

The Affordable Connectivity Program (ACP) provides eligible households with a discount on broadband service and connected devices. The benefit provides a discount of up to \$30 per

Five Year Action Plan

State of Missouri

month toward internet service for eligible households and up to \$75 per month for households on qualifying Tribal lands. Eligible households can also 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 toward the purchase price. The Affordable Connectivity Program is limited to one monthly service discount and one device discount per household.

Lifeline Program

Since 1985, the Lifeline program has provided a discount on phone service for qualifying low-income consumers to ensure that all Americans have the opportunities and security that phone service brings, including being able to connect to jobs, family and emergency services. Lifeline is part of the Universal Service Fund. The Lifeline program is available to eligible low-income consumers in every state, territory, commonwealth, and on Tribal lands. The Lifeline program is administered by the Universal Service Administrative Company (USAC). USAC is responsible for data collection and maintenance, support calculation, and disbursement for the low-income program. USAC's website provides information regarding administrative aspects of the low-income program, as well as program requirements.

High Cost

The High Cost program provides support through more than a dozen separate legacy and modernized funds to eligible telecommunications carriers (ETCs) to deliver affordable voice and broadband service in rural areas that would otherwise be unserved or underserved. The legacy funds support voice service and the modernized funds that make up the Connect America Fund (CAF) program are bringing broadband to rural America.

State utility commissions must certify that carriers under their jurisdiction are eligible to receive High Cost support in their states and use all support only to provide, maintain, and upgrade the facilities for which the support was intended. Carriers that self-certify (i.e., ETCs not subject to state jurisdiction) must certify that they use all High Cost support only to provide, maintain, and upgrade the facilities for which the support was intended.

Healthcare Connect Fund

The Rural Health Care program funds two types of services. You can apply for funding for Voice and Data, Broadband, or both:

1. If you need voice and other telecommunication services, you may be eligible for funding through the Telecommunications Program.
Discount Rate: Determined using the urban/rural differential.
2. If you need broadband services, network equipment, etc., you may be eligible for funding through the Healthcare Connect Fund (HCF) Program.
Discount Rate: Flat 65 percent discount on eligible expenses.

Five Year Action Plan

State of Missouri

The FCC designates unserved or underserved rural communities – places where the market alone cannot support the substantial cost of deploying network infrastructure and providing connectivity – as areas eligible for support.

Mobile Beacon

Mobile Beacon was founded by one of the largest Educational Broadband Service (EBS) providers in the United States. The mission of EBS, to power education through broadband, is the keystone of this organization. Mobile Beacon provides several resources for nonprofits to utilize.

1. 4G/5G Internet Service for NonProfits

Mobile Beacon’s 4G/5G LTE Internet service delivers maximum value to nonprofits with a powerful combination of accessibility and affordability. While commercial service plans from wireless carriers often cap data usage and charge overage fees, they provide unlimited data plans for as low as \$10/month for all LTE-enabled devices purchased through Mobile Beacon.

2. Bridging the Gap

PCs for People and Mobile Beacon partnered to create Bridging the Gap, a program that brings access to life for individuals and families under the 200 percent poverty level. Bridging the Gap empowers schools, libraries, and nonprofits to let their clients know how they can get high-quality, discounted computers and first-class uncapped, high-speed, and unlimited internet service so their limited budgets won’t mean a second-class level of technology. The program takes a “whole family approach” to closing the digital divide by ensuring people of all ages and stages of life gain access to the internet. The platform provides a single location where those most impacted by the digital divide can locate low-cost high quality devices and broadband service.

3. TechSoup Donations Program

With the \$10/month, unlimited Internet service and 4G LTE device donation program through TechSoup, nonprofits can significantly lower their connectivity costs. This program offers a great opportunity for nonprofits who:

- a. Lack traditional Internet access, or suffer from slow speeds/bandwidth constraints
- b. Want to create a hotspot lending program within their community
- c. Need a low-cost backup Internet source
- d. Want to provide field-based staff with mobile Internet access

Qualified organizations can receive up to 11 donated 4G LTE mobile hotspots through the TechSoup donation program. TechSoup charges a nominal administrative fee for each device, currently at \$15/per device. Library systems are eligible to receive up to 11 devices per branch.

Five Year Action Plan

State of Missouri

4. Digital Wish Donation Program

Through the \$10/month, unlimited Internet service and device donation program through Digital Wish, schools save significantly on access costs. This program helps educators:

- a. Provide affordable out-of-school access to students who do not have Internet access at home
- b. Create instant, wireless access in the classroom
- c. Create a low-cost backup Internet source to ensure lesson plans aren't interrupted by slow speeds or a lost Internet connection
- d. Provide mobile access to teachers and staff

Schools, teachers, and administrators can receive up to 11 donated mobile hotspots through the Digital Wish donation program. Digital Wish charges a nominal administrative fee for each device.

5. Mobile Citizen

Mobile Citizen, a Voqal project, provides low-cost mobile internet with unlimited data plans exclusively to nonprofit organizations, educational entities, libraries and social welfare agencies. Championed by a national collaboration of EBS (Educational Broadband Service) licensees, Mobile Citizen's internet service is available nationwide. Mobile Citizen offers two services in support of this goal:

- a. Mobile Hotspot Devices - Mobile Citizen hotspots provide internet access on a variety of devices including laptops, Chromebooks and smartphones. Our mobile hotspots use the T-Mobile network to connect to the internet and provide a secure connection. Devices come with 5G, 4G LTE and/or 4G internet service and unlimited data.
- b. Affordable Wireless Internet - Mobile Citizen offers two low cost Internet plans, one for general consumers and one exclusively for nonprofits, schools, libraries and social welfare agencies. Both plans offer annual service for \$120 per year, 4G and 5G LTE internet service, and don't include additional overage charges.

Digital Equity Assets

Area Agencies on Aging & Services

Missouri has 10 Area Agencies on Aging that cover every county in the state. The Area Agencies on Aging are the local experts regarding programs and services in their local areas. Programs and services are designed by the Area Agencies on Aging to meet the needs of the individuals in their planning and service areas. Therefore, the resources and services provided by each agency will vary.

Benton Institute ACP Enrollment Performance Tool

This tool was created to help any community answer the question: "How are Affordable Connectivity Program sign-ups going?" The tool displays the actual level of Affordable Connectivity Program (ACP) enrollment in the zip code area, the predicted level of ACP enrollment, and how well the area is performing in comparison to the norm. The difference between predicted and actual enrollment is an ACP performance measure.

Five Year Action Plan

State of Missouri

Digital Progress ACP Congressional Map

This is an interactive map that provides congressional district level detail on ACP enrollments numbers.

Education SuperHighway

Education SuperHighway (ESH) is a national non-profit with the mission to close the digital divide for the 18 million households that have access to the Internet but can't afford to connect. It focuses on America's most unconnected communities, where more than 25 percent of people don't have Internet. Education Superhighway currently offers four digital inclusion resources for communities and digital equity practitioners to utilize.

1. ACP Enrollment Assistance Tool - The ACP Enrollment Assistance tool assists Americans to quickly find out if they qualify for the Affordable Connectivity Program (ACP), what documents they need to apply, and how to connect to plans that are free with the ACP.
2. Broadband Adoption Program for cities and school districts - ESH's Broadband Adoption Program support pilot cities and school districts in the roll-out of their broadband initiatives to ensure that their unconnected households get quickly enrolled and gain home access.
3. Free Apartment Wi-Fi Program - The Free Apartment Wi-Fi program can connect 9 million people who live in MDUs to reliable home internet. ESH partners with states, cities, building owners, and property managers to deploy building-wide Wi-Fi through managed service solutions that are cost-effective and simple to implement for building owners and free to residents.
4. K-12 Bridge to Broadband - K-12 Bridge to Broadband enables states or school districts to submit anonymized student addresses and receive back a list of unconnected addresses and the ISPs that can connect them for remote learning.

The program is built around a data exchange platform that enables states and school districts to partner with an ISP to identify unconnected student households and optimize their use of federal funding. With data sharing agreements in place, states and school districts share de-identified student addresses with ISPs using our secure data exchange platform. ISPs confirm if they currently serve each address or if they can serve each address, resulting in a complete dataset that identifies unconnected student households. States or school districts can then use this actionable data to procure internet services on behalf of their students or make families aware that they may be eligible for federal subsidy programs.

EveryoneOn

EveryoneOn provides free access to their Offer Locator tool which helps people learn about internet and device offers and digital literacy training providers in their community.

Five Year Action Plan

State of Missouri

EveryoneOn also provides open access to their Digital Learning Center, operates a Senior Tablet Training Pilot Program, and has created the Digital Communities Digital Skills curriculum.

Missouri Association of Councils of Government

The Missouri Association of Councils of Governments (MACOG) is the statewide organization representing Missouri's 19 regional planning commissions and councils of governments. These professional organizations represent the entire State of Missouri and are committed to enhancing the state's regions. The Regional Planning Commissions are a partner in OBD's planning efforts and public outreach and engagement. Regional councils are engaged in a myriad of activities, including:

- Economic and community development
- Housing initiatives
- Safety and security
- Transportation planning
- Environmental issues
- Quality-of-life issues

These activities create jobs for Missourians, stimulate private investment and attract millions of dollars which support public projects. MACOG's organizations serve the state's 114 counties and more than 6.8 million people.

Missouri Community Action Network

In Missouri, there are 19 Community Action Agencies with branches delivering service in every county to help people achieve self-sufficiency. Community Action Agencies provide the following direct services to low-income Missourians:

- **Economic and Family Security** - A variety of programs that promote family stability and economic security are available through Community Action Agencies. CAA's provide life skills classes like financial management, family support services, domestic violence shelters, foster grandparent programs and crisis assistance.
- **Education and Job Training** - From school readiness programs like Head Start, to employment training and workforce development, Community Action Agencies offer opportunities that teach children beginning academics and provide adults with labor skills needed to land a stable job.
- **Food and Nutrition** - The goal is to ensure all Missourians have affordable, adequate and nutritious food available in their communities. Several agencies have a food pantry, sponsor summer food programs or operate WIC (Women, Infants & Children) Nutrition programs.
- **Health** - All people should have access to adequate, affordable health care. Community Action Agencies often sponsor women's health programs, health screenings for seniors, and in-home services.

Five Year Action Plan

State of Missouri

- Housing and Energy - Energy and housing programs help with everything from utility costs and furnace repairs to rent payments and transitional housing so families can live in safe, healthy and affordable housing.

National Digital Inclusion Alliance

NDIA combines grassroots community engagement with technical knowledge, research, and coalition building to advocate on behalf of people working in their communities for digital equity. NDIA accomplished this task via four main activities:

1. Supporting on-the-ground digital inclusion practitioners and advocates.
2. Advocating for local, state, and federal policies to promote digital equity and support local digital inclusion strategies.
3. Educating policymakers, the media, and potential partners about the need for digital equity and the work of local digital inclusion programs.
4. Conducting, supporting, and promoting data-gathering and research that can inform public understanding, public policy and community strategies related to digital inclusion and equity.

3.4 Needs and Gaps Assessment

3.4.1 Broadband deployment

Service to Unserved and Underserved Locations

As of the end of 2022, data reported by providers to the FCC National Broadband Map showed 337,004 unserved locations according to the definition of broadband service that will be used for the BEAD program – homes, businesses, and other broadband-serviceable locations with no wired or licensed fixed wireless service reported of at least 25 Mbps download and 3 Mbps upload. Another 107,032 locations were underserved, with no service at or above 100/20 Mbps. This gulf is the basic gap that the State of Missouri, OBD, and other broadband stakeholders will try to fill over the next five years.

Some of these locations are subject to existing commitments for broadband deployments through programs including the FCC's Rural Digital Opportunity Fund (RDOF) and Connect America Fund (CAF), the United States Department of Agriculture's (USDA) ReConnect program (ReConnect), Missouri's joint award for funding from the NTIA's Broadband Infrastructure Program (NTIA-BIP), and OBD's American Rescue Plan Act-funded Broadband Infrastructure Program (NTIA-ARPA). Records compiled by OBD indicate that 230,843 unserved and underserved locations are in project areas where committed funding would bring BEAD-compliant service. That leaves an unfunded and unserved gap of 146,715 locations and an unfunded and underserved gap of 64,582.

Five Year Action Plan

State of Missouri

BEAD Category	SERVED	FUNDED TO SERVED	UNFUNDED UNSERVED	UNFUNDED UNDERSERVED	UNSERVED FUNDED TO UNDERSERVED
Number of Locations	2,044,283	230,843	146,715	64,582	1,896

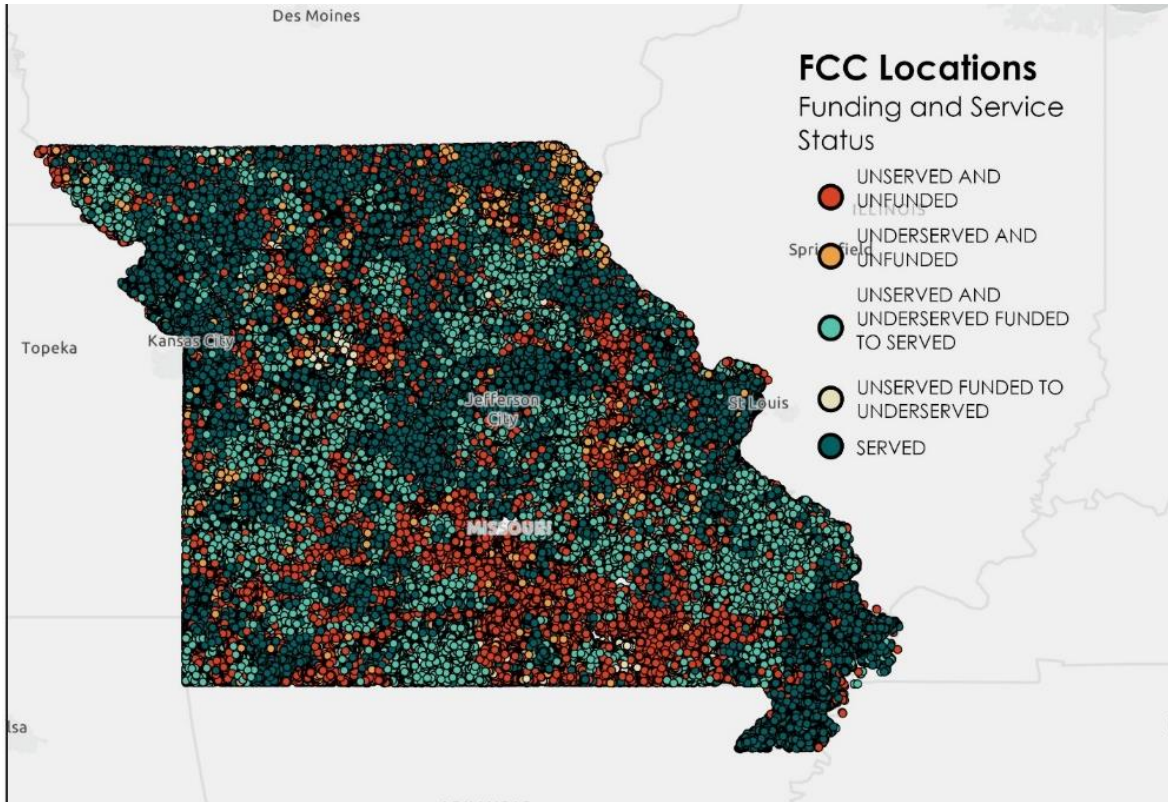


Figure 1: Missouri broadband serviceable locations by relevant BEAD categories based on availability data from the FCC National Broadband Map and funding data compiled by the University of Missouri.

Some additional locations may be funded through future programs run by these agencies, outside the scope of the BEAD program, including future iterations of the ReConnect program and the Alternative Connect America Cost Model (E-ACAM) proposed by the FCC. On the other hand, the potential that some funded projects may fail creates an-impossible-to-enumerate gap of locations that will not receive service from their funded commitment, but will not be eligible for BEAD funding. A plan and funding that can be spent to help reach these locations could turn out to be a major broadband need in the state of Missouri.

Five Year Action Plan

State of Missouri

FCC STATUS	ARPA	CAF	CARES	MO FY20 GRANT	NTIA - BIP	RDOF	ReConnect
UNSERVED IN PROJECT AREA	25,129	44,418	75	1,606	2,838	70,104	14,268
UNDERSERVED	11,323	4,388	351	293	2,065	10,654	2,216
SERVED	10,348	42,940	2,265	3,667	8,998	46,532	11,998
Total	46,800	91,746	2,691	5,566	13,901	127,290	28,482

The population without a single provider at 100/20 Mbps is not the only measure of the deployment gap of interest to Missourians. Competition between multiple high-quality internet service providers has the potential to promote improvements in service quality and cost as providers attempt to secure market share. There are 793,416 served locations in Missouri with only one provider offering reliable service at more than 100/20 Mbps at the end of 2022.

Deployment challenges are not evenly distributed across the state of Missouri. In a small number of Missouri counties more than half of locations appear to have no service above 100/20 Mbps or a plan to extend such service. Counties with lower levels of broadband service and dedicated grant funding are concentrated in the Ozarks and, to a lesser extent, in northeast, northwest and southwest Missouri.

TEN MISSOURI COUNTIES WITH THE HIGHEST NUMBER OF UNSERVED AND UNDERSERVED LOCATIONS OUTSIDE OF FUNDED AREAS

COUNTY	UNSERVED OR UNDERSERVED AND UNFUNDED LOCATIONS
Stone	9,556
Franklin	8,982
Texas	7,198
Jasper	6,657
Barry	5,853
Jefferson	5,440
Howell	4,882
Newton	4,877
Laclede	4,423
Washington	4,369

Five Year Action Plan

State of Missouri

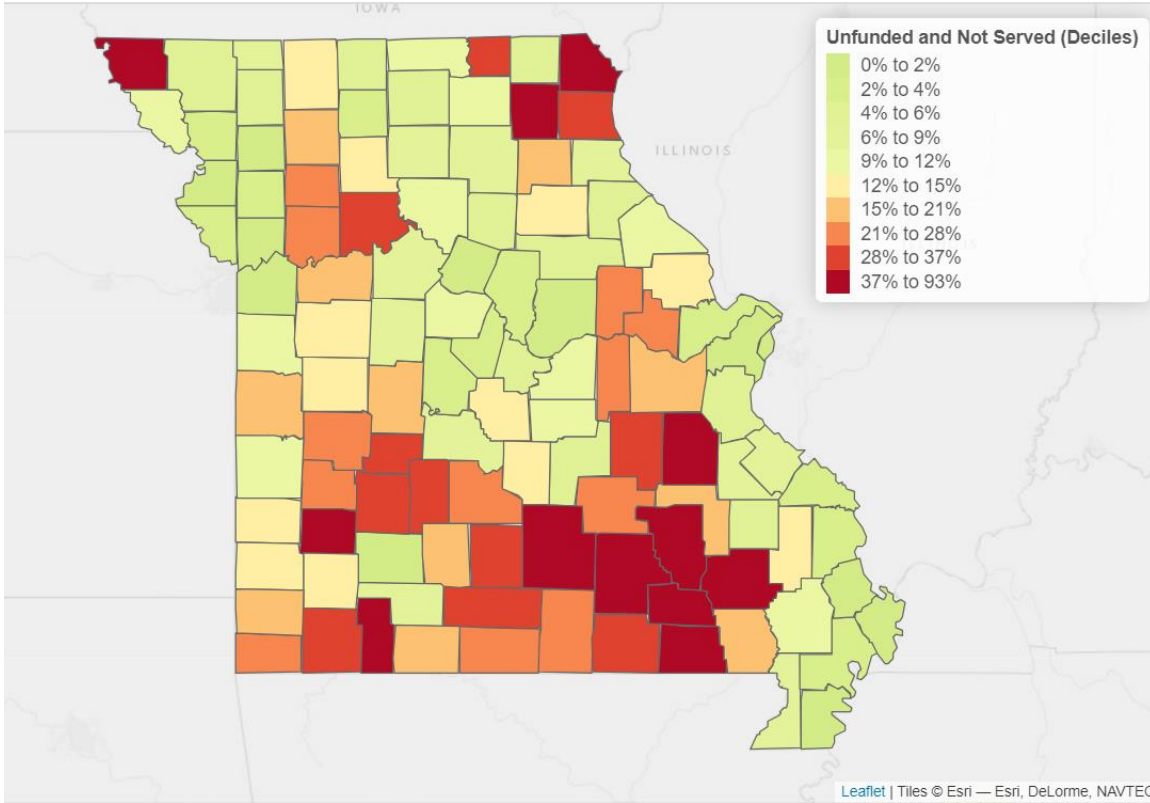


Figure 2: Missouri counties by the percentage of broadband serviceable locations that are either unserved or underserved with no funding commitment.

TEN MISSOURI COUNTIES WITH THE HIGHEST PERCENT OF LOCATIONS UNSERVED AND UNDERSERVED OUTSIDE OF FUNDED AREAS

COUNTY	UNSERVED OR UNDERSERVED AND UNFUNDED PERCENT
Carter	93%
Knox	66%
Texas	59%
Shannon	54%
Clark	51%
Stone	46%
Reynolds	43%
Atchison	42%
Ripley	40%
Washington	39%

Five Year Action Plan

State of Missouri

Enhanced Use of Information to inform broadband deployment

The figures above were calculated by OBD on the basis of the FCC National Broadband Map and publically available datasets from broadband funding agencies. Both availability and funding data are subject to change, and in some cases new data and analysis is needed to more precisely identify the locations where additional resources for broadband deployment are needed. Data reported on the FCC National Broadband Map is subject to a challenge process. A very high proportion of challenges filed against service in Missouri that was not withdrawn by the challenger, and more than half of challenges filed in total, resulted in changes in service. That high success rate is at least suggestive of a need for further improvements in broadband mapping through future iterations of the FCC broadband map, the state challenge process, and Missouri's broader state broadband mapping effort. Despite outreach efforts by OBD and other broadband stakeholders, a small portion of Missourians had an opportunity to participate in the challenge process, leaving the possibility that each successful challenge represents a larger number of similarly situated homes and businesses who were not challenged.

Data challenges specific to two specialized cases not well captured by the National Broadband Map – multi-dwelling apartment buildings and community anchor institutions – are discussed in the relevant sections below.

Service to Community Anchor Institutions

Community anchor institutions, including schools, libraries, and healthcare providers, are vital links for otherwise unconnected Missourians and have specialized broadband needs. These needs are recognized in the BEAD program through its provision for 1 Gbps symmetrical service to community anchor institutions without access to that level of service. Limited data collection about the extent to which these locations lack access make it challenging to document the extent of the gap between the services needed by these institutions and the service available with currently deployed infrastructure. The FCC National Broadband Map records 1,908 community anchor institutions in Missouri but does not, as a matter of policy, collect data about speeds available to these institutions. A small number of community anchor institutions in the June 2023 fabric can be matched to location ids with the most recently reported availability data, but this is not a systematic account of gaps in community anchor connectivity.

Five Year Action Plan

State of Missouri

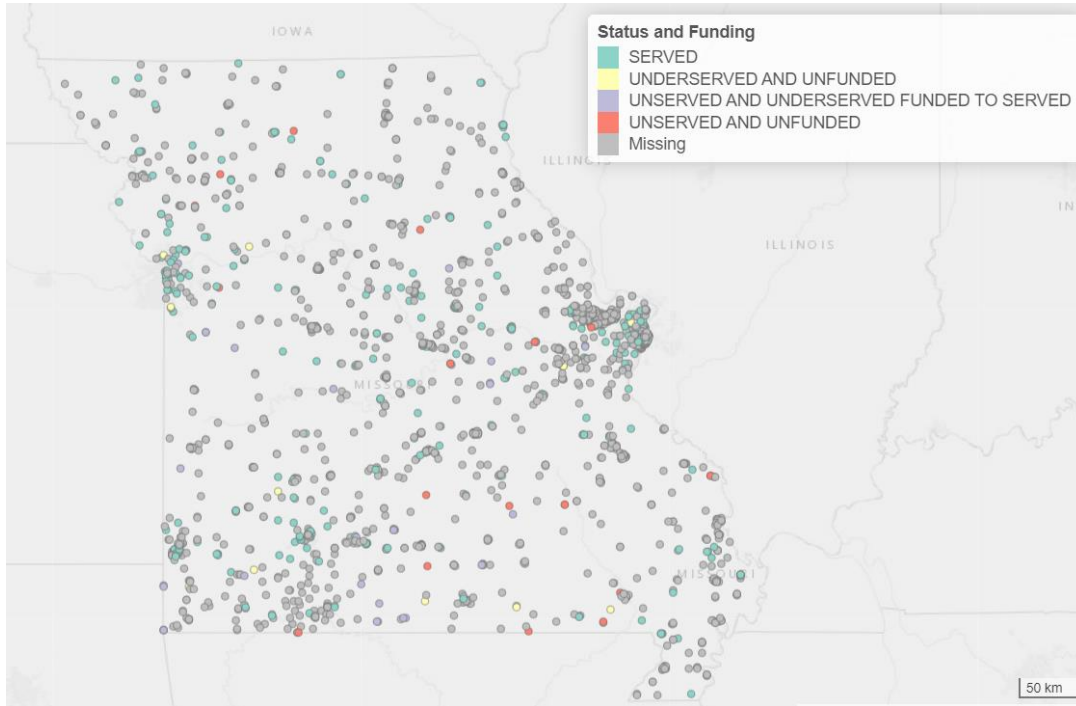


Figure 3: Map locations identified as community anchor institutions on the FCC National Broadband Map. Where speeds were reported for the location on the December 2022 vintage of the National Broadband Map that status, as well as relevant funded projects, are listed here.

FUNDING AND SERVICE STATUS	NO DATA	SERVED	NOT SERVED, FUNDED	UNSERVED, UNFUNDED	UNDERSERVED, UNFUNDED
FCC MAP ANCHORS	1,561	288	26	20	13

Many community anchor institutions in Missouri are served by the state’s research and education network, MOREnet. MOREnet provides 322 unique connections to K-12 schools, 212 unique connections to libraries, 51 unique connections to institutions of higher education, and a smaller number of connections to state and local government institutions and non-profits. Community anchor institutions falling outside of this system are more likely to need improved connections to reach 1 Gbps.

OBD plans to gather higher quality data as the state prepares to implement the BEAD program. Representatives of community anchor institutions can currently self-identify and provide information about their broadband speeds using the [asset mapping tool](#) created by the University of Missouri’s Center for Applied Research and Engagement Systems (CARES).

Service to Units in Multi-Dwelling Buildings

There are cases in which residents in some units within an apartment building are unable to subscribe to internet service due to inadequate internal infrastructure, while service is reported for the building as a whole in the National Broadband Map. In the case of both multi-dwelling

Five Year Action Plan

State of Missouri

residential buildings and community anchor institutions, Missouri’s gap consists of both an on-the-ground deficiency in deployment and a limitation in terms of available data sources that make that deficiency hard to document. The figures in the table below reflect service to multi-dwelling buildings as a whole, not service to units, and it may be that some of the slightly more than 200,000 served MDUs should be treated as unserved or underserved for the purposes of the BEAD program.

FUNDING AND SERVICE STATUS	SERVED	NOT SERVED, FUNDED	UNSERVED, UNFUNDED	UNDERSERVED, UNFUNDED
Multi-unit BSLs	201,228	9,992	7342	3,682

Increased workforce available to deploy broadband

Success in resolving these deployment challenges will require intensified deployment activity, inside and outside of grant-funded projects. This will, in turn, require a large and capable broadband workforce. A NTIA analysis of publically available workforce data shared with the State of Missouri projected a deficit of 32,600 full-time equivalent positions in broadband-deployment related fields, with demand induced by BEAD funding accounting for 8.6 percent of the deficit, accounting for 3,400 positions. Missouri’s broadband workforce stakeholders – including employers, workers organizations, OBD and other broadband programs, and workforce training institutions – will need to recruit and train these workers.

BEAD Occupation Group	BEAD Demand (FTEs)	Cross-Industry Deficit (FTEs) ¹	Deficit / Supply ²
2026 Totals	(3.4K)	(32.6K)	-8.6%
Laborers and material movers	(1,139)	(10,497)	-8.3%
Trucking crew	(862)	(6,649)	-6.3%
Software engineers	(295)	(3,932)	-12.5%
Fiber and wireless technicians	(241)	(2,257)	-8.5%
Equipment operators	(231)	(1,935)	-5.1%
Trenchers	(155)	(2,629)	-15.5%
Network architects and coordinators	(127)	(1,086)	-8.0%
Master and stage electricians	(117)	(1,497)	-11.7%
Structural engineers	(106)	(676)	-6.1%
Surveyors and drafters	(66)	(514)	-8.2%
RF & field engineers	(51)	(367)	-3.1%
Inspectors (e.g., permit, health & safety)	(37)	(522)	-13.5%

Figure 4: NTIA State Workforce Research Findings: Missouri

Data reviewed by Missouri’s Department of Higher Education and Workforce Development (DHEWD) and presented to OBD focused on two relevant job categories: Tele-communications Equipment Installers and Repairers and Telecommunication Line Installers and Repairers. The analysis found that Missouri employers appears to employ a relatively large number of

Five Year Action Plan

State of Missouri

individuals in both categories (relative to the state’s share of the nation’s population) and that the state’s mean wage is somewhat below the wage of the median state.

The Missouri Economic Research and Information Center, a research division within DHEWD, had projected a small decline in employment in these two occupations between 2020 and 2030 in Missouri, as did a nation-wide projection over the same period published by the Bureau of Labor Statistics (BLS). More recently published BLS figures covering the period from 2021 to 2031 projected substantial gains in employment in these categories.

	Estimated Missouri Employment	State Rank in Estimated Employment	Annual Missouri Mean Wage	State Rank in Annual Mean Wage	Missouri Projected growth 2020-2030	U.S. Projected growth 2021-2031
Telecommunications Equipment Installers and Repairers	3,320	#16	\$61,020	#26	-2.6%	8.1%
Telecommunications Line Installers and Repairers	2,870	#9	\$59,910	#31	-0.7%	9.2%

Broadband Adoption

Increased Household Broadband Subscription

Broadband adoption is an important factor in the success of deployment projects, both in terms of the financial viability of new networks and in terms of the substantive goals of broadband funding programs. A program that extends the availability of service that is not actually used will not “Connect All Missourians.”

The 2017-2021 American Community Survey (ACS) reports that 85.1 percent of Missourians have a broadband subscription. These individuals are concentrated in the most urban and rural parts of the state.

Five Year Action Plan

State of Missouri

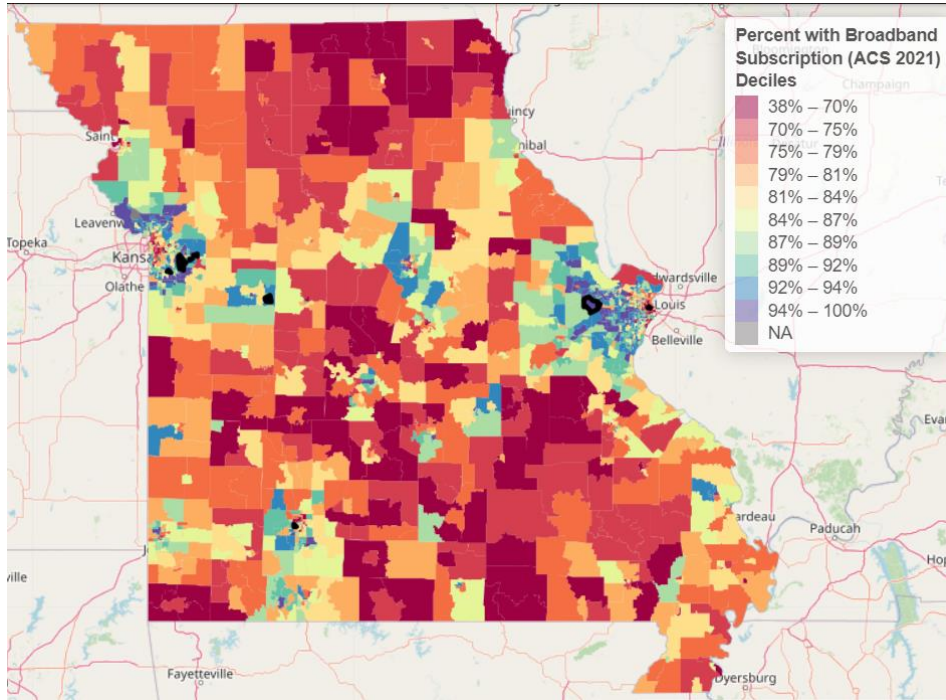


Figure 5: Missouri Census Block Groups by Percentage of the Population with a Broadband Subscription.

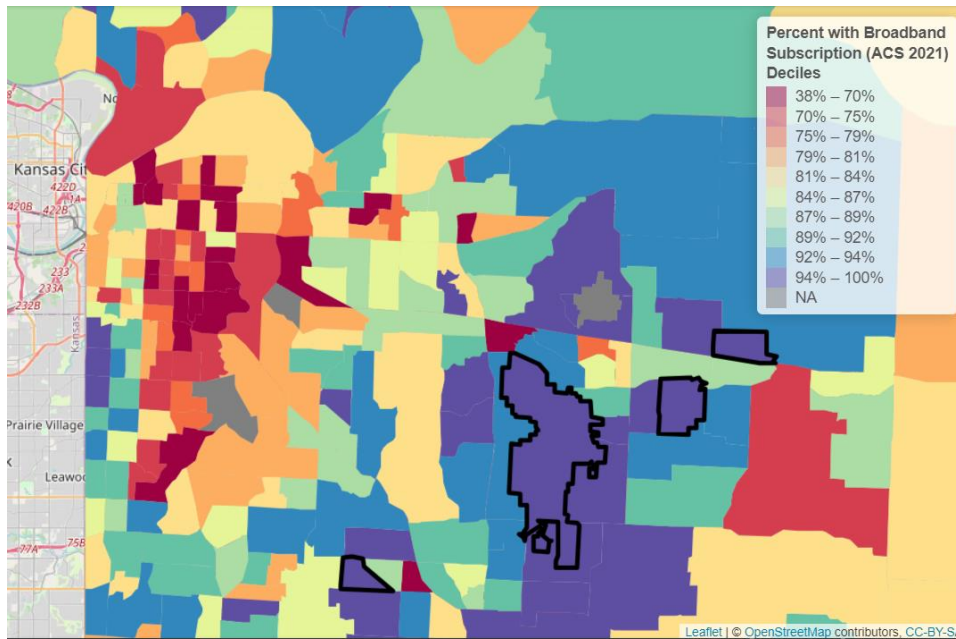


Figure 6: Broadband Subscriptions in the Kansas City Metro Area. Block groups outlined in reported the highest (100%) or the lowest percent in the state.

Five Year Action Plan

State of Missouri

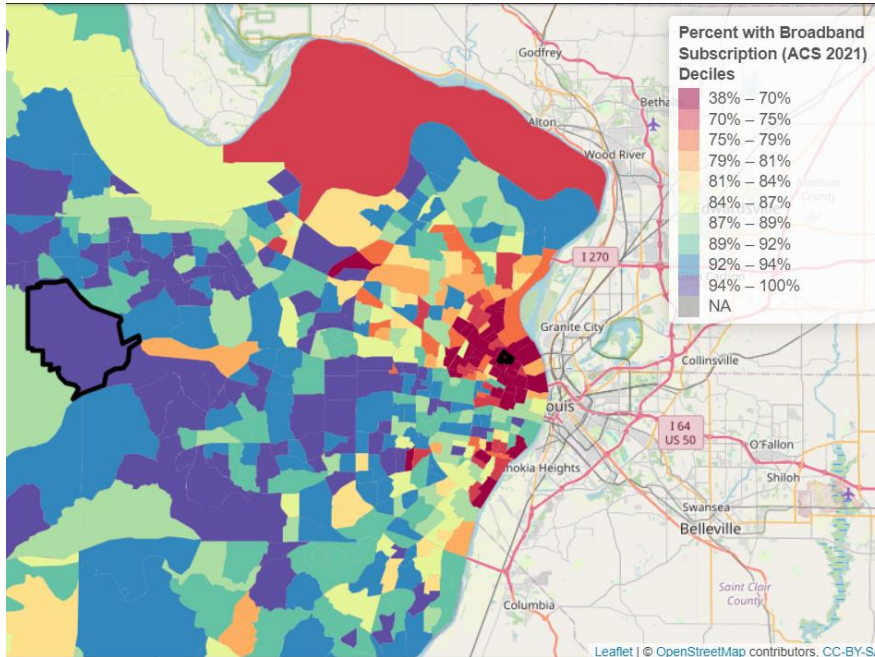


Figure 7: Broadband Subscriptions in the St. Louis Metro Area. The block group with the lowest rate of broadband subscriptions in the state is in North St. Louis

The fact that urban areas where broadband infrastructure is generally well-established feature the lowest rates of broadband subscriptions, in the state, suggest that a deployment program alone may reduce, but will not eliminate the roughly 15 percent of Missourians without subscriptions. The fact that these urban areas are in the lowest-income part of the state suggests an important factor driving broadband-adoption that the state will need strategies to address.

The 2023 Missouri Internet Survey provides a more in-depth account of who does not subscribe and why. The survey found that only 4 percent of Missourians who reported that internet service was available at their home chose not to purchase those services. An additional 9 percent of Missourians reported either that service was not available or that they did not know whether it was available. Among the subgroups examined in the survey, very low-income households (with incomes less than \$35,000), households in rural low-access areas (zip codes where less than half of locations have at least 25/3 Mbps service), and smartphone-only households were the least likely to purchase internet service. In connection with potential adoption rates associated with BEAD-funded broadband areas, it is interesting to note that respondents from households in rural low-access areas subscribed at a very high rate when they knew service was available, comparable to the rate for the survey as a whole.

Five Year Action Plan

State of Missouri

Answer	Households Less than \$35,000	< Half Locations with 25/3+ Mbps	Smartphone Only
Yes	78%	82%	52%
No	22%	18%	48%
Internet service not available	9%	13%	23%
Chose not to purchase	10%	3%	18%
Do not know if available	3%	2%	6%

Figure 8 Groups least likely to have an Internet Subscription. See Exhibit 7, Missouri 2023 Internet Survey.

Figure 8: Missouri Internet Survey Exhibit 7 – Groups least likely to have an internet subscription

The survey examined the factors that drove non-adoption among individuals who reported that internet service was available, which may help identify the strategies that could prompt higher degrees of adoptions. Since it was not possible, for the purposes of the survey, to determine whether the service available was broadband service by BEAD definitions, some of the challenges reported here including high-costs, internet speed, and internet reliability may be addressed by future deployment of improved infrastructure, regardless of any specific broadband adoption strategies the state adopts. Price was a common factor in non-purchase for all categories, but it appears to be a more dominant factor for households in metro areas where high-speed broadband is much more likely to be available, suggesting that its importance may increase as broadband infrastructure reaches currently unserved areas.

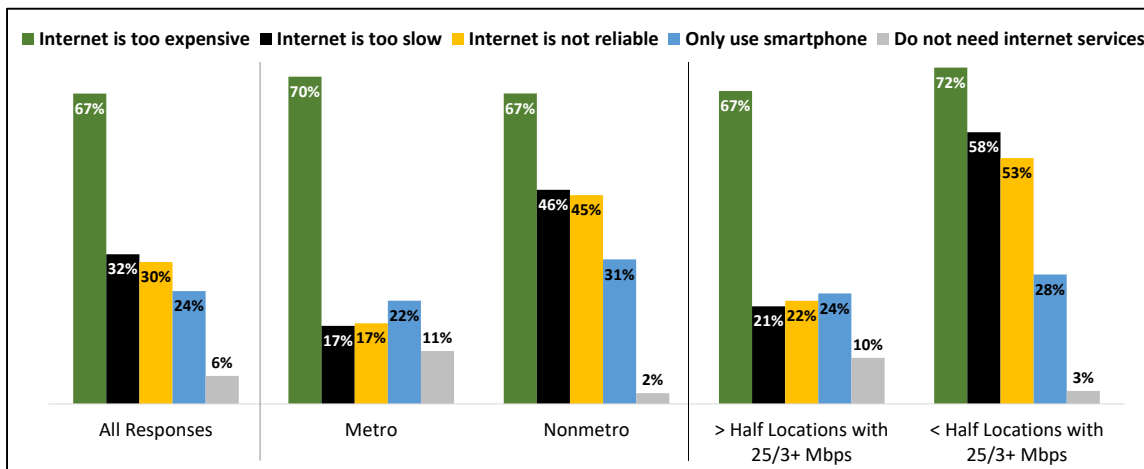


Figure 9: Missouri Internet Survey Exhibit 8 - “Why did you not purchase home internet services,” among households that reported that internet service was available.

Improved Digital Literacy

It may be that improved knowledge about the internet would persuade some of the 6 percent of non-subscribing Missourians who indicated that they do not need internet services that these

Five Year Action Plan

State of Missouri

services could play a useful role in their lives, or encourage individuals who did not subscribe for other reasons that these services are worth the cost or inconvenience. The high portion of Missourians (96%) who subscribe when Internet service is available suggests that lack of familiarity with internet use is not a major barrier in adoption decisions when compared to other factors, especially cost.

The above only discusses the issue of digital literacy in the context of the decision to purchase any sort of internet option. There are other compelling reasons to invest in digital literacy in relation to broadband deployment. Improved digital skills may allow Missourians to make the most of newly available internet services, increasing the returns of broadband deployment dollars in terms of the welfare of the population and economic prosperity. It may also help households identify the level of internet service appropriate to their goals and needs, including higher speed service as it becomes available.

Questions asked in the 2023 Missouri Internet Survey may help identify the areas of concern that prevent Missourians from making full use of the Internet, as well as the activities in areas where respondents indicated that they would like training or assistance.

Training or Assistance Topic	Percent
Finding information and resources I trust	33%
Setting up or using new devices	28%
Accessing health care resources online	25%
Accessing education resources online	23%
Using devices/internet to connect with family and friends	21%
Gaining job skills online	21%
Managing and paying bills online	20%
Using the internet to buy things or services	19%
Using devices/internet to start or manage a business	19%
Not interested in any of these topics	44%

N = 7566. Response weighted by household income.

Figure 10: Missouri Internet Survey report Exhibit 25 – Which of the following areas would training or assistance interest you or others in your household?

Concerns	Percent
Security of personal information	80%
Getting viruses on my computer	65%
Websites tracking me/us	64%
Misleading information	56%
Surveillance	44%
Negative influences (i.e. cyberbullying)	30%
No concerns	10%

N = 7614. Response weighted by household income.

Figure 11: Missouri Internet Survey report Exhibit 29 – Which concerns do you have about internet use?

Five Year Action Plan

State of Missouri

Notably, across almost all of these categories, low-income households, people with employment challenges, and non-white people were more likely to indicate concern or interest in further assistance. Any programs implemented would need to reach these populations.

Increased access to internet-capable devices

Based on responses to the ACS conducted between 2017 and 2021, 92.1 percent of Missourians had a computer at home. There is a strong correlation between areas with low levels of home computers and low levels of broadband adoption, based on ACS data, perhaps because of the strong association of both with high levels of poverty.

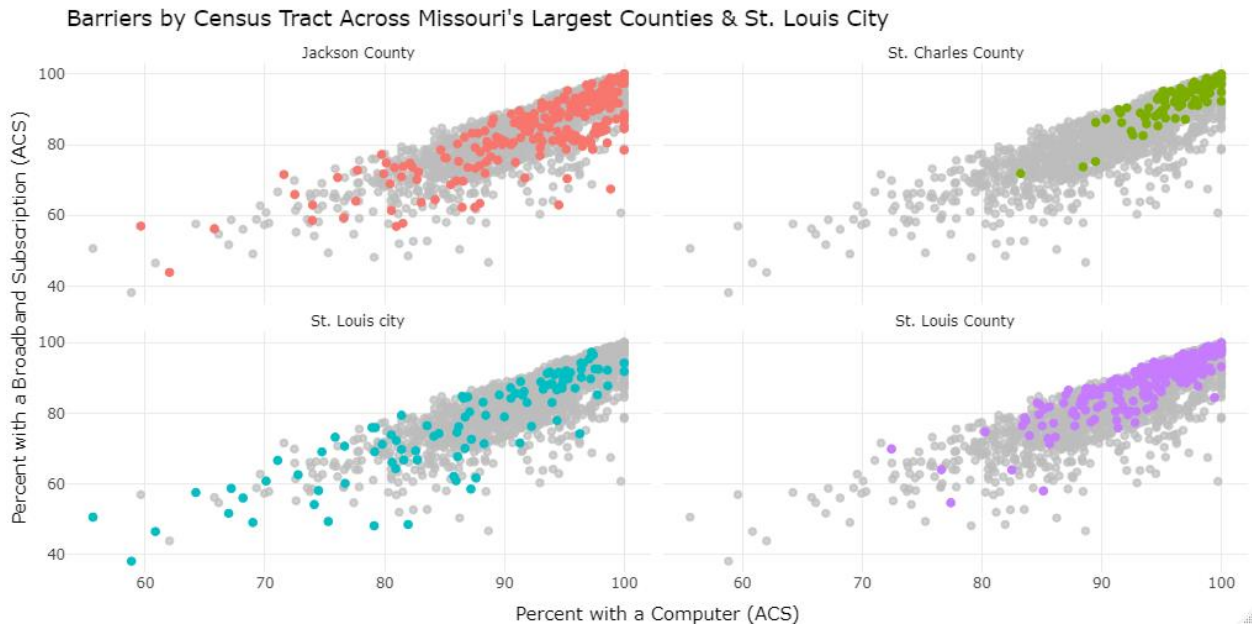


Figure 12: Data taken the American Community Survey 2021 5-Year Estimate. Highlighted counties were the four largest counties by population on the 2020 Census.

As was the case with broadband adoption rates in general, ACS data shows low rates of home-computer presence to be concentrated in low-income urban and rural areas.

Five Year Action Plan

State of Missouri

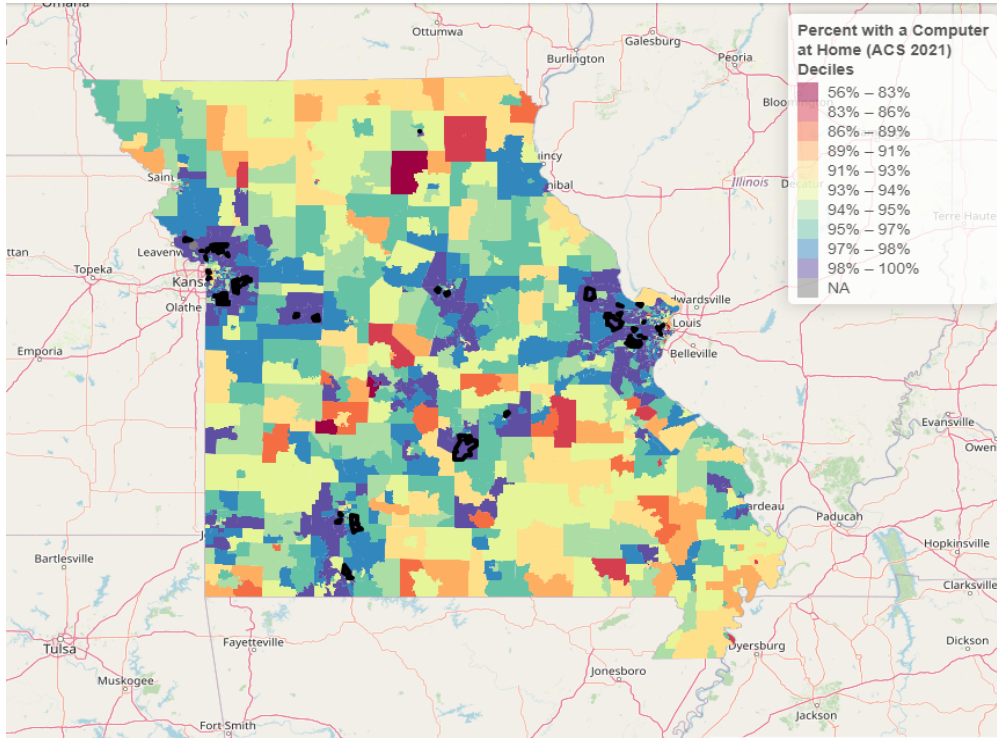


Figure 13: Missouri Census Block Groups by Percentage of the Population with a computer at home from the American Community Survey 2021 5-Year Estimate

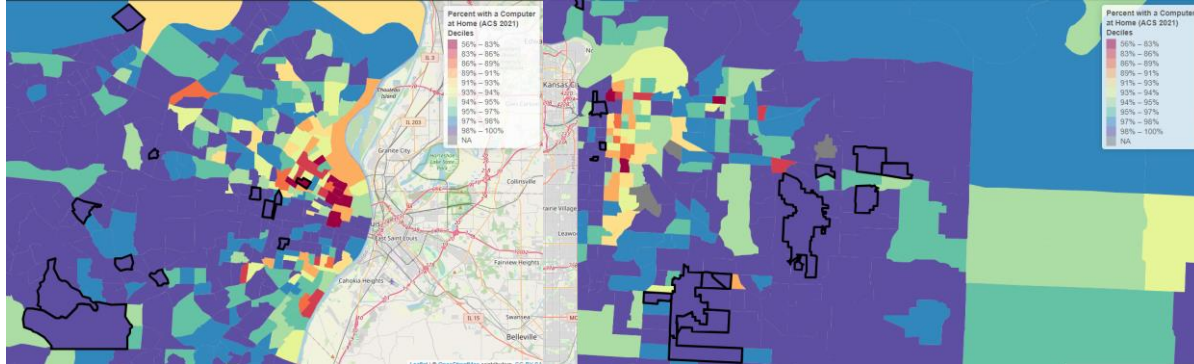


Figure 14: Computers at home within the St. Louis and Kansas City metropolitan areas. Census block groups outlined in black reported the highest and lower levels of home computer availability in the state.

Findings of the 2023 Missouri Internet Survey support the idea that homes without a computer are also less likely to adopt broadband. Smart-phone only households were one of the groups the survey found were most likely to have chosen not to purchase available internet services (18 percent of smart-phone only households, compared to a 4 percent survey average). For these households, inability to afford a device is likely part of an intersecting series of barriers to getting online, which also includes the cost of internet service. While Missouri does host refurbishment programs that help low-income people access broadband services, measures to strengthen and increase the reach of these programs, identify additional sources of refurbishable

Five Year Action Plan

State of Missouri

computers, and encouragement of participation in the device subsidy portion of the ACP by internet service providers will be necessary if Missouri is to overcome this hurdle to the adoption of deployed broadband.

Broadband Affordability

As noted above, the question of broadband adoption in places where broadband deployment has already occurred is intimately connected to broadband affordability. As the broadband availability footprint expands, the broadband access challenge will increasingly be a matter of inability to afford service over existing infrastructure.

Increased support for enrollment in assistance programs (such as ACP) for low-income consumers

Missouri is working to identify strategies for encouraging sign-ups to the ACP and other programs that subsidize internet service to low-income people. OBD's outreach around the state during the Connect All Missourians tour brought up many concerns about the usability of the ACP from the perspective of consumers, providers, and organizations promoting the program. One internet service provider indicated that their company had opted to provide an equivalent subsidy at their own cost rather than depending on the ACP, given the difficulty the company experienced using the ACP. Findings from focus groups conducted by the University of Missouri as part of the broadband planning process found that the ACP played an important role in broadband access for those who took advantage of the program, but found that many potential participants did not know about the program or struggled to sign up. These challenges presumably account for the fact that less than a third of Missourians estimated to be eligible for the ACP were enrolled in April 2023, according to data analysis conducted by the Local Initiative Support Corporation.

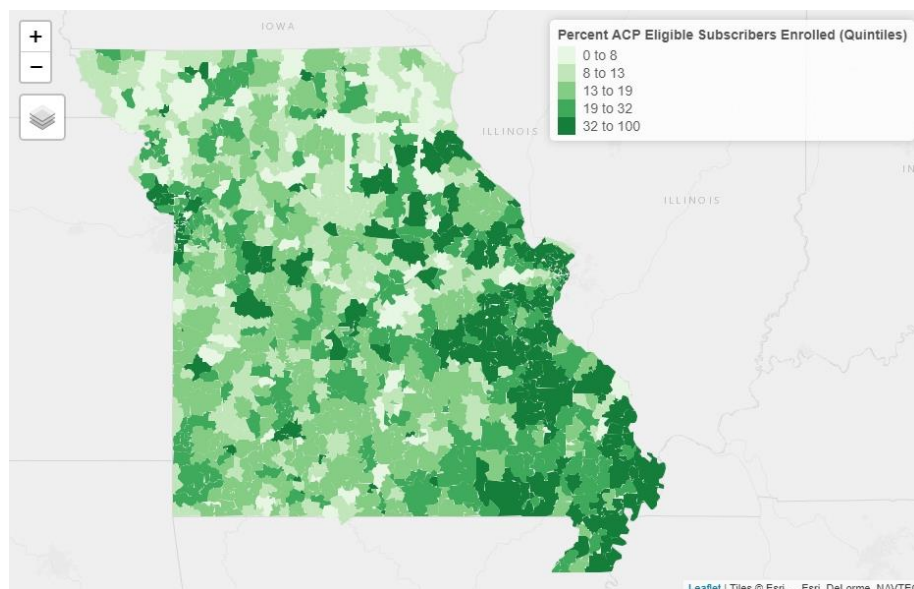


Figure 15: Figure 15: The percent of estimated eligible ACP subscribers based on income calculated by the Local Initiative Support Corporation.

Five Year Action Plan

State of Missouri

The act of signing up for any ACP plan does not guarantee that the consumer is getting the most out of the program. Support for ACP sign-ups can also help guide participants to subscription options that are appropriate for their needs and financial situation. Participants in stakeholder meetings with familiarity with the ACP sign-up process expressed concerns that ACP participants were being guided into high-cost plans that exceeded their realistic household needs and resulted in significant costs even when the ACP subsidy was applied.

Increased Financial Assistance for low-income consumers

Of Missourians who did pay for internet access, almost half of respondents to the 2023 Missouri Internet Survey reported that excessive costs were a challenge in their use of home internet. High prices were also the most common reason given by individuals who had internet service available to them, but did not subscribe.

Monthly Cost	Percent
Less than \$25	3%
\$25 - \$49.99	14%
\$50 - \$74.99	39%
\$75 - \$99.99	25%
\$100 or more	19%

N = 4473 respondents with internet-only cost.
Response weighted by household income.

Figure 11: Missouri Internet Survey Report Exhibit 10. What is your monthly internet cost?

Type of Service	Monthly Cost
All Responses	\$71
Satellite	\$87
Cable	\$73
Fixed wireless antenna	\$72
Cellular data plan or hotspot	\$68
Fiber optic	\$67
DSL	\$64

N = 4060 respondents answering for type of service and internet-only cost, not bundled packages. Only types with at least 250 responses are shown.

Figure 12. Missouri Internet Survey Report Exhibit 12: Typical Cost by Service Type.

Findings from a series of focus groups conducted as part of OBD’s broadband planning process reinforced the idea that inability to pay high internet costs poses connectivity challenges for Missourians and pointed to some nuances not available from survey data. In addition to preventing Missourians from subscribing at all, respondents noted that they felt they had to add and drop service from month to month as their household budget situation changed or subscribe to service that did not meet all of their needs. This finding about unstable broadband subscriptions as household budgets change suggest that questions about broadband subscription rates on the Missouri Internet Survey or the American Community Survey capture

Five Year Action Plan

State of Missouri

only a portion of the population that would not have broadband access at some point of a given year. Respondents also expressed concern about rising prices of internet service.

A review of statistics from the St. Louis metropolitan area speaks to the way the issues of price, capacity to pay, and broadband options reinforce each other. Parts of the region with relatively low incomes are also areas with low broadband subscriptions. These neighborhoods, in turn, are actually charged more for broadband, according to data compiled by [BroadbandNow](#). This may be because these areas are less attractive as a business proposition for new broadband service providers and attract less competition that drives down prices. Regardless of the reason, this data suggests Missourians with the least resources are asked to pay more for a basic level broadband service. With some exceptions, these urban areas will not be eligible for BEAD deployment dollars, as they are generally served by at least one and sometimes several high speed providers. A strategy to improve the range of options available to these populations is a major need if Missouri is going to reach universal connectivity.

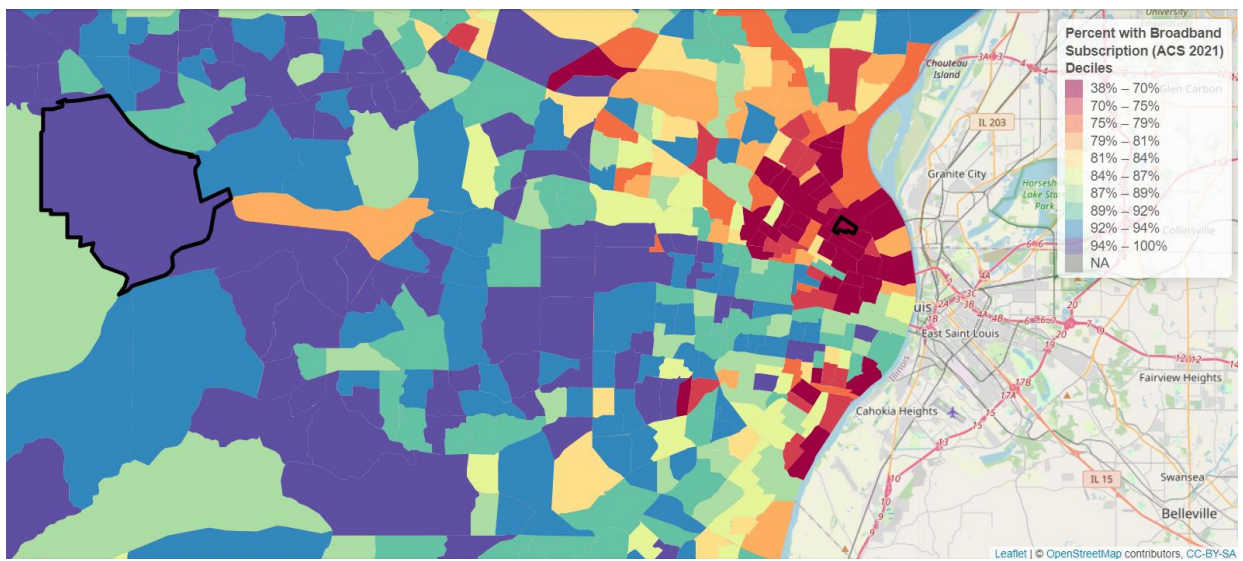


Figure 18: 2021 American Community Survey households with a broadband subscription, St. Louis metropolitan area.

Five Year Action Plan

State of Missouri

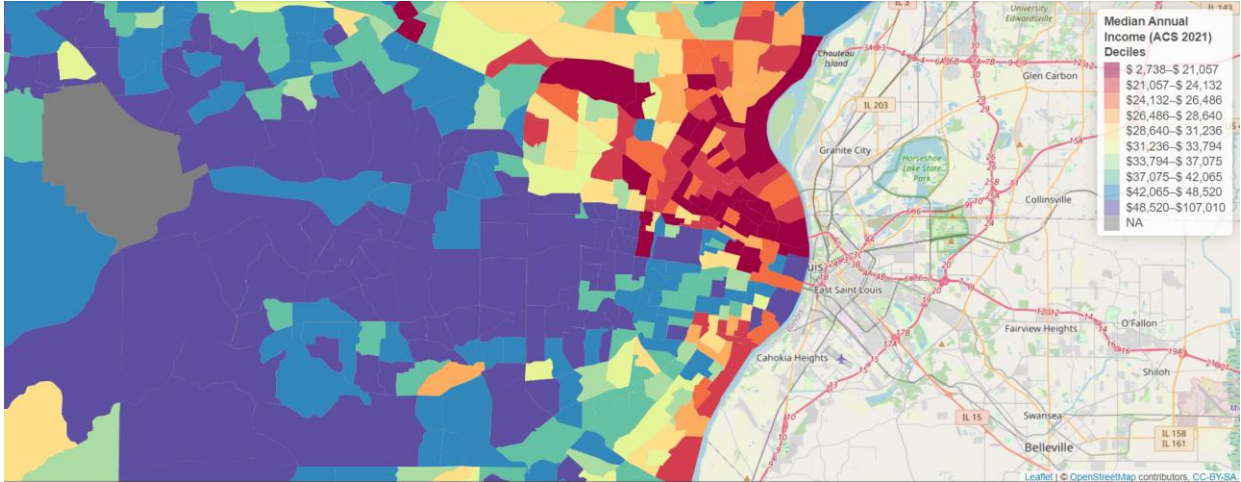


Figure 19: 2021 American Community Survey median annual income, St. Louis metropolitan area

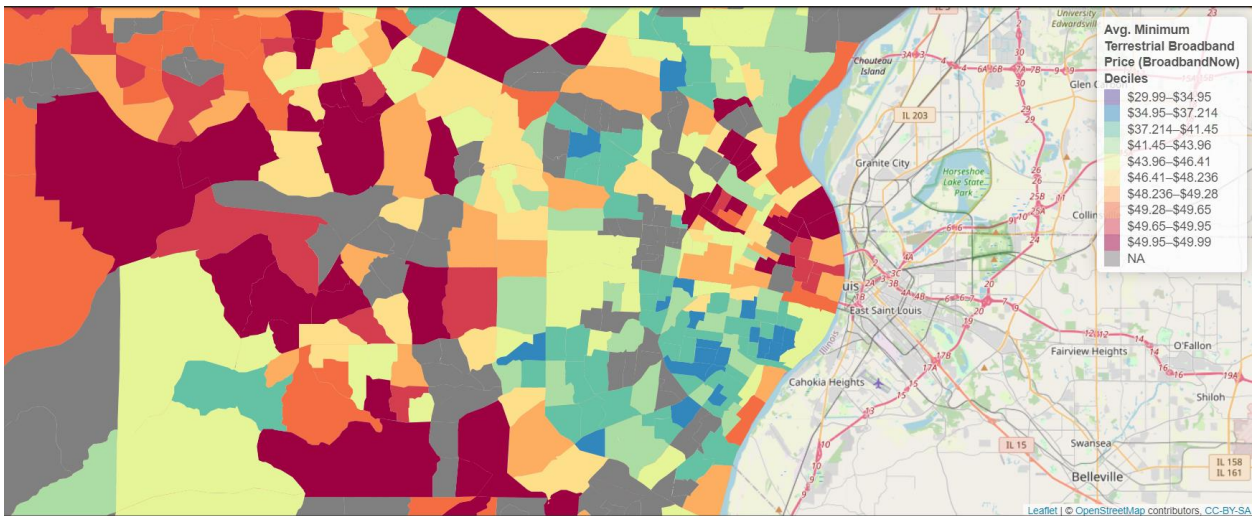


Figure 20: Average price of the lowest tier broadband plan based on data gathered by BroadbandNow.

The challenges discussed in this section exist in the context of the ACP, which despite limited participation helps many more Missourians afford broadband access. This need would be exacerbated if the ACP runs out of funds without Congressional action to extend the subsidy. Regardless, Missouri will need to further consider how to encourage broadband affordability independent of the ACP.

Broadband Access

Middle-Mile Infrastructure

Insufficient middle-mile broadband infrastructure, which connects last-mile, end-users serving local networks to major aggregation points for internet traffic, can be a barrier to the construction of new broadband networks. An August 2022-published report commissioned by OBD by Tilson, a broadband consultant, drew on several datasets to identify Missouri’s middle

Five Year Action Plan

State of Missouri

mile gap. The report documents several areas where low broadband availability for end-users coincided with an apparent lack in middle mile infrastructure, suggesting that insufficient middle-mile might be hindering local broadband development.

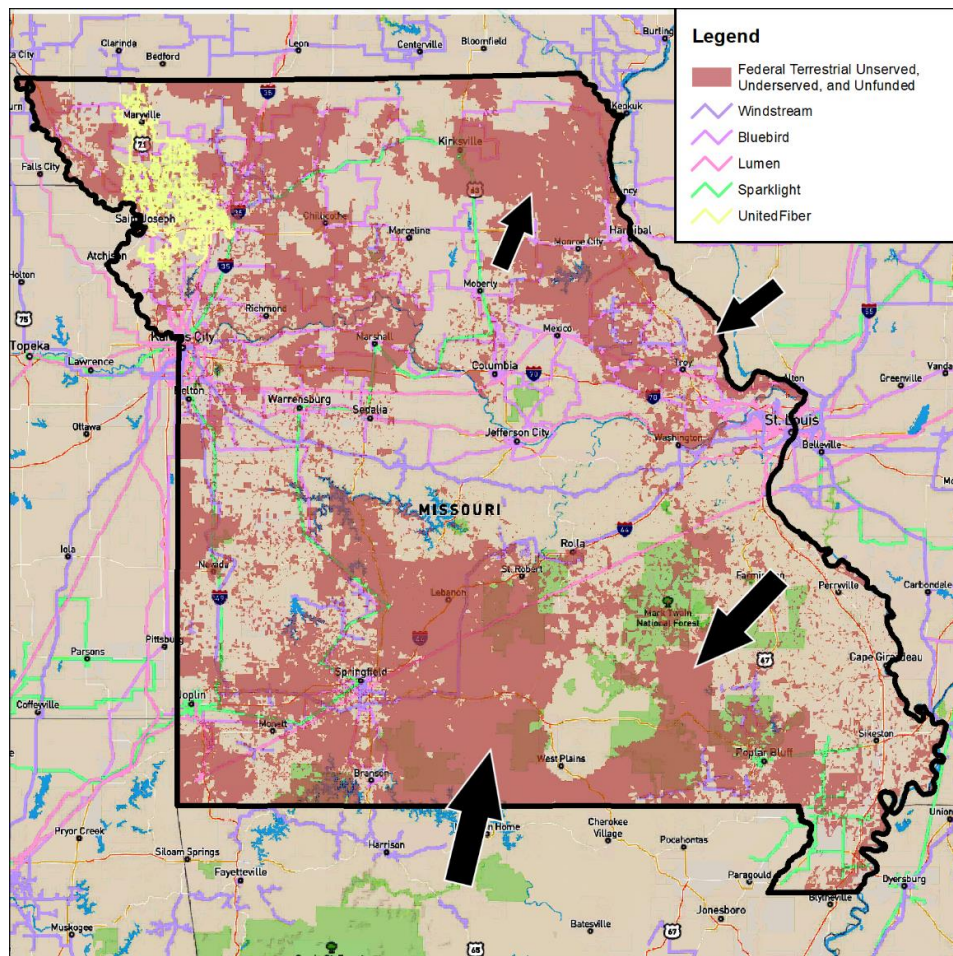


Figure 21: Major Middle-mile Networks of Selected Companies Shown in Connectbase database of middle-mile networks with Gaps Near Last-Mile Gaps. Appears as Fig. 12 in Tilson report.

OBD community engagement efforts in Carter County – within the southeastern gap area identified by Tilson in the Ozarks – confirmed that a lack of middle mile options has been a barrier to broadband development in one of the worst-served counties in the state.

NTIA’s Middle Mile program represented one opportunity to shrink this gap. OBD supported several applicants for middle mile funding as part of that program. An application by the Missouri Network Alliance for a project in Oklahoma and southwestern Missouri did receive funding under the program. Middle-mile gaps remain in other parts of the state, without an immediate prospect for dedicated grant funding to help resolve it.

Five Year Action Plan

State of Missouri

Cellular Service

Poor cellular service has been a frequent complaint from Missourians who participated in the Connecting All Missourians stakeholder engagement activity. Poor cellular service is generally coextensive with poor broadband service, compounding the connectivity challenges for people in these areas. The State of Missouri is using American Rescue Plan Act (ARPA) funding to fund construction and refurbishment of cellular towers in unconnected areas. The level of demand for grant funding through the program will give an indication of what sort of resources would be necessary to reach all of the remaining Missourians without adequate cellular service. While programs in both areas will be judged on their own merits, there may be cases in which infrastructure funded by fixed broadband programming can expand opportunities for mobile broadband and vice versa through co-location and other shared use of infrastructure.

Digital Equity

A comprehensive assessment of Missouri's digital equity needs will be published as part of the state's Digital Equity plan.

4 Obstacles or Barriers

There are multiple barriers that the state of Missouri faces in the execution of its plans for broadband deployment and digital inclusion activities. OBD identified the current and significant barriers below, but recognizes that new obstacles and barriers may surface during the implementation of this plan.

OBD's listening sessions asked attendees to complete a pre-meeting survey reflecting the barriers in their region.

Five Year Action Plan

State of Missouri

For local government/cooperatives and Internet service providers - What are the “roadblocks” that delay or prevent you from providing or expanding broadband in underserved areas of your community? (Check all that apply)

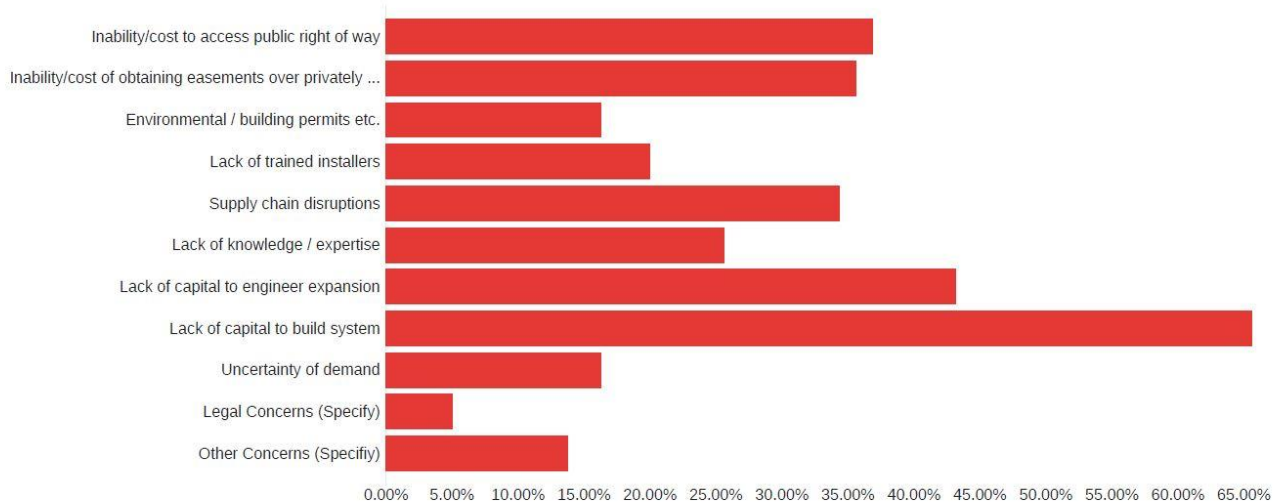


Figure 22: Data from fall 2022 regional engagement listening sessions.

Deployment barriers

Funding gaps, private investment from ISPs – Lack of capital was listed as the number one concern that could delay or prevent broadband expansion. Access to capital at scale is limited for public and private partners, especially the smaller, locally owned providers.

Easements/rights-of-way – As seen in the chart above, access to public right-of-way and obtaining easements are in the top five roadblocks listed. It was mentioned at the majority of our listening sessions, a need for streamlined and standardized processes for obtaining easements and permits. Each local government has its own permitting guidelines and rules, making it difficult and time consuming for internet service providers that cover multiple counties/cities/towns with a project.

Terrain – There are rural regions within the state that consist of large amounts of land with low population density per square mile. These areas are too costly for ISPs to build to without the use of secondary funding sources or passing the cost on to the end user. Challenging terrain, including rocky areas, hills, and foliage, especially in the South Central, Ozarks, and Northeast regions of the state pose a barrier to deploying fiber in a cost efficient way.

Middle mile access – Insufficient middle-mile broadband infrastructure, which connects last-mile, end-user serving local networks to major aggregation points for internet traffic, can be a barrier to the construction of new broadband networks. An August 2022-published report commissioned by the Office of Broadband Development by Tilson, a broadband consultant,

Five Year Action Plan

State of Missouri

drew on several datasets to identify Missouri’s middle mile gap. The report documents several areas where low broadband availability for end-users coincided with an apparent lack in middle mile infrastructure, suggesting that insufficient middle-mile might be hindering local broadband development.

Potential Barriers – A 2022 report of the Missouri House of Representatives Interim Committee on Broadband Development recommended a series of potential legislative and regulatory changes that could further enable broadband deployment. Areas identified as in need of an overhaul included right-of-way access, make-ready costs, handling of pole attachment disputes, “Dig Once” policies, and other measures to make sure providers can hang or bury fiber without undue delay. These concerns have also been a major theme of OBD’s BEAD public engagement. OBD has also encountered barriers securing federal permits in national forest, parks, and rivers in a timely manner. Difficulty securing relatively quick and accurate siting of underground infrastructure has delayed projects and can be dangerous. The legislation enabling the Missouri One Call System, the point of contact for marking requests, was passed in 1986. There may be opportunities to update the process to be more effective for broadband deployment purposes.

Evolving and fine-tuning data/mapping accuracies - Both availability and funding data from the FCC National Broadband Map and publicly available datasets are subject to change, and in some cases new data and analysis is needed to more precisely identify the locations where additional resources for broadband deployment are needed. Data reported on the FCC National Broadband Map is subject to ongoing updates which will hopefully create a more accurate map for OBD to use during their sub grantee selection process.

Existing Funding programs - The potential that some funded projects through existing commitments may fail creates an-impossible-to-enumerate gap of locations that will not receive service from their funded commitment, and consequently will not be eligible for BEAD funding. A plan and funding that can be spent to help reach these locations could turn out to be a major broadband need in the state of Missouri.

Multi-dwelling units - There are cases where residents in multi-dwelling units are unable to subscribe to internet service due to inadequate internal infrastructure while service is reported for the building on the FCC National Broadband Map. Being able to identify these units will be a challenge.

Labor shortage - An NTIA analysis of publically available workforce data shared with the State of Missouri projected a deficit of 32,6000 full-time equivalent positions in broadband-deployment related fields, with demand induced by BEAD funding accounting for 8.6 percent of the deficit, accounting for 3,400 positions. Missouri’s broadband workforce stakeholders – including employers, workers organizations, OBD and other broadband programs, and workforce training institutions – will need to recruit and train these workers. ISP’s with current obligations are having trouble hiring subcontractors, which in turn are delaying construction start dates.

Supply chain issues – Supply chain issues are anticipated to occur with the overwhelming amount of funding and interest in broadband deployment. There is already difficulty in order

Five Year Action Plan

State of Missouri

backlogs for certain materials and material prices are rising in general. Some providers have tried to address material shortages by partnering with specific manufacturers, but even in this instance, prices are still on the rise. Other providers have ordered material in bulk several years out, but that may not be a viable option with the increasing market for fiber. There is concern that providers may be tempted to purchase lesser quality fiber if they aren't able to obtain fiber from industry qualified vendors.

What are the roadblocks to adoption\subscription to broadband and digital applications? (Check all that apply)

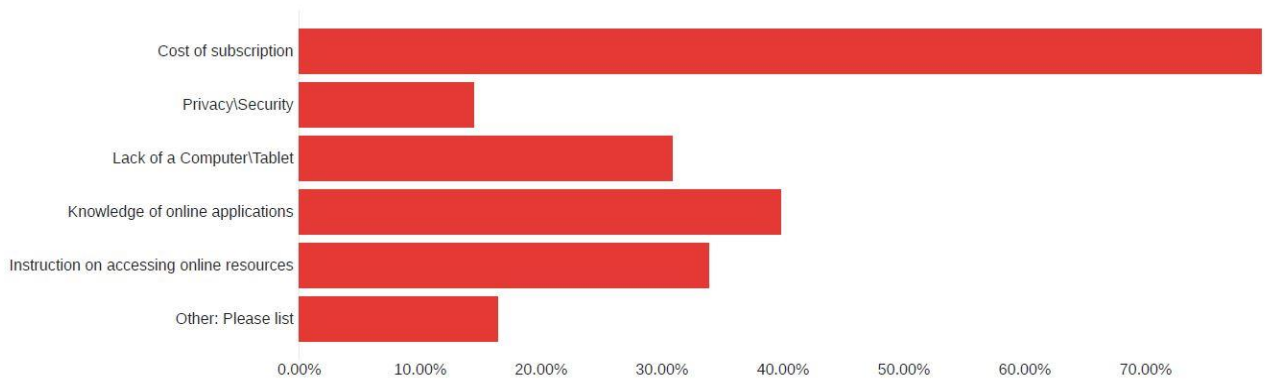


Figure 23: Data from fall 2022 regional engagement listening sessions.

Non-deployment barriers

Affordability – Addressing the cost of broadband subscriptions has been and will continue to be a challenge for the state to connect all Missourians. The chart above shows cost of subscription as being the biggest roadblock to adoption of broadband and digital applications. People have difficulty navigating options, knowing what speeds they need for their specific needs at an affordable price. Many households cannot afford internet services without government subsidies. Many of those same households are not aware of the programs available to assist them.

Device access – An estimated 32.5 percent of Missourians do not have a laptop or desktop and 11.7 percent of households are lacking a broadband subscription. An estimated 275,312 household’s lack access to a smartphone. Missourians without a computer and smartphone are unable to fully participate in today’s economy. Having the device is only half the battle though. The citizen needs to have the right device that fits their needs, with the appropriate applications, and the knowledge to be able to fully utilize said device.

Lack of knowledge – During our listening sessions we heard on several occasions that educating the public of what broadband is, how it can improve their lives, and help them fully

Five Year Action Plan

State of Missouri

engage in the digital economy would help with the uptake of broadband subscriptions. Increasing awareness of affordability programs, digital skills training, and device access requires specific marketing strategies and will be needed for all Missourians to realize that broadband is no longer a luxury, but a necessity for everyday lives in today's economy.

Privacy/Security - Although privacy/security scored lower in the above chart, threats from cybercriminals continue to become more sophisticated. Connecting Missourians to fact-based resources and education to empower confident and safe use of built networks is an important part of the state's mission.

5 Implementation Plan

5.1 Stakeholder Engagement Process

The Missouri Office of Broadband Development (OBD) has conducted significant stakeholder engagement since the inception of the office. During the planning phase of both the BEAD program and DEA our office has remained transparent and available to our stakeholders. Our stakeholder engagement process includes communication, collaboration, and coordination across diverse groups of stakeholders, including all covered populations as outlined in the DEA Notice of Funding Opportunity. Covered populations were reached in several different ways including listening sessions, informational meetings, Missouri internet survey, and state cohorts which are described in more detail below. The Regional Planning Commissions and St. Louis County Library system were tasked with creating regional lists of stakeholders, especially those that are classified as a covered population for outreach efforts from OBD.

The local coordination parameters outlined in the BEAD NOFO were considered throughout the planning process and OBD's stakeholder engagement efforts including:

1. Full geographic coverage
2. Meaningful engagement and outreach to diverse stakeholder groups
3. Utilization of multiple awareness and participation mechanisms and different methods to convey information and outreach
4. Establishment, documentation, and adherence to clear procedures to ensure transparency
5. Outreach and engagement of unserved and underserved communities, including historically underrepresented and marginalized groups and/or communities

The following sections describe how OBD incorporated the local coordination parameters in their efforts.

In-person regional meetings/listening sessions/informational sessions

Our office partnered with the Regional Planning Commissions and the St. Louis County Library system, as well as the University of Missouri system to engage stakeholders within their region of the state by means of sending emails, phone calls, flyers, and connecting with local businesses and organizations to ensure our correspondence is reaching as many citizens around the state. Without strong partnerships like these OBD would not have had as robust of an outreach campaign.

Five Year Action Plan

State of Missouri

The Regional Planning Commissions and the St. Louis County Library hosted and promoted in-person regional engagement meetings. In October and November 2022 OBD conducted their first round of listening sessions across the state. These sessions allowed stakeholders to have their voices heard about what the challenges and barriers are on a regional basis. We split the time at the meetings between the BEAD program and the Digital Equity Act. The first part of these meetings was a presentation on the BEAD program where we shared maps and statistics on a regional basis and information from the Notice of Funding Opportunity. The second part was a presentation on the Digital Equity Act. At the end of each part we opened the meeting for discussion and encouraged attendees to share their experiences about access, affordability, and adoption of the internet. We offered a virtual and phone in option for those who may not have been able to attend in-person. During these 23 listening sessions we heard from over 625 Missourians in the 19 regions of the state. Stakeholders we heard from include, but are not limited to: citizens, local government representatives & elected officials, Internet Service Providers, electric coops, Farm Bureau, USDA, digital inclusion organizations, libraries, schools, banks, chambers of commerce, health care entities, regional planning commissions and University of Missouri Extension.

The findings of these listening sessions are vital to the state receiving federal funding for the expansion of Internet service and the support of digital equity services and programs to connect all Missourians. OBD asked the same prompt questions at all locations to spark conversation. The data below was aggregated into themes based on responses from each of the locations. Key takeaways about the challenges and barriers to broadband and digital inclusion from these meetings include the following.

What one thing could federal, state, or local government do to remove roadblocks to expanding Broadband infrastructure in your communities? (Examples, workforce, terrain, lack of providers, right of way access, cost to construct)?

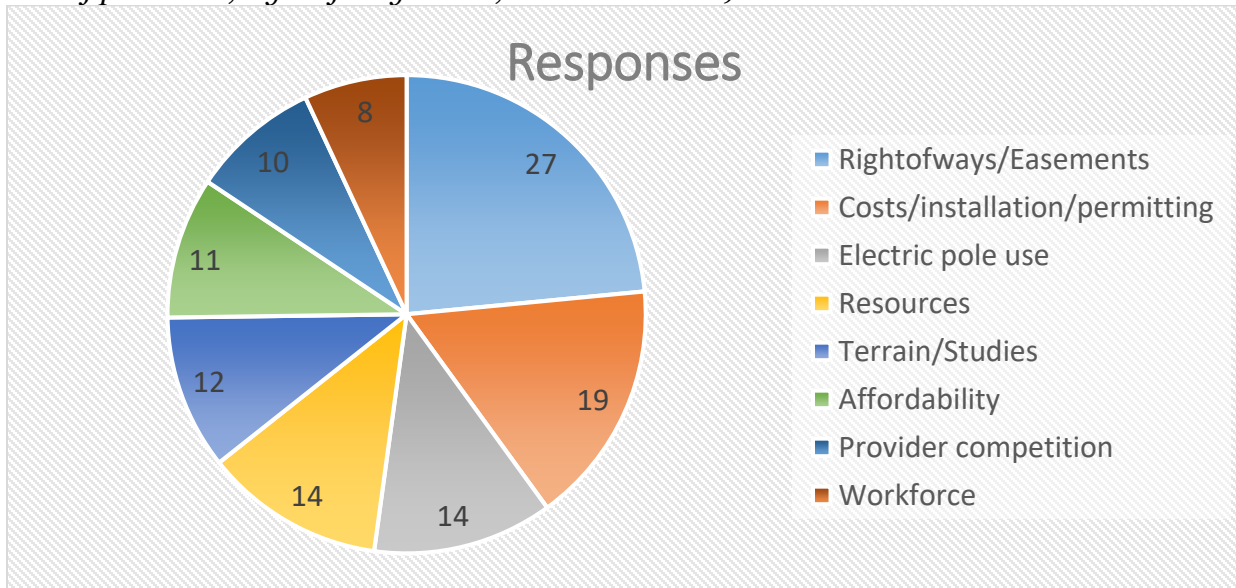


Figure 24: Data from fall 2022 regional engagement listening sessions.

Five Year Action Plan

State of Missouri

What should providers know to better address local government needs?

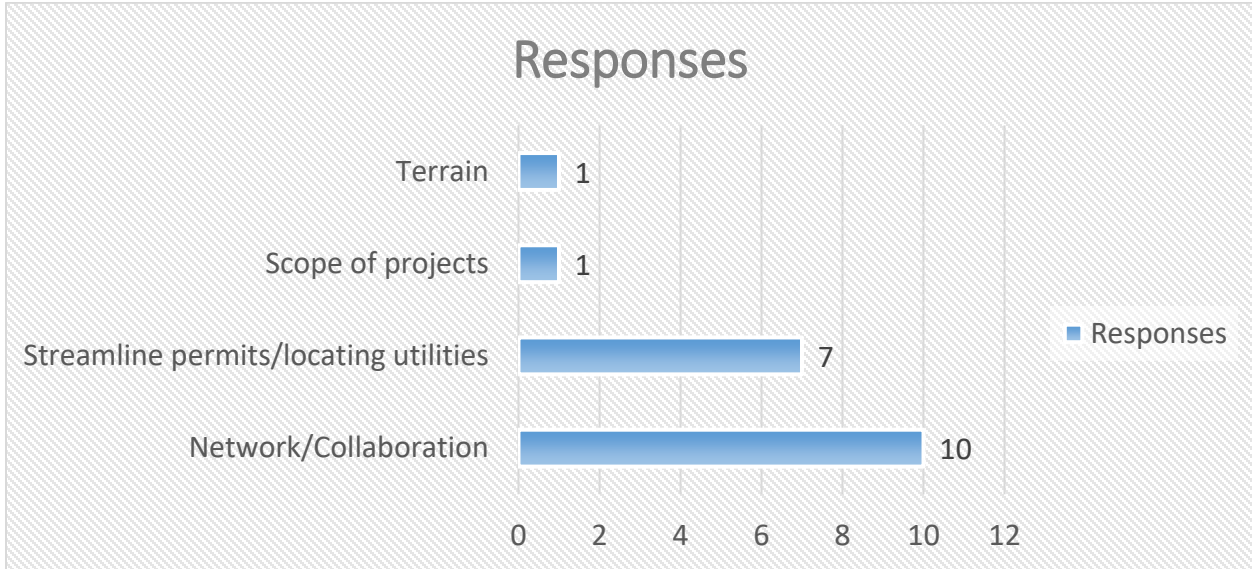


Figure 25: Data from fall 2022 regional engagement listening sessions.

What commitments can local governments make to ease the process of getting projects underway?

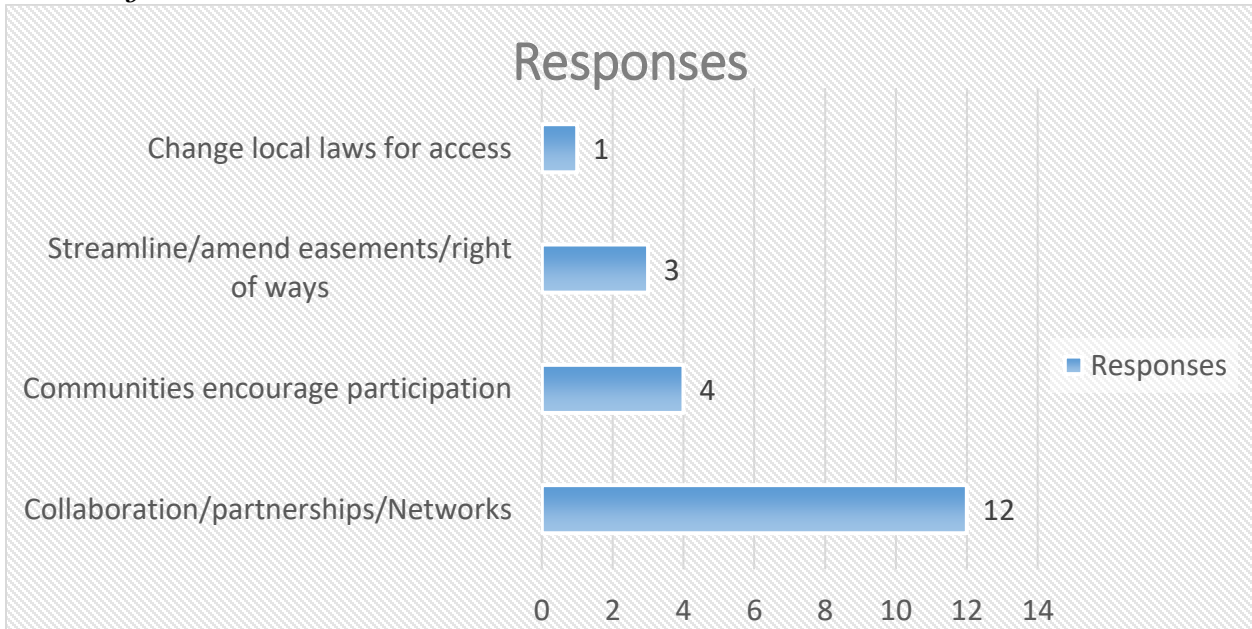


Figure 26: Data from fall 2022 regional engagement listening sessions.

Five Year Action Plan

State of Missouri

What resources are there in the community to address workforce shortages?

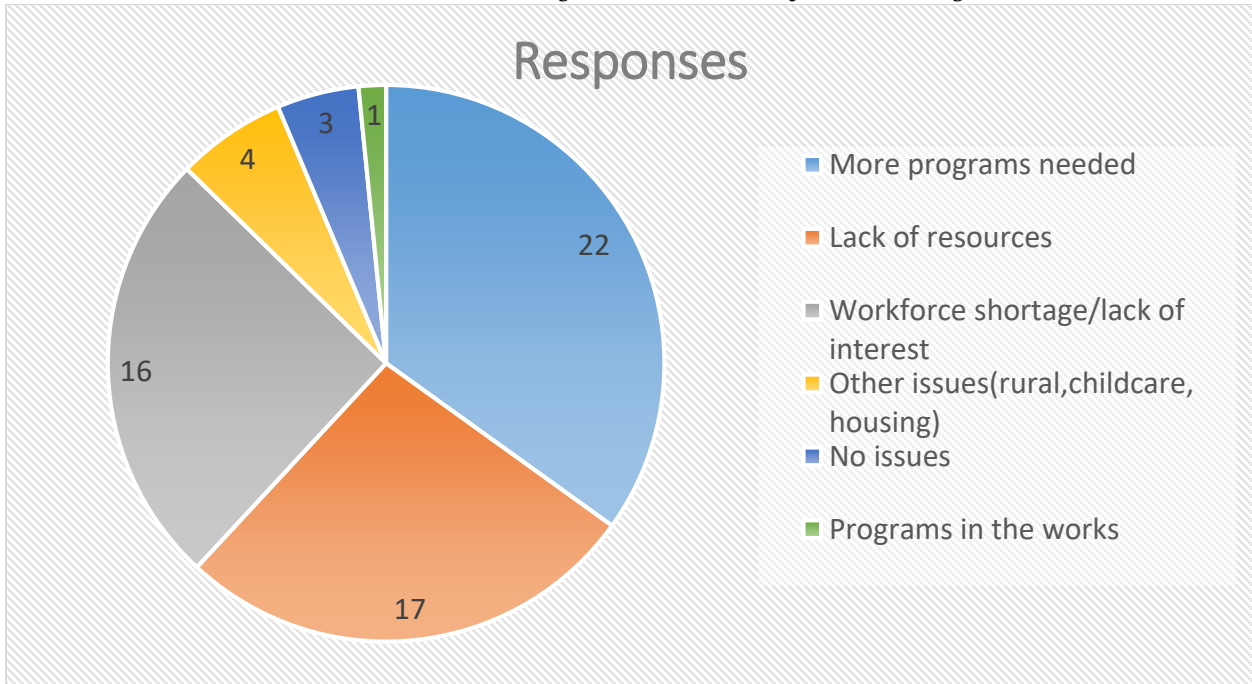


Figure 27: Data from fall 2022 regional engagement listening sessions.

What services are currently being offered to provide access and devices to community members?

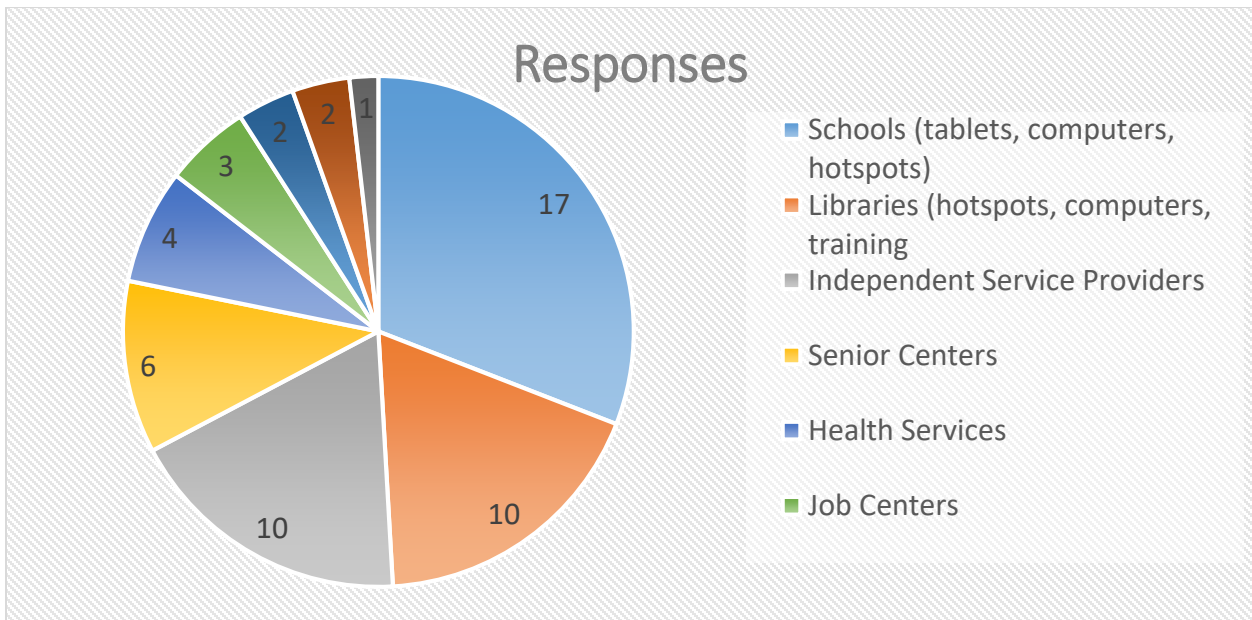


Figure 28: Data from fall 2022 regional engagement listening sessions.

Five Year Action Plan

State of Missouri

How can we increase adoption \subscription of broadband and digital applications within your community?

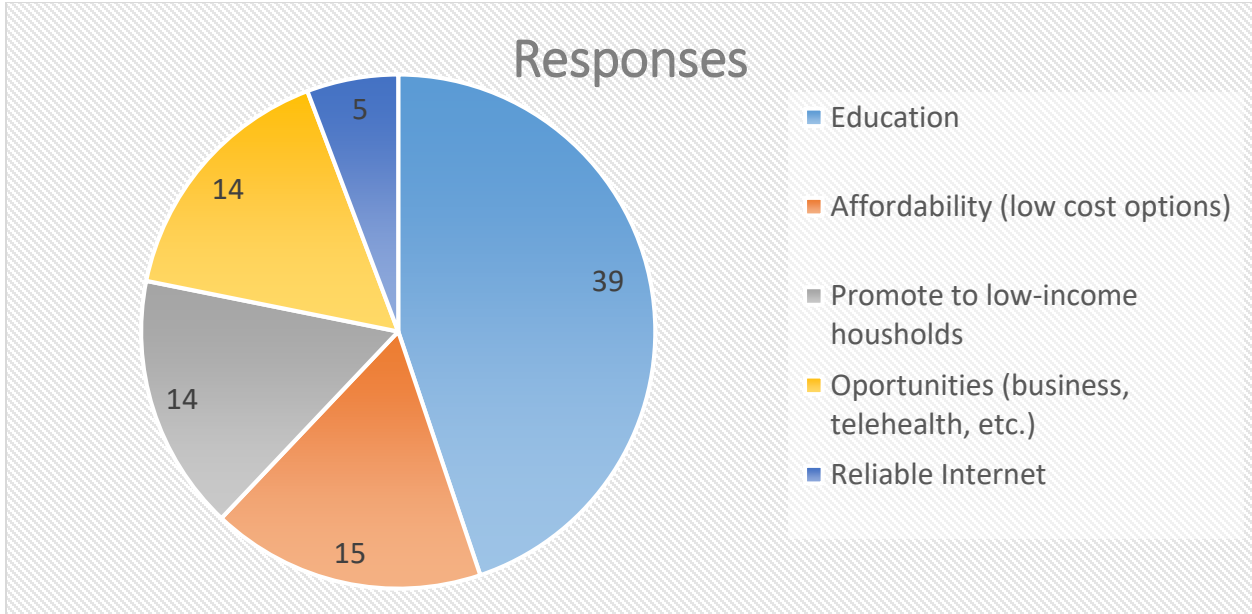


Figure 29: Data from fall 2022 regional engagement listening sessions.

How will we know that we are successfully creating access to Broadband that is accessible and affordable for all citizens of Missouri?

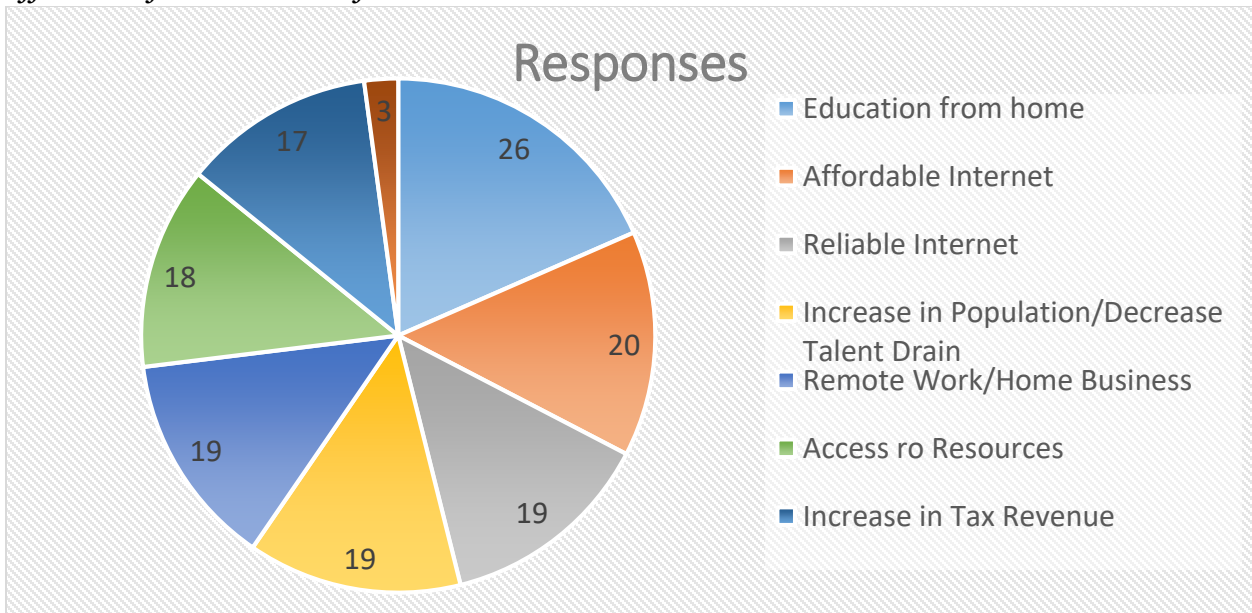


Figure 30: Data from fall 2022 regional engagement listening sessions.

Five Year Action Plan

State of Missouri

While we heard many unique responses across the state, there were also a lot of similarities of the barriers communities are facing and possible solutions to those challenges.

In May and June of 2023 OBD conducted a follow-up round of in-person meetings. These public engagement sessions allowed OBD to present how we incorporated stakeholder input into our plans for BEAD and DE and share current BEAD eligibility maps based on the counties within each region. It was also an opportunity to update our stakeholders on what to expect in the upcoming months and OBD's timeline for each of the programs. Stakeholders were able to ask questions and have further input on our plans. During our follow-up tour we visited the 19 regions of the state, with 20 separate meetings be held, while hearing from over 400 stakeholders statewide. We again offered the meetings virtually and by phone for anyone who may not have been able to attend in-person.

Promotion of these meetings included correspondence from OBD through email, social media, and monthly stakeholder calls, as well as the Regional Planning Commissions and St. Louis County Library promoting and reaching out to citizens and organizations within their region via virtual and in-person means and University of Missouri Extension offices doing the same.

Monthly stakeholder calls

OBD hosts monthly stakeholder calls on the last Friday of every month at 1pm. These calls allow OBD to share any updates from what has happened during the month and what is to come in the next month(s). These calls allow stakeholders to have a chance to ask questions and get a real-time answer. There are typically 50-100 stakeholders on the call every month. The call is virtual, however we do record the call and post it on our website to allow for anyone that may not be able to attend to listen to it. OBD plans to continue these calls during the implementation phase of the BEAD and DEA programs.

Targeted audience stakeholder calls

After our in-person regional engagement sessions, OBD hosted audience specific stakeholder calls to not only hear from target audiences, but to also share information particularly pertaining to that group of stakeholders. To date we have hosted a statewide Internet Service Provider and Workforce Development call where MO 811 and MO Department of Higher Education and Workforce Development (respectively) presented. We have also hosted regional Digital Equity focused and FCC broadband map challenge process virtual calls with each of the 18 Regional Planning Commissions and the St. Louis County Library. These calls prove to be valuable for OBD to hear what challenges the groups may be facing and adds a chance to present pertinent information to these specific audiences at one time.

Media Campaign

In late 2022 OBD conducted a media campaign for the FCC broadband map challenge process. During this campaign OBD ran targeted radio and Facebook ads to encourage Missourians to participate in the challenge process. The radio ad aired 3,659 times during January 1-13, 2023 on rural stations to reach those who may not have access to high-speed internet. The Facebook

Five Year Action Plan

State of Missouri

ad reached 14,768 during the time it was active. OBD also mailed 20,000 postcards to targeted zip codes to encourage Missourians to review the FCC Broadband Availability map to ensure their address appeared on the map and was shown accurately. OBD was intentional about finding media capable of getting the message out to disconnected people to foster community engagement and reach hard to reach populations.

Survey

The 2023 Missouri Internet Survey provides insight into the infrastructure and digital needs of Missourians and will serve as a benchmark for measuring progress as broadband investments are implemented to benefit every corner of the state.

The online survey of 23 questions was developed to collect anonymous input from Missouri adults during the spring of 2023. A review of other internet service and digital capital household surveys informed the development of these questions to ensure important data was collected while the survey remained smartphone-friendly to improve outreach to households without home internet service.¹ A Spanish-language version was also made available. The recruitment material – including a postcard and flyers – and survey were approved by the University of Missouri’s Institutional Review Board.

An important aspect of this survey was the need to gather enough representative samples from eight focus populations, designated by the Digital Equity Act, to ensure their feedback could be included in this report. Many of these groups – such as formerly incarcerated individuals – are relatively small populations making it difficult to achieve a high number of random responses. To achieve a sufficient level of responses for these focus populations, several concurrent activities were taken by the University of Missouri and other organizations supporting this effort:

- 80,000 postcards with QR codes were mailed by the University of Missouri to random Missouri households, with oversampling used to increase mailings to zip codes where a higher proportion of focus population households resided.
- Social media outreach from the University of Missouri Extension Program, Missouri Department of Economic Development, Missouri Governor’s Office, the Missouri Chamber of Commerce, and other organizations helped tremendously in raising public and media awareness.
- The University of Missouri Extension, regional planning commissions, and several state agencies, notably the Department of Social Services and Corrections, used newsletters and e-mails to raise awareness and to pass along a flyer that could be posted at organizations or stores to increase survey visibility.

This multi-pronged approach was critical to reaching Missourians across the state and resulted in over 8,700 individuals starting the survey with 7,504 completing it (86% completion rate).

¹ A well-designed digital capital survey, created by the Purdue Center for Regional Development and the Southern Rural Development Center, was shared by Dr. Roberto Gallardo and served as an important resource in question development (see [Understanding the Digital Equity Landscape](#) for information on their survey findings).

Five Year Action Plan

State of Missouri

The large response level provided enough information to report figures for the eight focus populations along with many other sub-populations.

Like many random surveys, the population of respondents rarely mirrors the overall population in terms of age, income, race and education levels. Respondents to this survey were generally more high-income, older, white, educated, and rural than the overall population (see Exhibit 1).

While the survey response levels for different sub-populations were sufficient for reporting, and focus population outcomes were necessary, weighting was used to adjust the overall respondent percentages to better reflect a survey average representing Missouri's population distribution. Household income weights were used to adjust the survey average which increased the influence of lower-income respondents because their responses typically differed significantly from other populations. Lower-income respondents were also more representative of Missouri's citizens in terms of race and educational attainment.

The survey results are presented under three major themes:

1. Internet Service Access and Adoption

The internet services section asked questions regarding the devices and internet services respondents used at home. It included questions on internet access and adoption, the cost and types of home internet services, willingness to pay for devices and services and home internet challenges.

2. Internet Activities

The internet activities section asked questions about the use of home internet for work or other activities for those with and without internet services. Comparing the activities of respondents with internet access to the desired uses of respondents without access shows where expectations differ from reality.

3. Internet Assistance and Concerns

The internet assistance and concerns section asked questions about internet, device or resource training or assistance interest. Another question asks where respondents would likely go for internet or device assistance. A final question asks about concerns respondents have with internet usage.

Five Year Action Plan

State of Missouri

Exhibit 1. Missouri Internet Survey Respondent and Census

Survey and Census Distributions		
Groups	Survey	Census
Household Income		
Less than \$35,000	18%	28%
\$35,000 to under \$74,999	31%	31%
\$75,000 to under \$99,999	19%	13%
\$100,000 or more	32%	27%
<i>Respondents (N)*</i>	6,022	
Age		
18-34	11%	22%
35-64	59%	38%
65 and over	30%	17%
<i>Respondents (N)*</i>	7,231	
Race or Ethnicity		
White, alone	91%	80%
Non-White	9%	20%
Black or African American, alone	4%	11%
Hispanic, Latino, or Spanish origin	2%	4%
<i>Respondents (N)*</i>	6,930	
Educational Attainment		
High school degree or less	12%	40%
Some college or AA degree	31%	30%
Bachelor's degree or above	57%	31%
<i>Respondents (N)*</i>	7,288	
Area		
Metropolitan Counties	59%	87%
Nonmetropolitan Counties	41%	13%
<i>Respondents (N)*</i>	7,377	
Higher Access: > Half of Served Locations with 25/3+ Mbps	86%	95%
Low Access: < Half of Served Locations with 25/3+ Mbps	14%	5%
<i>Respondents (N)*</i>	7,504	

** Respondents who did not give an answer are not shown*

Figure 31: Missouri Internet Survey report Exhibit 1

Advisory council

The Office of Broadband is working to finalize an advisory council to provide guidance and serve in an advisory capacity throughout the planning process for the BEAD and DEA programs. The advisory council will provide guidance and advice on the compilation of the BEAD 5-year Action Plan, Initial Proposal and Final Proposal as well as the state Digital Equity Plan.

The council members will be asked to:

- Contribute to the state’s plan for BEAD funds and efforts to improve the state’s broadband infrastructure.
- Contribute to the state’s plan for DEA funds and efforts to help Missourians overcome non-infrastructure barriers to getting online.
- Advise the state on policy questions and program design.
- Provide comments on draft policy documents.
- Identify digital connectivity needs across the state and propose tools to address those needs.

Five Year Action Plan

State of Missouri

- Serve as ambassadors in and beyond their geographic and professional communities, encouraging participation in broadband planning efforts.

OBD plans to convene the Advisory Council two times in person in Jefferson City and several virtual meetings throughout the planning process. Each member will be asked to engage their respective stakeholders and represent their geographic and professional communities and the interests of the public.

Focus groups

The University Missouri St. Louis (UMSL) Community Innovation and Action Center conducted a statewide focus group in order to better understand the broadband needs and challenges of Missourians across the state. In order to better use and distribute funding to achieve digital equity in the state of Missouri, it is necessary to understand the barriers Missouri citizens encounter when accessing broadband and how broadband access, or lack thereof, affects their daily lives. These focus groups, along with other data collection methods, allow for a greater understanding of the issues Missourians are facing when it comes to broadband access.

Fourteen focus groups of up to 12 participants were planned. Census data was used to select locations representing demographic and geographic diversity (see full report). Considerations included the region of Missouri (northeast, northwest, southeast, southwest, east central, or west central), whether the location was urban or rural, overall population demographics, and the feasibility of holding a group in each area. Based on this information, towns were chosen from which to recruit. These included: Eminence, Maryville, Clinton, Edina, Kennett, Kansas City, St. Louis (city and county), Columbia, and Springfield. Participants were offered both in-person and online (Zoom) options, so they could choose the participation method that worked best for them. As data emerged regarding participation rates, the team noted that the online option was preferred by many participants. Therefore, as the number of Zoom options increased, the initial list of locations was expanded to include additional cities and towns across the state of Missouri.

Ultimately, there were 20 focus groups in total with the first occurring on May 16, 2023, and the final focus group taking place on July 6, 2023. Of the 20 focus groups, 11 took place on Zoom with 9 occurring in person. The in-person group locations included St. Louis County, Kansas City, Columbia, Kennett, and Eminence. The Zoom groups featured one Spanish-speaking group and included participants from across the state of Missouri which provided for a more balanced sample. See Figure 1 below to see the geographic spread of the participant locations. The average number of participants in attendance at each focus group was 8 to 9 participants with the smallest focus group containing 4 participants and the largest containing 16 participants.

Five Year Action Plan

State of Missouri

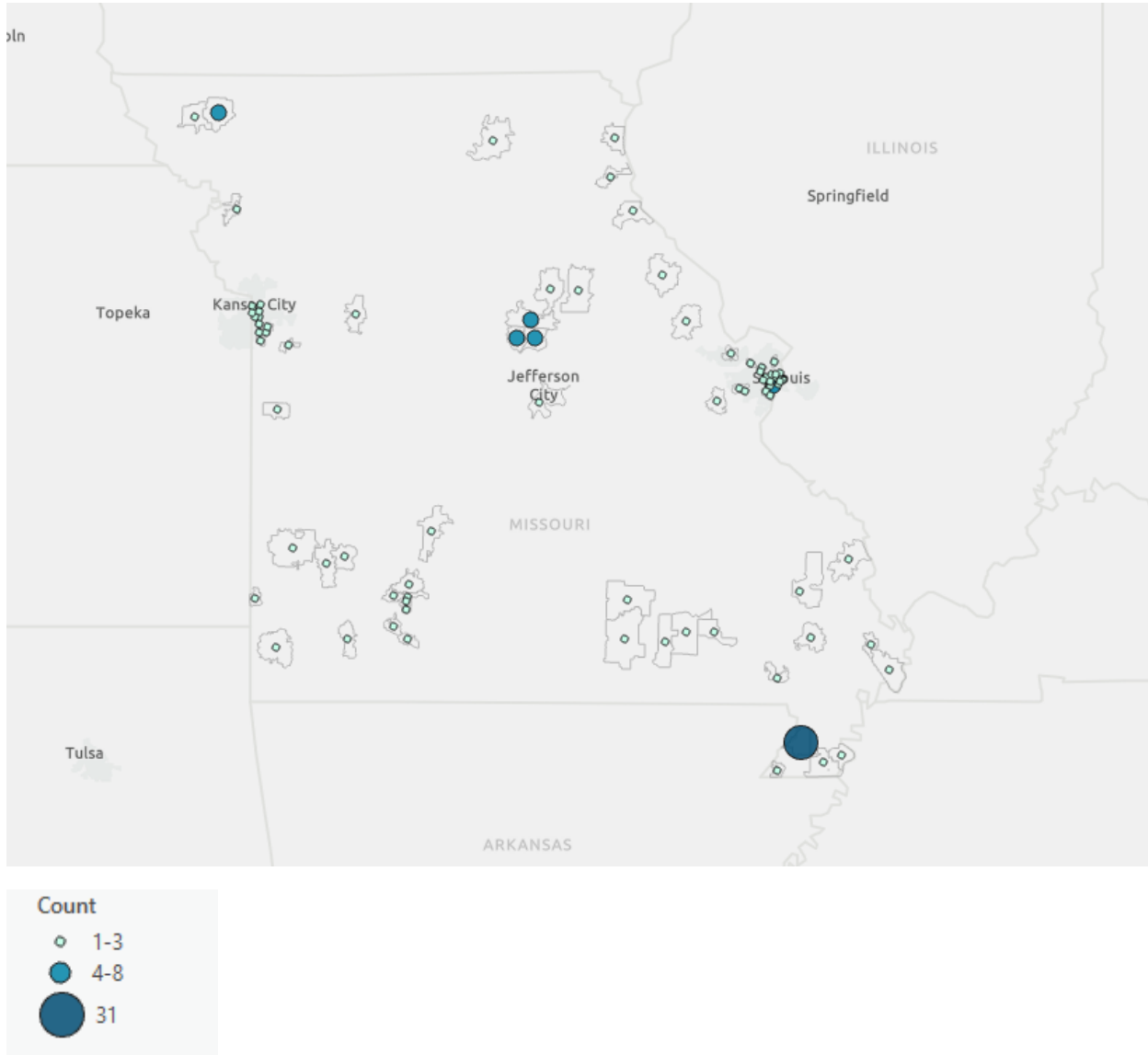


Figure 32: Missouri Digital Inclusion Asset Mapping: Focus Group Study

In conclusion the focus group found that aside from the fact that, today, many jobs require the internet, either to connect by phone and check email, or to operate agricultural businesses and small businesses, the vast majority of Missourians need the internet to access assistive technologies, physical and mental health services, public transportation schedules, language translation services, unemployment benefits, job applications, bills and more. Given this, internet access has become a basic necessity.

Internet access is not only necessary, but it is critical to achieving equity and inclusivity in Missouri's community, economy, and culture. As illustrated in the previous section, historically disadvantaged groups, too, rely on high-quality and affordable internet access, and need it for all the same reasons mentioned in the previous paragraph. Findings from the 20 focus group

Five Year Action Plan

State of Missouri

discussions across Missouri suggest that rural communities, low-income households, BIPOC and disabled people are disproportionately impacted by weak, costly, and unreliable internet access.

As this analysis reveals, many participants across the state of Missouri have lost jobs, or missed out on new professional opportunities because their internet access is unreliable and inconsistent. As a result, families and households suffer, small businesses and large ones are hindered, the tourism sector slows, and the Missourian economy slows. Students fell behind during and after the COVID-19 pandemic because they were unable to access their learning materials at home.

On the contrary, when individuals and communities have access to reliable, high-speed internet, the benefits are innumerable. Communities can connect with and support each other, individuals in need can find the resources they need, children and youth can learn and grow up to become educated, civically-engaged, and impactful members of the Missouri workforce and economy.

These focus groups demonstrate the need for improved internet access across Missouri, particularly for underserved populations.

Ongoing stakeholder engagement and feedback mechanisms

As OBD has been working on these major processes of stakeholder engagement there have been other means of outreach happening in tandem. OBD sends out regular emails with updates to our broadband stakeholder list serv that currently has 1,300 subscribers and other list servs housed within the Department of Economic Development. OBD has a webpage dedicated to the “Connecting All Missourians” initiative that is updated frequently to keep our stakeholders up to date. This is a central location for all project information, timelines, and activities. Our email broadband@ded.mo.gov is monitored daily as well as our phone number 573-526-1028. We also have partners that are willing to push information to their respective audience, including the University of Missouri Extension, state librarian, Regional Planning Commissions, and many other organizations that are included in section 3.2 Partnerships for this effort.

To further ensure critical input during the planning process the Initial and Final Proposals will be posted for public comment. OBD will continue to engage with key stakeholders and reach out to those groups that have not yet been fully engaged.

5.2 Priorities

Priorities for Broadband Deployment and Digital Inclusion

Priorities	Description
Deploying to high-cost areas	Deployment rules will be designed to prioritize service to high-cost unserved areas, which will generally be the areas least likely to receive service through purely private funds.

Five Year Action Plan

State of Missouri

Deploying universal service	BEAD funding and any other state-directed broadband spending will be allocated in coordination with other state and federal broadband funding programs to achieve universal service.
Reducing the cost of broadband service	Through scoring of BEAD sub-grantee applications and other measures, OBD will take steps to promote affordable broadband options.
Fostering a high-quality broadband workforce	OBD will prioritize efforts to build a broadband workforce sufficient for successful deployment and maintenance of universal service.
Promoting a healthy and diverse broadband ecosystem	Sub-grantee selection rules and broadband office support will be extended to encourage participation by a broad range of providers, including diverse ownership types.

5.3 Planned Activities

BEAD Sub-grantee Selection

OBD will design and implement a BEAD sub-grantee selection process that selects projects to advance Missouri’s broadband priorities including, as the highest priority, service to every unserved and underserved location in the state of Missouri.

This process will be designed with input from the whole range of broadband stakeholders across the state of Missouri. During the course of the sub-grantee selection process OBD will depend on full participation of providers, and will depend on local governments and others for evidence of local support.

This activity will draw on state ARPA funding appropriated to build and operate Missouri’s state broadband office as well as BEAD funds.

BEAD Sub-grantee and Stakeholder Support

In advance of sub-grantee selection and throughout the BEAD process, OBD and its partners will provide support to ensure funded projects are successful. Areas of support will include compliance with reporting and grant compliance rules, workforce and supply chain issues, permitting and rights-of-way access, and broadband adoption. This support will consist of production of documentation and guides applicable to broad categories of broadband stakeholders including provider and Missouri communities and their local governments, as well as customized support applicable to specific situations.

OBD will proactively work with providers and federal broadband funding partners, including NTIA, to identify emerging challenges to BEAD projects and provide technical assistance.

Five Year Action Plan

State of Missouri

This activity will draw on state funding appropriated to build and operate Missouri's state broadband office, as well as BEAD funds.

Mapping and Broadband Planning

OBD will produce a state map of broadband availability and deploy it along with other resources to enable a higher level of broadband planning within OBD and by broadband stakeholders and policy-makers across the state. This map will be created and updated based on regular data collection from broadband providers in Missouri. The map will launch in coordination with the BEAD state challenge process, the results of which will form a basis for ongoing mapping and guide BEAD funding. Data collected for inclusion in the map will be verified through field validation and crowdsourced data. In addition to making underlying data available and legible to the public whenever possible, OBD will produce reports using this data to help policymakers and other broadband stakeholders better understand the progress Missouri is making toward the goal of universal service and identify emerging challenges and opportunities.

Missouri's immediate partner in this effort will be selected at the end of a competitive bidding process in coming weeks. Beyond the selected contractor, Missouri will work with providers, local governments and non-profits, and Missouri residents to make this project a success. Missouri will also, when possible work with the FCC and FCC BDC filers to correct discrepancies between Missouri's state map and the FCC's National Broadband Map.

This activity will draw on state ARPA funding appropriated to build and operate Missouri's state broadband office and state funding appropriated for data collection and production of a state map.

Coordination of Broadband Funding

Beyond the BEAD program, OBD will work to secure funding from other programs to address gaps in broadband deployment unlikely to be addressed by BEAD as these gaps are identified. These funding sources including ongoing federal broadband funding programs, as well as potential additional state and local programs. OBD will work to encourage both applications for new funding opportunities and successful completion of already awarded programs.

OBD will work with providers and communities with broadband access challenges to identify deployment gaps and identify funding sources that could be used to close these gaps. OBD will support applications with letters of support, data and planning support, and other resources as necessary to the extent they coincide with Missouri's plan for universal access. In cases where awards have already been made, but deployment is not complete, OBD will work with the provider, the funded agency, and the community effected to promote the success of the project and ensure accountability for deployment commitments.

This activity will draw on state ARPA funding appropriated to build and operate Missouri's state broadband office.

Five Year Action Plan

State of Missouri

5.4 Key Execution Strategies

Strategies to Develop a Sub-grantee Process

Securing Projects Serving High-Cost Areas

Missouri will employ a range of strategies to ensure the state receives grant proposals for the high-cost locations that are least likely to receive service without a significant subsidy. Missouri will use a variety of data sources and consultations with stakeholders to identify these areas as early as possible in the sub-grantee selection process. Potential strategies for incentivizing applications include pursuing decreased match requirements, identification of alternative sources of ongoing support for network maintenance, and exploration of non-fiber alternatives for locations over the state set “extremely high cost per-location threshold”.

Encourage Competition to Select High-Quality Projects

While it is important to minimize outlay of BEAD funds on any given project to ensure enough funds remain to reach universal coverage, there are a variety of measures of the value each project represents to the state and its residents beyond the amount of money a prospective sub-grantee is willing to contribute. In order to ensure the selection of projects that are most likely to be successful, Missouri will encourage competitive proposals for projects areas and score competing projects along a variety of metrics that predict for project success such as local support for projects, past success with broadband grant programs, workforce quality, and other factors along with the amount of funding requested from the BEAD program.

Target Any Non-Deployment Uses of Funds at Emerging Areas of Need

While OBD anticipates having at best limited funds for non-deployment uses after projects are secured to serve every BEAD-eligible unserved and underserved location in the state, OBD plans to maintain flexibility to fund valuable non-deployment projects should funds remain. The implementation of Missouri’s Digital Equity Plan will provide opportunities for OBD to identify gaps in programming that enable Missourians to take full advantage of the opportunities offered by the internet that could receive non-deployment funds.

Strategies to Encourage a Diverse Broadband Ecosystem²

Allow and Encourage Full Participation in BEAD Funding Opportunities

Non-traditional broadband providers, including cooperatives and municipal providers, have played an important role in providing broadband in challenging parts of the state. For this reason, and in line with the obligation to consider all provider types in section IV.C.1.a of the BEAD NOFO, the state of Missouri will continue to engage with non-traditional broadband providers and their representative organizations over the course of the BEAD program to ensure the program design enables and encourages their full participation. Several municipalities in Missouri offer broadband using a variety of business models under of provision of Section

²² NOFO Req. 10d: Any consideration afforded to the use of public-private partnerships or cooperatives in addressing the needs of the Eligible Entities residents.

Five Year Action Plan

State of Missouri

392.410.7 of the Missouri Revised Statutes that allows Missouri political subdivisions to offer “Internet-type services,” including Houston, Carthage, Marshall, and Springfield.

Further Enable Public-Private Partnerships

Under Missouri House Bill 1768 Community Improvement Districts and Neighborhood Improvement Districts in Missouri may partner with telecommunications companies or broadband service providers to construct or improve telecommunications facilities in areas certified by OBD as unserved or underserved. OBD will explore steps to encourage use of this provision as an alternative source of broadband funding through public-private partnerships, including further guidance on the definition of unserved and underserved areas for the purpose of this provision.

While Missouri has several active municipal broadband providers and statutory language explicitly allows political subdivisions of the state of Missouri to offer “Internet-type services,” other language in Section 392.410.7 of the Missouri Revised Statutes has caused confusion about the permissibility of municipal broadband. Clarification of this issue might encourage more participation by municipal utilities in the provision of broadband services. Missouri’s investor-owned electric utilities are generally barred from using their fiber networks to provide broadband service, even on a middle-mile basis. Allowing them to provide a middle-mile backbone could provide new opportunities for last-mile construction in difficult parts of the state.

Strategies to Ensure an Available and Highly Skilled Workforce³

Scoring of grant applications

OBD will aim to develop scoring criteria for workforce related elements of broadband plans⁴ that enable meaningful distinctions between projects in favor of the projects that are most likely to (a) sustain a stable, high-skilled workforce necessary for that project’s success and (b) contribute to the growth and stability of the high-skilled broadband workforce necessary to maintain and expand Missouri’s broadband infrastructure beyond the scope of the BEAD program. In developing these criteria Missouri will continue to engage with the full range of stakeholders in the development of the broadband workforce, including workforce training providers, sub-grantees, contractors and sub-contractors, and unions and workers organizations.

Work to Identify Targeted Investments in Broadband Workforce Development

OBD will continue to work with state agencies responsible for workforce development and other workforce development stakeholders to identify areas in the state’s workforce development resources that can be directed at relieving potential shortages in the broadband workforce.

³ NOFO Req. 10f: Strategies to ensure an available and highly skilled workforce

⁴ Including scoring elements listed NOFO section IV.A.7.b as “Fair Labor Practices” and “Equitable Workforce Development and Job Quality”

Five Year Action Plan

State of Missouri

Strategies to Address Affordability Issues⁵

Increase Enrollment and Provider Participation in the Affordable Connectivity Program

Increased participation in the Affordable Connectivity Program will be an important goal of Missouri's Digital Equity Plan; by subsidizing the cost of subscriptions, encouraging broadband adoption, and improving the financial viability of broadband networks it also contributes to the deployment goals of the BEAD program. Missouri will encourage providers receiving BEAD funding, and all providers in the state, to fully participate in the ACP, and will continue to look for possible sources of funding for ACP enrollment efforts.

Build Affordability Elements into BEAD Projects

As required in the BEAD NOFO, OBD will score BEAD projects on the basis of the cost of a standard internet service plan, among other factors, and require low-cost plans on networks built with BEAD funds. Affordability requirements will be designed with reference to research on broadband cost sensitivity conducted inside and outside of the BEAD and DEA planning process and the need of providers for a sustainable rate of return on funded networks.

Encourage a Competitive Broadband Ecosystem

In addition to providing higher-quality internet options, introduction of a new provider into unserved and underserved areas should provide additional pricing options for residents of these areas, which are frequently some of the most cost-burdened parts of the state. BEAD funding should also have collateral impacts in parts of the state that will not be eligible for funding as new broadband providers are brought into various areas of the state and BEAD-funded networks are extended into adjacent areas. Designing a BEAD program that encourages participation by internet service providers should give consumers across the state a broader and more affordable range of broadband options.

5.5 Estimated Timeline for Universal Service

Missouri's timeline for universal service is controlled by several factors, including timelines for the completion of grant awards not set by the State of Missouri. Within the scope of the BEAD program, Missouri will aim to fund projects that can be completed quickly, consistent with the other goals of the program. This timeline is subject to change based on evolving guidance on BEAD administration and depending on the time required to receive approval of submissions.

Fall 2023

BEAD Initial Proposal Submitted to NTIA

Includes rules governing challenge process and sub-grantee selection

⁵ NOFO Req 10e: Strategies to address affordability issues

Five Year Action Plan

State of Missouri

Jan. 2024

Initial Publication of BEAD Eligible Locations

Determination based on most recently published versions of the FCC National Broadband Map and OBD modifications in Initial Proposal

Jan.-Apr. 2024

BEAD Challenge Period

Challenges of OBD determinations of BEAD eligibility and rebuttals to those challenges

Spring, Summer & Fall 2024

BEAD Sub-grantee selection

Competitive selection of projects to serve unserved and underserved areas

January 2025

BEAD Final Proposal Submitted to NTIA

Reports results of sub-grantee selection process and plans for ongoing monitoring and performance management

TBD 2025

Start of BEAD Implementation

Begins period of BEAD project construction, auditing, and semi-annual reporting to NTIA

December 31, 2025

Final Milestone for Connect America Fund (CAF) Phase II Auction Awards

94,735 awarded locations. By this date awardees must serve 100 percent of their awarded number of locations. On December 31, 2022, 46 percent of locations in CAF II territories in Missouri on the National Broadband Map were reported to have service matching the terms of their award.

September 30, 2026

End of Missouri ARPA Broadband Infrastructure Program

55,979 awarded locations. ARPA BIP projects are generally on track to be completed well ahead of this date.

January 2029

End of BEAD Implementation

BEAD sub-grantees must complete projects within four years of receiving funding.

Five Year Action Plan

State of Missouri

Dec. 31, 2029:

Final Milestone for Rural Digital Opportunity Fund (RDOF) Awards Authorized in 2021

23,117 awarded locations. By their final milestone, awardees need to have served every location in their awarded territory based on revised counts of locations published by the FCC. They are required to reach 100 percent of their original count of locations two years earlier.

Dec. 31, 2030:

Final Milestone for Rural Digital Opportunity Fund (RDOF) Awards Authorized in 2022

112,373 awarded locations. On December 31, 2022, 20 percent of locations in all RDOF territories in Missouri on the National Broadband Map were reported to have service matching the terms of their award.

Dec. 31, 2038

Enhanced A-CAM 15 year support tenure ends.

5.6 Estimated Cost for Universal Service

In 2022 OBD published a Broadband Infrastructure Gap Analysis and Cost Model conducted by CostQuest Associates and Tilson. The report presented estimates of the number of unserved and underserved locations in the state based on census block-level reports of broadband availability collected through FCC Form 477 and model-based estimates of broadband availability at a sub-census block level. The report then modeled the cost of reaching each unserved and underserved location using a fiber and a fixed wireless network.

Terrestrial Service Level	Fiber to the Premises	Fixed Wireless Network
Unserved Lowest (<10/1 Mbps)	\$239,190,403	\$308,836,722
Unserved Low (<25/3 Mbps)	\$228,613,445	\$236,644,121
Underserved (<100/20 Mbps)	\$1,338,060,437	\$1,220,365,784
Total	\$1,805,864,285	\$1,765,846,626

Since the report was issued, several large public investments have been made across the state of Missouri; some other investments, already committed at the time of publication, were not reflected in the report’s estimate. Providing these projects are efficient and well-targeted, they represent a substantial down-payment on the estimated cost.

Five Year Action Plan

State of Missouri

Broadband Investments not Reflected in 2022 Cost Estimate	
Program	Investment
ARPA Broadband Infrastructure	\$261,000,000
USDA ReConnect	\$149,966,244
NTIA Broadband Infrastructure	\$42,241,427
RDOF Ready to Authorize After Jan. 28, 2022	\$26,111,689
Total	\$479,319,360

This would leave a roughly \$1.33 billion gap for fiber and \$1.29 billion gap for wireless to reach Missouri’s remaining unserved and underserved. Other investments have been made with private funds, either as matching funds associated with these programs or as part of purely private projects.

Missouri expects to carry out additional cost modeling using estimates produced by CostQuest Associates and made available to states as part of NTIA’s eligible entity toolkit. These estimates will have the advantage of reflecting the increased location-by-location precision enabled by the FCC’s address level National Broadband Map.

5.7 Alignment

Office of Broadband Development (OBD) is the state office for broadband and is tasked with developing and implementing a statewide strategic plan for universal service and digital connectivity. It is the administrative entity for both BEAD and DEA planning grants. In developing the 5 Year Action Plan, OBD reviewed and aligned state policies and strategies with the IIJA and NTIA requirements. Successfully implementing the BEAD plan will require coordination and continued collaboration with other state agencies and organizations.

Missouri’s BEAD 5 Year Action Plan has been developed concurrently with the state Digital Equity Plan. As mentioned in our Stakeholder Engagement Process, stakeholders have been approached in a coordinated fashion while splitting time during meetings among BEAD and DEA to ensure knowledge of both programs and that one cannot be achieved without the other.

The various executive agencies within the State of Missouri have spent time and effort developing plans to solve the most pressing issues facing Missourians today. Those plans outline each agency’s goals for the future, and the programming required to accomplish those goals. OBD recognizes these efforts and defers to the subject matter expertise of these agencies. OBD will fund projects that further the goals of these agencies and will aim to deploy complementary digital connectivity and inclusion programming. OBD coordinated with the staffs at each agency to align this plan with those already in existence.

The Department of Elementary and Secondary Education (DESE) has developed the [**SHOW ME SUCCESS Strategic Plan**](#) which outlines the department’s vision and priorities for the coming years. DESE recognizes four pillars upon which to ground the public education system in Missouri: Early Learning & Literacy; Success-Ready Students & Workforce Development; Safe & Healthy Schools; and Educator & Recruitment Retention. The plan also outlines 3-5

Five Year Action Plan

State of Missouri

strategies for improving outcomes related to each pillar. These goals will help improve and expand educational outcomes—and will result in complementary efforts between OBD and DESE.

Every five years the Department of Health and Senior Services (DHSS) releases the [State Health Improvement Plan \(SHIP\)](#). The most recent version of this plan recognizes six priority issues which OBD will seek to support through the programming enabled by IIJA. The six priority issues are: 1. Public Health System Building 2. Infant & Maternal Health 3. Health Behaviors 4. Emerging Public Health Threat Preparedness 5. Social Determinants of Health 6. Whole Person Health Access.

In light of the massive disruption caused by the COVID-19 pandemic, and in response to the serious healthcare system vulnerabilities exposed, DHSS composed a report entitled [Strengthening the Workforce Pipeline: Recommendations for Public Health and Healthcare in Missouri](#). The report outlines 24 recommendations to better equip Missouri for future pandemics. OBD will work with healthcare agencies and organizations to help enable services such as telehealth for Missourians for who may struggle to access a health facility due to costs, transportation, or closure of rural healthcare facilities.

The Department of Economic Development is guided by their [Best in The Midwest](#) initiative which challenges the Department to develop programs and services that meet and exceed the standards set by peer group states in the region.

The Missouri Chamber of Commerce, working in collaboration with a multitude of state partners, conducted a full year outreach and comprehensive analysis of the state's economic performance and compiled the results in the [Workforce 2030: A Call to Action](#) report detailing the current need for workforce development efforts, and proposing solutions to position the state ideally for future growth and success.

St. Louis commissioned a study and published their findings in a report entitled, [St. Louis Digital Divide: Summary of Study and Findings](#). This report outlines the current state of digital equity. In particular the study highlights the overwhelming impact that poverty has had on the city, and how that is only compounded by inequitable access to high-speed Internet and the related resources.

The US Department of Economic Development requires subnational entities, including the MO Department of Economic Development to produce a Comprehensive Economic Development Strategy (CEDS). This strategy outlines the entity's economic development priorities for the interim period between publications. Missouri last produced a CEDS in 2011, although that document is no longer considered compliant by the federal government. The Department is currently in the process of producing an updated CEDS with an expected release date to occur in 2025. As both the State Digital Equity Report and CEDS are produced by the MO Department of Economic Development the two teams responsible for publication have committed to regular consultations in order to assure the two plans are complementary.

The Missouri Department of Corrections releases an annual [Strategic Plan](#) to outline their goals for the year. The most recent plan, corresponding to fiscal year 2024, has three strategic

Five Year Action Plan

State of Missouri

initiatives: 1) Build a safer work environment 2) Improve the workforce 3) Reduce risk and recidivism. The work of OBD will closely interact with the second and third initiative. In order to support that work OBD will work to provide opportunities for all member of the justice system to enhance their marketable skills and personal/professional capacity within the digital economy.

The Missouri Community Development Block Grants (CDBG) office within the Department of Economic Development, Missouri Housing Development Commission (MHDC), and DHSS are responsible for producing the [Missouri Consolidated Plan](#). This plan is the single planning document for the use of Department of Housing and Urban Development (HUD) provided funding. Missouri updates this plan every five years and is currently producing an updated version for public release. Missouri has identified a number of high priority needs and has targeted available resources toward several specific goals that are designed to address those needs. These needs include affordable housing for low income households; homeless and special needs persons; public improvements such as water and wastewater and public facilities for low and moderate income persons; economic development opportunities such as industrial infrastructure and downtown revitalization for low to moderate income persons; and long-term recovery and emergency projects due to disasters. The state agencies charged with developing and implementing this Plan, partner with other state, federal and local agencies to deliver the programs that meet the identified needs. OBD will build upon the existing partnership to ensure that housing and development goal/efforts are complimented by OBD programs.

The Missouri Department of Higher Education and Workforce Development (DHEWD) released their report, [Building Missouri's Future: A strategic plan to provide pathways and reduce barriers to educational attainment and workforce participation](#), in December 2021. The plan highlights the two major goals: 1. Raise the percentage of Missourians who have post-secondary credentials from 47 percent to 60 percent and 2. Raise the total labor force participation rate from 63 percent to 70 percent. The aim is to have accomplished both these goals by 2030. These goals align with the OBD vision for broadband deployment and digital equity and will guide the workforce and higher education funding priorities of the office.

OBD has analyzed planned deployments funded by other federal and state programs including, but not limited to U.S. Treasury American Rescue Plan Act (ARPA), National Telecommunication and Information Agency Broadband Infrastructure Program (NTIA BIP), FCC Rural Digital Opportunity Fund (RDOF), USDA ReConnect, and FCC Connect America Fund (CAF) to avoid duplication and maximize the use of available resources. OBD will continue to remain in communication with the federal agencies that administer these programs.

5.8 Technical Assistance

OBD appreciates NTIA's ongoing technical assistance as it prepares its BEAD program. Additional support would be helpful in several areas.

Timelines

Whenever possible, clear guidance about when NTIA expects to issue guidance, approve or disapprove submitted proposals, or otherwise take action with implications for the BEAD

Five Year Action Plan

State of Missouri

program would be extremely helpful. OBD understands that these timelines sometimes depend on factors outside of NTIA's control, but some sense of time frames will help OBD plan for its own purposes and message to its stakeholders.

Multi-Dwelling Units

Missouri and many other states have had limited experience funding projects within multi-unit apartment buildings or other instances of multi-dwelling units. Guidance on the requirements around this element of the program and best practices would help make these projects a success.

Community Anchor Institutions

The 1 Gbps symmetrical standard for community anchor institutions suggests that states may be funding some projects where a community anchor institution is the only eligible location in the area. Missouri would welcome guidance or best practices on how these projects could be structured.

Match waivers

There are locations in Missouri outside of NTIA's identified "high cost areas" where a 25 percent match requirement would be extremely hard to meet. NTIA should consider expanding on the process that would be used to consider waivers described in NOFO section III.B.5.

Permitting

Further communication on NTIA's plans related to environmental and historic preservation permitting on BEAD projects would help OBD plan to assist sub-grantees with compliance.

Five Year Action Plan

State of Missouri

6 Conclusion

The publication of this report comes at a crucial moment for Missourians. Hundreds of thousands of Missourians have been left behind by the advent of the digital world. With the allocation of \$1.7 billion through the BEAD Program the state finally has resource commensurate with the size of the problem. Missouri's Five Year Action Plan begins the process of laying out how that money will be deployed, in conjunction with other resources across the state of Missouri, to finish the job of connecting all Missourians.

If the job was easy, it would have been completed decades ago. This report presents information about the dimensions of the problem – the hundreds of thousands of Missourians physically cut off from high-quality broadband service, and the hundreds of thousands more that appear to be connected on any given broadband map but cannot take full advantage of that connection due to cost, limited comfort with digital technology, or other barriers. Previous efforts to build out broadband networks have had to deal with a variety of substantial obstacles including the high costs of extending service to remote areas, nontransparent data about broadband availability, and challenges selecting projects and partners that will reliably deliver. These obstacles and others must be overcome if the state is to achieve its goals.

Fortunately, Missouri also has substantial resources it can draw on to accomplish these goals. While still imperfect, the understanding of address-by-address broadband availability was substantially improved following the publication of the FCC's National Broadband Map. The State of Missouri has made substantial investments in a fully-staffed broadband office to manage the large investments in broadband infrastructure. Most importantly, Missouri has a strong ecosystem of individuals and organizations invested in connecting all Missourians: broadband providers, local governments, non-profits, and ordinary Missourians volunteering their time to advocate for improved connectivity for their communities.

OBD encourages stakeholders in Missouri's broadband future to stay engaged in coming months as the state develops its Digital Equity Plan and the various components of its Initial Proposal for deploying BEAD funding. This report is one step in a long process. Their feedback helps ensure that the BEAD program will end in success.

Missouri Office of Broadband Development

broadband@ded.mo.gov

573-526-1028

Five Year Action Plan

State of Missouri

7 Appendices

Appendix A: [Stakeholder Engagement Tracker](#)

Appendix B: [Internet Service Providers](#)

Appendix C: [Regional Planning Commission Asset Inventory](#)

Appendix D: [Missouri Broadband Infrastructure Gap Analysis and Cost Model](#)

Appendix E: [Missouri Internet Survey](#)

Appendix F: [Focus Group Study](#)