

Spring 2020

The Evolving Challenges of Expanding Broadband to Rural America and its Effects on Education

Kyle Johnson

Follow this and additional works at: <https://lawcommons.luc.edu/pilr>



Part of the [Civil Rights and Discrimination Commons](#), [Criminal Procedure Commons](#), [Environmental Law Commons](#), and the [Human Rights Law Commons](#)

Recommended Citation

Kyle Johnson, *The Evolving Challenges of Expanding Broadband to Rural America and its Effects on Education*, 25 Pub. Interest L. Rptr. 123 ().

Available at: <https://lawcommons.luc.edu/pilr/vol25/iss2/7>

This Article is brought to you for free and open access by LAW eCommons. It has been accepted for inclusion in Public Interest Law Reporter by an authorized editor of LAW eCommons. For more information, please contact law-library@luc.edu.

The Evolving Challenges of Expanding Broadband to Rural America and its effect on Education

Kyle Johnson

The internet is an essential part of American life.¹ High speed internet facilitates commerce, education, communication, and information.² Nonetheless, like many aspects of American life, internet access is not equal across the board.³ Rural and low-income communities have been slow to adopt broadband internet and face barriers when they do attempt to get connected.⁴ Barriers to broadband adoption include access and affordability.⁵ Access has been the main roadblock for rural communities, while affordability has barred low-income communities from adopting broadband internet.⁶

Broadband is a term used to describe a minimum standard, set out by the Federal Communications Commission (FCC), for achieving internet connectivity.⁷ Most internet speeds are measured in megabits per second (Mbps), “bit” being a unit of data that in computer language translated into a 1 or a 0. A “megabit” is simply one million of those 1s or 0s. Current broadband standards are set at 25 Mbps of data download speed, and 3 Mbps upload speed.⁸ These minimum speeds are based on the estimated home data need for an average American household.⁹ A download speed of 25 Mbps allows for some HD streaming of videos, normal web browsing and connectivity for work applications.¹⁰ The 3 Mbps upload speeds facilitates sending emails with attachments, video conferencing and online file storage.¹¹

¹ Editorial Board, *Internet is a modern necessity, but some Americans don't even have broadband*, THE WASHINGTON POST (Aug. 11, 2019), https://www.washingtonpost.com/opinions/all-americans-should-be-able-to-use-the-internet-how-do-we-get-there/2019/08/11/7d98a4d2-bad6-11e9-b3b4-2bb69e8c4e39_story.html.

² *Id.*

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ *2018 Broadband Deployment Report*, FEDERAL COMMUNICATIONS COMMISSION (2018), <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report>.

⁸ *Id.*

⁹ *Id.*

¹⁰ Tyler Cooper, *How Much Internet Speed Do I Need?* BROADBAND NOW (2020), <https://broadbandnow.com/guides/how-much-internet-speed-do-i-need> (last visited Apr 3, 2020).

¹¹ Cooper, *supra* note 11.

For the 40 million Americans without access to broadband internet speeds, there are alternate means of connecting to the internet.¹² For many, this means that they must acquire digital subscriber line (DSL) service through their telecommunications providers.¹³ DSL is a method of obtaining internet access through landline phone connection, but is hampered by the bandwidth limits of telephone wire.¹⁴ Bandwidth can be thought of like the amount of traffic lanes on a highway. The more traffic lanes available, the faster cars can pass through, entering and exiting with ease. As lanes begin to fill and more cars enter the highway, the lanes can become congested and traffic will have to slow down to facilitate that entering and exiting. Telephone cables offer limited bandwidth because they were not designed to handle the data needs of the modern world, they were designed to deliver auditory signals not computing data.¹⁵ Another pitfall of DSL connections is that they share the same cable as the telephone line, when a call is made or received on the line the internet will be interrupted.¹⁶

Cable internet is another potential option for rural customers who have access to it, but internet through existing cable lines tends to be slow, especially during hours people are using their cable and internet the most because the signal travels through the same wires as the television connection.¹⁷ Existing cable lines have the bandwidth for a significant amount of information to flow, but that bandwidth is mostly occupied by people watching cable television.¹⁸ Because of the limits of cable internet, it is not the best option to close the access gap to broadband internet.¹⁹

The modern internet solution is a fiberoptic (fiber) network.²⁰ Fiber networks have been called futureproof because of high bandwidth capabilities and

¹² Kim Komando, *Best Internet Deals To Save Money And Maximize Speed*, USA TODAY (Feb. 20, 2020), <https://www.usatoday.com/story/tech/columnist/2020/02/20/choosing-right-plan-can-save-money-and-boost-your-internet-speed/4753428002/>.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ Rachel Oaks, *What Is The Difference Between Satellite, DSL, Cable, And Fiber Internet?* HIGH SPEED INTERNET.COM (2017), <https://www.highspeedinternet.com/resources/what-is-the-difference-between-satellite-dsl-cable-and-fiber-internet> (last visited Apr 3, 2020).

¹⁶ *Id.*

¹⁷ Skyler Ditchfield, *How Much Internet Speed Do You Really Need?*, FORBES (Jan. 30, 2020), <https://www.forbes.com/sites/forbesbusinesscouncil/2020/01/30/how-much-internet-speed-do-you-really-need/>.

¹⁸ Oaks, *supra* note 15.

¹⁹ Ditchfield, *supra* note 17.

²⁰ *Id.*

significant improvements in data transfer speed over cable and DSL.²¹ In a fiber network, data is transferred through the use of light that travels through light-conducting glass fibers packed inside a cable.²² Not only do fiberoptic cables carry a higher density of connections than standard copper cable, the signal inside it travels at a slightly faster speed.²³ Fiber networks are mostly only available in urban and high-income suburban communities, and the cost can be prohibitive to low-income families.²⁴

The last option available to rural communities is satellite internet.²⁵ Satellite internet is received much the same way as satellite cable television and suffers many of the same pitfalls.²⁶ The internet speeds are subject to a number of variables that can make the internet connection less reliable.²⁷ The position of the satellite dish, the actual satellite orbiting the earth, the number of users accessing the satellite at the time of use, and weather conditions can all effect the connection and speed of data transfer.²⁸ Another issue with satellite is the cost and data limits.²⁹ Satellite internet tends to be more expensive than its wired competitors, despite not offering any improvements on speed over cable or fiber.³⁰

Broadband access has been a topic of political concern for over a decade.³¹ Even with high visibility and ample amounts of discussion at federal, state, and local levels of government, expansion of broadband access is moving slowly.³² To counteract this slow pace the federal government has offered financial incentives to internet service providers while local communities have attempted

²¹ *Id.*

²² *Id.*

²³ Oaks, *supra* note 15.

²⁴ Ditchfield, *supra* note 17.

²⁵ Oaks, *supra* note 15.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ Brendan Sasso, *How Republicans Flip-Flopped on Government-Run Internet*, THE ATLANTIC (Aug. 26, 2014), <https://www.theatlantic.com/politics/archive/2014/08/how-republicans-flip-flopped-on-government-run-internet/456861/>.

³² Matthew Humphries, *FCC: 25M Americans Lack Broadband, Microsoft: It's 162M*, PCMAG (Apr. 9, 2019), <https://www.pcmag.com/news/fcc-25m-americans-lack-broadband-microsoft-its-162m>.

to become their own internet service providers.³³ Despite these attempts to increase access rural communities are struggling to get connected.³⁴

The FCC estimates that 40 million Americans are not able to access broadband speeds based on coverage maps received from service providers.³⁵ When calculating that number, it is important to note that the term “access” is defined by internet service providers and is not the same as actual access to service.³⁶ The service maps provided to the FCC by internet service providers only indicate whether they have at least one person hooked up to broadband speeds for an entire census block to qualify as having access.³⁷ Second, having access does not mean having affordable access, which is what many blame for their lack of broadband access.³⁸

Families need internet speed for children’s study needs.³⁹ Education has evolved with the developing world of technology, and even in the most barren of broadband deserts, children still need reliable internet access to stay competitive in school and beyond.⁴⁰ This is because many modern educational tools require access to the internet through a personal computer web browser, or to be installed on the hard drive.⁴¹ Students without the means or the infrastructure to access these modules are at risk of falling behind their peers.⁴²

In response to such problems, some municipalities have had to get creative.⁴³ One small town took the initiative to install mobile hotspots on their buses so that students can do their homework on their rides home.⁴⁴ After all of the children are dropped off, the buses park in strategic areas around town so that students in need of internet can travel a short distance to be near the bus.⁴⁵ This often still requires the students to sit in their parents’ cars, or

³³ *Id.*

³⁴ Editorial Board, *supra* note 1.

³⁵ Matthew Humphries, *FCC: 25M Americans Lack Broadband, Microsoft: It’s 162M*, PCMAG (Apr. 9, 2019), <https://www.pcmag.com/news/fcc-25m-americans-lack-broadband-microsoft-its-162m>.

³⁶ *Id.*

³⁷ *Id.*

³⁸ Editorial Board, *supra* note 1.

³⁹ Kipp Bentley, *School Buses Become Wi-Fi Hot Spots*, CENT. FOR DIGITAL EDUCATION (June 13, 2018), <https://www.govtech.com/education/k-12/School-Buses-Become-WiFi-Hot-Spots.html>.

⁴⁰ Bentley, *supra* note 39.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

potentially get on the bus to access their essential homework tools.⁴⁶ Where such an option is not available, students must find an alternate source of internet.⁴⁷ Other options include internet kiosks in school libraries or providing every student with internet-enabled laptops.⁴⁸ Nevertheless, those options are not available when the school closes or the children head home at the end of the day.⁴⁹

The progression of the novel coronavirus (COVID-19) throughout the world, and inside the United States, has laid bare the inequalities that are at the heart of this digital divide.⁵⁰ As businesses and governments across the country close their doors to promote social distancing in order to slow the spread of the deadly virus, communities with low internet connectivity are put in a more precarious position.⁵¹ Without the ability to take business and classes to an online format, some schools have had to make the hard choice on whether to end the semester outright or to find low tech solutions to keep the children engaged.⁵²

Ginny McElhaney is a principle of Washburn High School in Grainger County, Tennessee. In her community, the digital divide is massive.⁵³ She is the head administrator at a school that serves two distinct communities in Grainger County, each on separate sides of a Rutledge Pike mountain ridge. On the southern side of the ridge sits the town of Rutledge, where internet options are available with speeds reaching up 940 Mbps.⁵⁴ On the northern side, where Washburn High School is located, the only non-satellite based provider is a cable provider that does not meet the minimum recommended broadband standards, and even this service can be cost prohibitive for its residents.⁵⁵

⁴⁶ *Id.*

⁴⁷ Rachel Monahan, *What Happens When Kids Don't Have Internet at Home?*, THE ATLANTIC (Dec. 12, 2014), <https://www.theatlantic.com/education/archive/2014/12/what-happens-when-kids-dont-have-internet-at-home/383680/>.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ Editorial Board, *Locked Out of the Virtual Classroom*, THE NEW YORK TIMES (Mar. 27, 2020), <https://www.nytimes.com/2020/03/27/opinion/coronavirus-internet-schools-learning.html> (last visited Apr. 3, 2020).

⁵¹ *Id.*

⁵² *Id.*

⁵³ Telephone Interview with Ginny McElhaney, Principle, Washburn High School (Apr. 5, 2020).

⁵⁴ Internet Service Providers in Washburn, Tennessee, <https://broadbandnow.com/Tennessee/Rutledge> (last visited Apr. 3, 2020).

⁵⁵ *Id.*

Because so many students are not able to access the internet speeds necessary to hold online classes and complete online coursework, Washburn staff had to make a difficult decision on whether to close down indefinitely or find a low-tech way of keeping students engaged in their curriculum during the pandemic.⁵⁶ After reaching out to every parent in the directory, and reaching nearly 90 percent of students, the school decided to offer both online courses for the students that could access them, and delivered paper packets to those students who were unable to access the online content.⁵⁷ Ginny says that keeping her students engaged and on a path to graduation is what is driving her during these difficult times.⁵⁸ She wishes there wasn't such a large disparity in access to online resources, but she and her fellow educators are willing to do what they can to bridge that gap for the time being.⁵⁹

Expansion of internet service has traditionally been a private endeavor.⁶⁰ The profitability of expanding to rural areas has been the main stopping point for most large internet providers.⁶¹ If there are not enough customers to satisfy the cost of infrastructure improvements, then private companies are not likely to invest in rural communities.⁶² During the expansion of the electrical grid in the 1930s, rural communities were among the last to receive service.⁶³ Electric companies were reluctant to expand to areas where the margins for profit would be slim.⁶⁴ Because of this reluctance, the federal government had to step in to incentivize private industry.⁶⁵ Now the federal government has taken steps to subsidize the cost of private investment in broadband development in order to get rural communities connected.⁶⁶

⁵⁶ Telephone Interview with Ginny McElhaney, *supra* note 53.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ Mark Howell, *Saving net neutrality, one house at a time*, THE WASHINGTON POST (Apr. 22, 2018), https://www.washingtonpost.com/opinions/saving-net-neutrality-one-house-at-a-time/2018/04/22/a4de8a7e-39af-11e8-8fd2-49fe3c675a89_story.html.

⁶¹ *Id.*

⁶² *Id.*

⁶³ Harold D. Wallace, *Power from the people: Rural Electrification brought more than lights*, NAT'L. MUSEUM OF AMER. HIST. (Feb. 12, 2016), <https://americanhistory.si.edu/blog/rural-electrification>.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ Edward Moyer, *FCC approves \$20B rural broadband fund, but not without disagreements*, CNET (Feb. 1, 2020), <https://www.cnet.com/news/fcc-approves-20-4m-rural-broadband-fund-but-not-without-disagreements/>.

Where private industry has been reluctant to provide service, many municipalities have attempted to fill the gap by providing their own broadband internet service.⁶⁷ Municipal broadband services began popping up nationwide after a town in Colorado decided to stop waiting for private internet service providers to bring affordable high-speed internet to their residents.⁶⁸ However, the process of creating and expanding a network is slow and expensive. Developing a local network requires the creation of brand-new connection infrastructure.⁶⁹ Some cities have to take a block by block approach because there is not the money or the manpower to get everything going right away.⁷⁰ Even with the slow installation municipal broadband projects have had some success.⁷¹

One positive effect of municipal broadband is that it forces private providers to compete or risk losing entire communities of customers.⁷² Another positive is that it allows municipalities to double up and upgrade their electrical utilities along with their internet capabilities.⁷³ These improvements can help with electrical load management, as well as future proofing the grid for changes in power sourcing.⁷⁴

Municipal broadband has faced stiff opposition from a number of state legislatures because of strong lobbying efforts.⁷⁵ Twenty-six states have passed legislation aimed at slowing, or outright banning, the implementation of municipally funded broadband expansion.⁷⁶ Many of these bills are the product of private lobbying groups, who see municipal broadband as a threat to their market shares.⁷⁷ One internet provider tried to prevent municipal broadband in West Virginia by hiring the state senate president as a consultant while he

⁶⁷ Tamara Chuang, *More Colorado cities and counties say yes to broadband by voting to get out of an old state law*, THE COLORADO SUN (Sep. 13, 2018), <https://coloradosun.com/2018/09/13/municipal-broadband-cities-colorado/>.

⁶⁸ *Id.*

⁶⁹ Howell, *supra* note 60.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Karl Bode, *Frontier Fires State Senate Leader (Who Also Worked For Frontier) For Supporting Attempts To Improve Broadband Competition*, TECHDIRT. (June 8, 2017), <https://www.techdirt.com/articles/20170606/05202837522/frontier-fires-state-senate-leader-who-also-worked-frontier-supporting-attempts-to-improve-broadband-competition.shtml>.

⁷⁶ *Id.*

⁷⁷ Bode, *supra* note 75.

was still in office.⁷⁸ He worked for the company for seven years before he was fired in 2017 for refusing to torpedo a bill that would allow municipal broadband systems in the state.⁷⁹ Passing over the question of bias or conflicts of interest, his firing shows that big internet service providers see municipal broadband as a threat to their near-monopolies and are not going to sit by idly.⁸⁰

In 2016, the FCC attempted to step in to prevent states from banning municipally funded broadband, claiming preemption based on its interpretation of the Telecommunications Act of 1996.⁸¹ This claim was failed when a federal appeals court ruled in favor of the state legislatures.⁸² The court found that for the FCC to succeed on their claim of preemption, the statute that claimed to give the power of preemption must clearly do so under *Nixon v Missouri Municipal League* standard.⁸³ In *Nixon*, the court held that for a federal agency to preempt state control of municipalities, the intention must be absolutely clear as laid out in the statute being interpreted.⁸⁴ Because the Telecommunications Act did not clearly give the authority to preempt state legislatures, just as in *Nixon*, the FCC did not have the authority to override a state law banning municipal broadband.⁸⁵

In the face of such decisions, in order to offset some of the costs of private investment, the FCC developed a program to incentivize private internet service providers to expand their coverage to small towns.⁸⁶ In 2020, the FCC launched a 20 billion dollar initiative called the Rural Digital Opportunity Fund to spur private investment in rural communities.⁸⁷ The Rural Digital Opportunity Fund is set to run over ten years and serve to subsidize the cost of infrastructure for private investments to serve unserved census blocks.⁸⁸

The program will have two phases.⁸⁹ In Phase I, internet service providers bid in a reverse auction based on how much they believe it would cost them to

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Tennessee v. FCC*, 832 F.3d 597, 600 (6th Cir. 2016).

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Nixon v. Mo. Mun. League*, 541 U.S. 125, 128 (2004)

⁸⁵ *Tennessee*, 832 F.3d at 600.

⁸⁶ *Rural Digital Opportunity Fund*, FEDERAL COMMUNICATIONS COMMISSION, <https://www.fcc.gov/rural-digital-opportunity-fund> (accessed Apr. 3, 2020).

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

bring high speed internet to communities that are completely unserved by internet service providers.⁹⁰ The FCC examines those bids, then provides grants to subsidize some of the cost based on who they believe will get the service out the quickest and most efficiently.⁹¹ The program launched on January 30, 2020 and has already begun selecting grantees.⁹² Phase II will expand the program to communities that are only partially served, and those not funded in Phase I.⁹³

One commissioner of the FCC said that the program has been established on faulty footing because the maps the FCC is using to identify underserved or unserved areas are provided by internet service providers and based on incomplete data, as explained above.⁹⁴ The coverage maps that the FCC uses assumes that if one person on a census block has access to high speed internet then everyone on that block does as well.⁹⁵ Furthermore, internet service providers have a financial incentive to give inaccurate coverage maps that overestimate the number of people with access to high-speed internet.⁹⁶

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *Id.*

⁹⁴ Moyer, *supra* note 66.

⁹⁵ *Id.*

⁹⁶ *Id.*