

Broadband Deployment

Executive Summary

Broadband, typically referring to high speed internet, is linked to many economic benefits, including attracting business, increasing incomes, and expanding opportunities for education and telemedicine. In Missouri, approximately 20% of households lack broadband connections.¹ In order to overcome financial and technological barriers to deploying broadband, many states and localities developed strategies to increase access and adoption of broadband, including community planning processes, grants and other financial incentives, and regulatory changes.

Highlights

- Rural and low-income households are less likely than urban or high-income households to have reliable access to broadband in Missouri.
- Engaging local communities in planning can identify broadband needs and assets.
- States can incentivize broadband deployment with grants, tax incentives, and removal of potential legal obstacles.

Limitations

- Implementation success varies depending on local factors such as geography, financial resources, and population density.
- Research is limited on the degree to which grants and other efforts increase broadband accessibility and adoption.

Research Background

Broadband and Community Impact

Broadband adoption has been linked to increased incomes and increased attraction for new businesses, particularly for rural communities, as well as potential benefits with remote education, telemedicine, and precision agriculture.²⁻⁵ Broadband is currently defined by the Federal Communications Commission (FCC) as internet speeds of 25 megabits per second (Mbps) download and 3 Mbps upload (25/3), an increase from the previous 10/1 definition. Commentators argue this definition is insufficient, as future needs, especially industrial and agricultural usages may require faster speeds, and speed alone does not account for service fluctuations. Broadband availability alone does not guarantee adoption (subscription) and ensuing benefits, especially when high costs and/or technological barriers limit adoption, also referred to as the digital divide. According to the American Communities Survey, 20% of Missouri households lack broadband subscriptions. For households with incomes less than \$20,000, this rises to 53%.¹ According to the FCC's 2020 report, approximately 30% of rural Missourians lack access to fixed (not cellular) broadband.⁶ Because these estimates are based on census tracts where at least one household is served, this is likely an underestimate.⁷ Urban

areas are also affected, such as when private companies withhold broadband improvements, like fiber, to low-income neighborhoods, resulting in “digital redlining.”^{8,9}

Incentives and Barriers to Broadband Deployment

Funding

Hardware costs and lack of access to financing have been identified as the main barriers to broadband development projects, particularly in rural, sparsely populated, and/or low-income communities where private providers may find return on investment too low.^{10,11} According to one study, presence of state-level funding programs is linked to a 1-2% increase in general broadband availability.¹² Some states have a specific fund for broadband, while others leverage funds for general infrastructure improvement, fees on internet service providers (ISPs - Illinois), toll revenue (Indiana), or legal settlements (Virginia).¹³ In 2020, HB1768 extended Missouri’s Broadband Grant Program to 2027 with bipartisan support.¹⁴ In some states, state funding can also help localities obtain federal funds, such as West Virginia’s Community Development Block Grant which funds general infrastructure and helps communities apply for US Department of Agriculture’s (USDA) ReConnect program; however, Missouri statute 620.2456 limits project areas receiving federal support from programs requiring no matching funds from receiving state grants.

Community Planning

Community engagement can identify local internet needs, scope of projects, and potential assets and hurdles.¹⁵ Projects may vary based on technology needs (faster speeds for industrial and agricultural applications), extent of last mile (local) or middle mile (linking last mile with the network core) build out required, terrain (a case study of Bollinger County points out that hills limit effectiveness of reliable wireless technology)¹⁶, and digital literacy. Communities may also want to project long-term needs as technology advances. Needs can be addressed at a state-wide level, for example with Virginia’s complaint-based tracking or Georgia’s data-driven comprehensive broadband access map. Likewise, states may consider broad investments in infrastructure. For instance, Kentucky’s large public-private partnership built a state-wide fiber network focused on middle mile infrastructure but faced criticism after delays as the state assumed the risk in a project that exceeded its budget and faced delays and unclear impacts for last-mile service.¹⁷

States can encourage local communities to develop plans for broadband with certifications or as requirements for grant applications, such as the “Broadband Ready” designation for communities in Georgia or with resources for developing plans, like Virginia’s “Broadband toolkit” to help assess local assets and guide planning. In Missouri, HB1768, signed into law in July 2020, creates Community Improvement Districts and Neighborhood Improvement Districts that allow for special taxing to pay for broadband deployment.

Regulations

Broadband deployment may also be limited by legal barriers. One study identified that restrictions against municipalities and cooperatives tend to decrease broadband availability statewide by 3%.¹² Vermont's 2019 broadband stimulus encouraged the creation of communications union districts (CUD) for municipalities to combine resources, although recent emergency funding for broadband during the COVID-19 pandemic has been seen as potentially undermining long-term goals with short-term projects.¹⁸ In Missouri, electrical cooperatives are able to act as ISPs (Mo. 394.085), but local governments may be limited in their ability to own a broadband system by Mo. 392.410.7.¹⁶ Other potential obstacles include legal right of way laws. For example, many electrical companies already use fiber lines for internal purposes, which could be used to provide broadband. A Missouri court case ruled that a separate agreement would be required even for fiber that is already in place, potentially slowing broadband deployment.¹⁹

References

1. American Community Survey. Types of Computers and Internet Subscriptions. <https://data.census.gov/cedsci/table?q=broadband%20rural&g=0400000US29&tid=ACST5Y2018.S2801&hidePrevious=true> (2018).
2. Wilcock, A. D. *et al.* Association Between Broadband Internet Availability and Telemedicine Use. *JAMA Intern. Med.* (2019) doi:10.1001/jamainternmed.2019.2234.
3. Kim, Y. & Orazem, P. F. Broadband Internet and New Firm Location Decisions in Rural Areas. *Am. J. Agric. Econ.* **99**, 285–302 (2017).
4. Schimmelpfennig, D. Farm Profits and Adoption of Precision Agriculture. *Econ. Res. Serv. U. S. Dep. Agric.* **46** (2016).
5. Gallardo, R. & Whitacre, B. 21st century economic development: Telework and its impact on local income. *Reg. Sci. Policy Pract.* **10**, 103–123 (2018).
6. Federal Communications Commission 2020 Broadband Deployment Report. <https://docs.fcc.gov/public/attachments/FCC-20-50A2.pdf> (2020)
8. Callahan, B. AT&T's Digital Redlining Of Cleveland. *National Digital Inclusion Alliance* <https://www.digitalinclusion.org/blog/2017/03/10/atts-digital-redlining-of-cleveland/> (2017).
9. Callahan, B. AT&T's Digital Redlining of Dallas: New Research by Dr. Brian Whitacre. *National Digital Inclusion Alliance* <https://www.digitalinclusion.org/blog/2019/08/06/atts-digital-redlining-of-dallas-new-research-by-dr-brian-whitacre/> (2019).
10. Feld, H. Solving the Rural Broadband Equation at the Local Level. *State Local Gov. Rev.* **51**, 242–249 (2019).
11. Javier Valentín-Sívico, Casey Canfield & Ona Egbue. Rural Access to Industry 4.0: Barriers from the Infrastructure Planning Front Lines. *Proceedings of the 2020 IISE Annual Conference*.
12. Whitacre, B. & Gallardo, R. State broadband policy: Impacts on availability. *Telecommun. Policy* **44**, 102025 (2020).
13. How States Support Broadband Projects. *PEW* <https://pew.org/2Kaf1fQ> (2019).
14. Brian Hauswirth. Missouri's governor to sign bipartisan broadband legislation on Thursday in Tipton. *Missourinet* <https://www.missourinet.com/2020/07/01/missouris-governor-to-sign-bipartisan-broadband-legislation-on-thursday-in-tipton/> (2020).
15. How States Are Expanding Broadband Access. *PEW* <https://pew.org/2HIJGAb> (2020).
16. Sarah Denkler *et al.* Bringing Broadband to a Missouri Community. 107 (2020).
17. Jacob Mulliken. Kentucky Officials Want Answers on Internet Initiative. <https://www.govtech.com/network/Kentucky-Officials-Want-Answers-on-Internet-Initiative.html> (2019).
18. Justin Trombly. Community startups wary of state emergency broadband plan. *VT Digger* <https://vtdigger.org/2020/08/16/community-startups-wary-of-state-emergency-broadband-plan/> (2020).
19. Neuman, M. Exceeding the Scope of an Easement: "Expanded Use" Within a Single Cable. *Mo. Law Rev.* **83**, 27 (2018).