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First Steps to Future-Proofing the Broadband Ecosystem for Artificial Intelligence

By Nate Karren



Executive Summary

The United States is experiencing an artificial intelligence boom. Unfortunately, the United States' broadband ecosystem is not ready for the resulting and unprecedented increase in online traffic. Scarce spectrum and slow internet speeds will harm consumers if the broadband infrastructure isn't modernized to meet the combination of increased demand for wireless goods and increased supply of online content. To modernize broadband infrastructure, federal and state governments should seek to accelerate the replacement of outdated copper wiring and the expansion of the commercial spectrum supply.

At the federal level, Congress should build on the success of the One Big Beautiful Bill Act's spectrum pipeline and use follow-up legislation to continue adding bandwidth to the commercial spectrum supply. Meanwhile, the FCC can approve mergers based on economic goals, amend NEPA rules regarding categorical exclusions, and either revise or forbear from enforcing Section 214 discontinuance requirements.

At the state level, reforming Carriers of Last Resort laws to more closely match the FCC's copper retirement rules can unlock more resources for companies to build out IP-based infrastructure and landline replacements, improving rural service without disconnecting emergency communications systems.

Neither the federal nor state governments can future-proof the American broadband ecosystem alone. But if both levels of government anticipate AI-induced rising broadband and spectrum use—and independently pursue policy choices with the future in mind—then together they can foster faster, more available connections for all American consumers, both rural and urban.

AI Will Increase Wireless Internet Traffic

A large share of Americans' internet use happens on wireless connections—both Wi-Fi and cellular. Using data from the 2021 American Community Survey, the U.S. Census Bureau reported that “smartphones were the most common computing device in U.S. households, followed by desktop or laptop computers and tablets.” Each device had a 90 percent, 81 percent, and 64 percent of use within a U.S. household, respectively.¹ This illustrates a clear preference for Wi-Fi-powered devices at home, which use the 2.4 GHz and 5 GHz bands. These same wireless devices can switch seamlessly to cellular when outside the home, adding an aspect of mobility to the overall wireless preference. Furthermore, fixed wireless access (FWA, also known as 5G Wireless Home Internet) subscribers have grown by 400 percent since 2022, indicating a clear shift towards licensed spectrum-reliant technology.² Wireless connections through both unlicensed Wi-Fi and licensed cellular technologies are becoming more popular in the US.

While consumer preferences shift toward spectrum-dependent wireless technologies, AI plays a strong role in increasing the amount of content accessed and data transferred. Research finds that 74 percent of new webpages in April 2025—including 87.1 percent of blog posts, 62.7 percent of social media posts, and 15.2 percent of white papers—feature AI-generated or assisted content.³ This is coupled with industry predictions that expect AI to increase consumer network traffic from 120 exabytes (EB) per month in 2023 to as much as 1135 EB/month by 2033, “marking a 6x–9x increase.”⁴ More conservative forecasts place wireless monthly data consumption (across FWA and mobile technologies) at 500 EB/month in 2031, but this is still roughly a 60 percent increase from 2025's current monthly estimate of 196.7 EB.⁵ This expected increase is driven directly through generative AI applications, AI-assisted tasks, AI-powered gaming, extended reality, and productivity tools, and indirectly through AI-based personalized recommendations on social media, streaming, and marketplaces.⁶ AI-powered increases of unlicensed and licensed traffic will put more strain on a limited spectrum supply.

AI is also speeding innovation in the “Internet of Things” (IoT), especially in autonomous vehicles and manufacturing.⁷ Autonomous Vehicles (AVs) depend on reliable wireless internet access to navigate, receive updates, and communicate with critical networks.

¹ U.S. Census Bureau, “Computer and Internet Use in the United States: 2021,” Census.Gov, accessed October 30, 2025, <https://www.census.gov/newsroom/press-releases/2024/computer-internet-use-2021.html>.

² Camryn Smith, “Fixed Wireless Subscribers Are up 400% since the Start of 2022,” Allconnect, March 4, 2025, <https://www.allconnect.com/blog/fastest-growing-isp>.

³ Tim Soulo et al., “74% of New Webpages Include AI Content (Study of 900k Pages),” SEO Blog by Ahrefs, May 19, 2025, <https://ahrefs.com/blog/what-percentage-of-new-content-is-ai-generated/>.

⁴ “Nokia: Global Network Traffic Report,” OneStore, December 14, 2024, <https://www.nokia.com/asset/213660/>.

⁵ “Mobile Data Traffic Forecast — Ericsson Mobility Report,” Ericsson.com, accessed December 8, 2025, <https://www.ericsson.com/en/reports-and-papers/mobility-report/dataforecasts/mobile-traffic-forecast>.

⁶ “Nokia: Global Network Traffic Report.”

⁷ Hamid Khayyam et al., “Artificial Intelligence and Internet of Things for Autonomous Vehicles,” in *Nonlinear Approaches in Engineering Applications: Automotive Applications of Engineering Problems*, ed. Reza N. Jazar and Liming Dai (Springer International Publishing, 2020), 2020, https://doi.org/10.1007/978-3-030-18963-1_2; and Industrial Technology, “The Impact of Artificial Intelligence in Industrial IoT-ATS,” Advanced Technology Services, accessed October 30, 2025, <https://www.advancedtech.com/blog/impact-of-ai-industrial-internet-of-things/>.

AI makes sense of all the data collected by AVs' sensors and coordinates them to avoid crashes while optimizing speeds for all.⁸ AVs previously relied on the 5.9 GHz band, which was opened up for broader, unlicensed spectrum access in 2021, effectively pushing AV operations into the upper 30 MHz of the band (now called the C-V2X band).⁹ Data shows that autonomous vehicle sales have increased every year between 2018 and 2025, and are projected to reach as high as 58 million in 2030.¹⁰ As AVs become more popular, use of the C-V2X band will increase, unless private companies use their own LTE/5G networks to facilitate AV operations.

Meanwhile, in manufacturing, AI-powered machine-to-machine communication occurs primarily in the Industrial, Scientific, and Medical (ISM) band, including the 2.4 GHz Wi-Fi band.¹¹ A spectrum portion is reserved for ISM equipment, but is routinely crowded by consumer gadgets.¹² As artificial intelligence is deployed in the ISM, device, and AV IoT, it can facilitate greater growth in those industries, rapidly filling up the airwaves through which they communicate.

Current Communications Tech Is Insufficient

WIRELESS SPECTRUM IS SCARCE

The growing reliance on spectrum is approaching a crisis. Recent analysis from Accenture found that consumers will face a mid-band spectrum shortage of 401 MHz by 2027 and 1423 MHz by 2032, absent any additional spectrum for non-federal use.¹³ With the inclusion of an 800 MHz licensed spectrum pipeline in the One Big Beautiful Bill Act (OBBA), the deficit can be reduced somewhat, but it will still leave consumers at least 600 MHz short when the FCC's restored spectrum auction authority expires in 2034.¹⁴

⁸ The Newsroom, "Racing to the Future: How Autonomous Vehicle Networks Are Revolutionizing Connectivity," Cisco, accessed October 30, 2025, <https://newsroom.cisco.com/c/r/newsroom/en/us/a/y2023/m03/racing-to-the-future-how-autonomous-vehicle-networks-are-revolutionizing-connectivity.html>.

⁹ Jennifer Huddleston, "Reallocating the 5.9 GHz Band: Roadblock for Transportation Innovation or Roadmap to 5G Innovation?," American Action Forum, May 24, 2021, <https://www.americanactionforum.org/insight/reallocating-the-5-9-ghz-band-roadblock-for-transportation-innovation-or-roadmap-to-5g-innovation/>.

¹⁰ Tajammul Pangarkar, "Autonomous Vehicles Statistics and Facts (2025)," Market.U.S. News, January 13, 2025, <https://www.news.market.us/autonomous-vehicles-statistics/>.

¹¹ Haltian, "Frequency Bands for Ten Most Popular IoT Protocols-Haltian," Haltian, accessed October 30, 2025, <https://haltian.com/resources/frequency-bands-for-ten-most-popular-iot-protocols/>.

¹² "Low-Power RF Devices and the ISM Bands-The Electromagnetic Spectrum-Electronics Textbook," All About Circuits, accessed October 30, 2025, <https://www.allaboutcircuits.com/textbook/radio-frequency-analysis-design/electromagnetic-spectrum/low-power-rf-devices-and-the-ism-bands/>.

¹³ CTIA, "Looming-Spectrum-Crisis-Accenture.Pdf," CTIA, n.d., accessed October 30, 2025, <https://api.ctia.org/wp-content/uploads/2025/03/Looming-Spectrum-Crisis-Accenture.pdf>.

¹⁴ Rep. Jodey C. Arrington, "Text - H.R.1 - 119th Congress (2025-2026): One Big Beautiful Bill Act," legislation, July 4, 2025, 2025-05-20, <https://www.congress.gov/bill/119th-congress/house-bill/1/text>; and Nate Karren, "Nate Karren: A Spectrum Pipeline on the Horizon," Broadband Breakfast, June 17, 2025, <https://broadbandbreakfast.com/nate-karren-a-spectrum-pipeline-on-the-horizon/>.

That leaves a shortage constraining both consumers and the IoT, and will need targeted additions to the L, S, and C bands. These mid-band spectrum ranges are ideal for communications technology because they can deliver information over long distances while maintaining sufficiently high frequencies to transmit large amounts of data. But without further Congressional action, consumers will experience degraded service quality and slower internet speeds as the airwaves become increasingly crowded.¹⁵

WIRED METHODS FALL SHORT

Digital subscriber line (DSL) internet services allow for old copper wiring to transmit and receive both telephone and internet services simultaneously. But the technology is not fast enough to accommodate the expected, AI-driven increase in demand on America's infrastructure, and is too costly for consumers compared to its higher-tech alternatives. According to December 2024 data and the National Broadband Map from the Federal Communications Commission (FCC), DSL copper wiring connects 22 percent of fixed broadband subscribers, primarily in rural areas.¹⁶ In the FCC's thirteenth fixed broadband speed report, DSL consistently showed sluggish speeds around 30 megabits per second.¹⁷ Such services are far below the national fixed broadband median speed of 285.59 Mbps, and the minimum federal standard of 100 Mbps as defined by the Broadband Equity, Access, and Deployment program.¹⁸ Rural consumers dependent on DSL copper wiring are at a severe disadvantage, as sluggish service will be a severe bottleneck for AI-driven demand increases. Research from the Center for Rural AI highlights that slow, unreliable internet adds fuel to the digital divide, ultimately excluding rural Americans from full participation in the modern economy.¹⁹ Replacing outdated copper with cable, fiber, fixed wireless access, or low-earth orbit satellite can help address the disadvantage.

Furthermore, internet service providers (ISPs) find that old copper wiring is costly to maintain, as much as \$6 billion per year, even before including labor costs or copper theft.²⁰ These high costs are often passed on to DSL subscribers, who end up paying far more for each megabit of data on average than urban consumers on higher-speed plans. A 2018 analysis detailed the cost-per-megabit for AT&T and Verizon subscribers at different copper tiers and compared their prices with their fiber plans (Table 1).

¹⁵ Karren, "Nate Karren: A Spectrum Pipeline on the Horizon."

¹⁶ "FCC National Broadband Map," FCC National Broadband Map, October 15, 2025, <https://broadbandmap.fcc.gov>.

¹⁷ "Technical-Appendix-Fixed-2023.Pdf," n.d., accessed October 30, 2025, <https://data.fcc.gov/download/measuring-broadband-america/2023/Technical-Appendix-fixed-2023.pdf>.

¹⁸ Ookla, "United States's Mobile and Broadband Internet Speeds," Speedtest Global Index, accessed October 6, 2025, <https://www.speedtest.net/global-index/united-states#fixed>; and Emily Drake, "Frequently Asked Questions and Answers Draft Version 2.0," BroadbandUSA-NTIA, September 2022, https://broadbandusa.ntia.gov/sites/default/files/2022-09/BEAD-Frequently-Asked-Questions-%28FAQs%29_Version-2.0.pdf.

¹⁹ Andrew Aitken, "The AI Divide: Why Rural Communities Are Being Left Behind," The Builder Bureau, September 19, 2025, <https://thebuilderbureau.com/the-ai-divide-why-rural-communities-are-being-left-behind/>.

²⁰ Joan Engebretson, "AT&T Plans Copper Retirement By 2029: Here's How - Telecompetitor," Telecompetitor, December 4, 2024, <https://www.telecompetitor.com/att-plans-copper-retirement-by-2029-heres-how/>.

Table 1



CONSUMERS PAY MORE FOR LESS WHEN USING DSL LINES

Maximum Download Speed (Mbps)	Technology	AT&T Price	Verizon Price	Cost per Megabit	
				AT&T	Verizon
0.77	DSL	\$50	\$53	\$65.10	\$69.01
1.5	DSL	\$50	\$63	\$33.33	\$42.00
3	DSL	\$50	\$63	\$16.67	\$21.00
5	DSL	\$50	\$63	\$10	\$12.60
7	DSL	-	\$63	-	\$9.00
10	DSL	\$60	\$63	\$6	\$6.30
15	DSL	-	\$63	-	\$4.20
25	DSL	\$60	-	\$2.40	-
50	DSL	\$60	-	\$1.20	-
75	DSL	\$60	-	\$0.80	-
100	Fiber	\$60	\$65	\$0.60	\$0.65

Source: [NDIA-Tier-Flattening-July-2018.pdf](#), chart recreated by ACI

Fiber-optic connections use light signals through glass strands rather than electric pulses through copper. Fiber technology is often touted as the gold standard for wired communication methods due to its reliability, speed, and large bandwidth, and Table 1 clearly illustrates that consumers on DSL lines pay similar prices for speeds far inferior to what fiber can deliver.²¹ According to the FCC National Broadband map, most areas with copper line service of any speed are also covered by cable, fiber, or fixed wireless access with speeds that meet the national standard, but copper covers more than its higher-tech counterparts in 145 counties.²² In the counties already served by better technology, copper retirement frees up resources to build out to rural Americans. In the remaining 145 rural counties, network modernization can rescue consumers from paying too-high prices for inferior service.

²¹ "What Is Fiber Optics? A Guide," Fluke Networks, March 20, 2024, <https://www.flukenetworks.com/blog/cabling-chronicles/what-is-fiber-optics>.

²² "FCC National Broadband Map," FCC National Broadband Map, accessed October 30, 2025, <https://broadbandmap.fcc.gov>.

As artificial intelligence increases the amount of data available to consumers, and demand for the internet grows, subpar speeds and higher prices per Mbps will keep consumers on DSL copper lines from fully participating in the digital economy. Expanding spectrum supply and upgrading copper lines are critical to meeting the increasing demand for internet services.

Policy Solutions

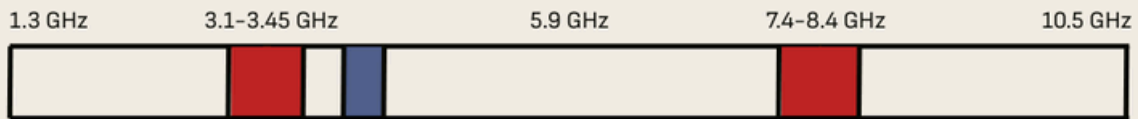
INCREASE THE SPECTRUM SUPPLY

Freeing up more spectrum requires Congressional action, and major progress has already been made with the passage of a spectrum pipeline in the One Big Beautiful Bill Act (OBBB). However, without additional legislation, there will still be a shortage of 600 MHz once the FCC auction authority expires again in 2034. More spectrum must be identified, cleared, and reallocated for commercial use beyond what the OBBB stipulates.

The OBBB focuses on spectrum frequencies between 1.3 and 10.5 GHz with specific carveouts for federal use in the 3.1–3.45 and 7.4–8.4 GHz ranges.²³ That leaves 7850 MHz (7.85 GHz) for the 800 MHz (0.8 GHz) to be drawn from. Future legislation can build on that foundation by directing the National Telecommunications and Information Administration (NTIA) to identify and clear for auction at least 600 MHz (0.6 GHz) more within that same range.

²³ Rep. Arrington, “Text – H.R.1 – 119th Congress (2025–2026).”

THE ONE BIG BEAUTIFUL BILL ACT IDENTIFIES A TOTAL OF 9.2 GHZ OF SPECTRUM, AND **EXCLUDES** A TOTAL OF 1.35 GHZ, TO **DRAW** 0.8 GHZ FROM. FUTURE LEGISLATION CAN **DRAW** 0.6 GHZ MORE WITHIN THE SAME RANGE.



Source: Text – H.R.1 – 119th Congress (2025–2026): One Big Beautiful Bill Act | Congress.gov
| Library of Congress

While it is a generally good idea to increase both licensed and unlicensed spectrum, economic analysis highlights that policymakers should prioritize adding spectrum where it will make the biggest impact.²⁴ Putting the new OBBBA spectrum—and an additional 600 MHz from follow-up legislation—towards licensed uses would have a greater current impact than unlicensed uses. As a 2024 study from telecommunications scholar Richard Bennett put it: “Wi-Fi is no longer the bottleneck in consumers’ internet connection,” and doubling channel sizes has only improved performance when a device is within 10 feet of a router.²⁵ While Bennett’s study has drawn critique in the wider licensed vs unlicensed debate, the core issue remains unresolved—consumers prefer wireless technologies, and spectrum will be in increasingly short supply in the coming years, absent new allocations.²⁶ Once the added benefits of additional spectrum are the same for licensed and unlicensed uses, future reallocation efforts can continue adding to both complementary technologies’ stock. Efficient spectrum reallocation can better prepare America’s broadband infrastructure for the AI-driven increase in internet traffic.

²⁴ T Randolph Beard et al., “PHOENIX CENTER POLICY BULLETIN NO. 79,” Phoenix Center, September 2025, <https://phoenix-center.org/PolicyBulletin/PCPB79Final.pdf>.

²⁵ Richard Bennet, “Lessons From The History of Wi-Fi”, 802.3-2022: IEEE Standard for Ethernet, October 2024, https://api.ctia.org/wp-content/uploads/2024/10/WiFi-Lessons_RB.pdf.

²⁶ Dean Bubley, “‘Lessons from the History of Wi-Fi’: A Critique,” Broadband Breakfast, December 18, 2024, <https://broadbandbreakfast.com/lessons-from-the-history-of-wi-fi-a-critique/>.

MODERNIZE WIRED NETWORKS

Internet service providers view retiring DSL copper wiring as a top priority, with plans to completely phase out the tech by 2029.²⁷ In areas within reach of fiber buildout, ISPs plan to upgrade and serve their customers on fiber lines instead of copper.²⁸ In hard-to-reach rural areas where fiber buildout would be unprofitable, wireless 5G home internet service can be deployed instead, to ensure customers do not lose connectivity during and after copper retirement.²⁹

Finally, to alleviate concerns about how copper retirement will affect emergency communications services like alarm systems, medical devices, 911 accessibility, and landline phones, companies have developed landline replacement devices. These devices are built for peripherals that rely on a landline connection (fax machines, alarm systems, medical devices) to connect to this device instead, and switch to battery power during a power outage.³⁰ Backup batteries can last up to 24 hours, which can adequately cover the average power outage experienced in the US.³¹ Between 2013 and 2022, the Energy Information Administration found that the highest average outages hovered around 8 hours, including major events.³² In 2024, the average fell to around 7 hours (432.7 minutes), including major events.³³ The market has innovated beyond copper landlines while maintaining reliability in emergencies.

However, deploying these higher-tech solutions to replace outdated copper wiring is often slowed down by state-level Carrier of Last Resort (COLR) regulations. Under these rules, carriers that hold COLR status are required to serve all customers within a geographical area and are not allowed to withdraw required service without permission from state authorities. These rules are meant to guarantee emergency communications services for all but are ironically restricting carriers from upgrading those services with fiber and landline replacements or from retiring copper lines in areas with several other competing carriers.³⁴

California offers a prime example of how COLR rules pose a particular challenge to copper retirement. In California, the designated COLR spends \$1 billion every year to maintain outdated copper wiring, despite only 5 percent of Californians using their landline service.³⁵

²⁷ Engebretson, "AT&T Plans Copper Retirement By 2029."

²⁸ Ibid.

²⁹ Ibid.

³⁰ "AT&T Phone-Advanced User Guide," AT&T, n.d., accessed October 30, 2025, <https://www.att.com/scmsassets/support/other/att-phone-advanced-online-guide.pdf>; and Linda Hardesty, "Brightspeed Can Replace Copper with Unique Wireless Technology," Fierce Network, September 9, 2024, <https://www.fierce-network.com/broadband/brightspeed-can-replace-copper-unique-wireless-technology>.

³¹ "Learn About Battery Backup," AT&T, accessed October 30, 2025, <https://www.att.com/support/article/u-verse-voice/KM1041593/>.

³² "U.S. Electricity Customers Averaged Five and One-Half Hours of Power Interruptions in 2022 – U.S. Energy Information Administration (EIA)," EIA, January 25, 2024, <https://www.eia.gov/todayinenergy/detail.php?id=61303>.

³³ "Electric Power Annual with Final 2024 Data," EIA, n.d., October 2025, <https://www.eia.gov/electricity/annual/pdf/epa.pdf>.

³⁴ Jericho Casper, "Twenty-One States Push to Scrap Carrier-of-Last-Resort Laws," Broadband Breakfast, April 11, 2025, <https://broadbandbreakfast.com/twenty-one-states-push-to-scrap-carrier-of-last-resort-laws/>.

³⁵ "2024-03-05-Bos-Att-Carrier-of-Last-Resort-2-Pager.Pdf," n.d., accessed October 30, 2025, <https://www.marincounty.gov/sites/g/files/fdkgoe241/files/2024-03/2024-03-05-bos-att-carrier-of-last-resort-2-pager.pdf>; and Ethan Baron, "California, AT&T Square Off Over Landline Service Requirement," GovTech, August 4, 2025, <https://www.govtech.com/policy/california-at-t-square-off-over-landline-service-requirement>.

The COLR has emphasized that “No customer will be left without voice and 911 services” thanks to advancements in fiber, fixed wireless, and landline replacement technologies.³⁶ Requiring COLRs to maintain outdated copper landlines keeps users stuck in yesteryear when copper retirement could bring consumers modern, internet-based telephone service through voice-over-IP (VoIP) technology and internet services that are cheaper, faster, and more versatile than a landline subscription.

California’s Assembly Bill 470 could have offered a compromise.³⁷ Under this bill, a designated COLR could seek relief from its obligations in areas where its departure leaves at least three other non-copper service providers, or, if the census found there is simply no one living there, it can request to be relieved of its COLR status. These changes would have improved the status quo, but the bill has been in a suspense file since August, waiting to be reviewed in bulk alongside other bills anticipated to have large fiscal impacts.³⁸ In the meantime, the California Public Utilities Commission (CPUC) issued a proposed rulemaking, where the CPUC will explore reform options, review public comments, and issue a decision by June 20, 2026, on whether the state will alter its COLR rules, absent legislative reform.³⁹

Whether through amending AB 470 or CPUC rulemaking, California’s COLR requirements should be reformed. First, the changes should redefine “well-served” areas to mean areas with at least one non-copper competitor—not three—and allow carriers to request dropping their COLR status. In areas with three or more competitors, allow COLRs to retire copper lines without requiring them to file a request first. Furthermore, there is no reason to force COLRs to serve areas where the census found no living residents. COLRs should be given the freedom to retire their copper systems in these areas without submitting a request to the California Public Utilities Commission. These changes can bring California law closer in line with the FCC’s nationwide copper retirement rules, which allow for streamlined public notice, bundles instead of standalone service, and may soon allow for faster discontinuance in areas already well served by competing carriers. Other states should similarly reform their rules to match the federal standard and provide a level playing field across state lines so providers can reliably and efficiently replace legacy copper tech with modernized systems.

At the federal level, the FCC is implementing several changes to speed copper retirement through proposed rulemaking.⁴⁰ Its current plan involves cutting red tape and allowing businesses greater flexibility in the replacements they offer. First, the FCC has streamlined retirement rules by reducing the amount of files, reports, and other paperwork providers must complete to begin retiring their old copper lines.

³⁶ David Shepardson, “California Rejects AT&T Bid to Stop Offering Landline Service in Some Areas,” Media & Telecom, Reuters, June 21, 2024, <https://www.reuters.com/business/media-telecom/california-rejects-att-bid-stop-offering-landline-service-some-areas-2024-06-20/>.

³⁷ Assemblymember Tina McKinnor, “Today’s Law As Amended – AB-470 Telephone Corporations: Carriers of Last Resort,” California Legislative Information, July 17, 2025, https://leginfo.ca.gov/faces/billCompareClient.xhtml?bill_id=20250260AB470&showamends=false.

³⁸ “FAQ’s–Senate Appropriations Committee,” Senate Appropriations Committee, accessed October 30, 2025, <https://sapro.senate.ca.gov/FAQs>.

³⁹ “Carrier of Last Resort Rulemaking,” CPUC.Ga.Gov, accessed October 30, 2025, <https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/carrier-of-last-resort-rulemaking>; and “555967147.PDF,” n.d., accessed October 30, 2025, <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M555/K967/555967147.PDF>.

⁴⁰ “DOC-412688A1.Pdf,” n.d., accessed October 30, 2025, <https://docs.fcc.gov/public/attachments/DOC-412688A1.pdf>.

Without this change, carriers were required to submit special labeling and notice requirements to the public, then wait 90 days for the Commission to provide separate notice and process objections.⁴¹ Now, the FCC only requires one notice to the public for providers to move forward with copper retirement.⁴²

Additionally, the FCC's proposed rulemaking would allow ISPs to use internet and telephone service bundles to replace copper line services, where they previously required ISPs to offer a stand-alone voice service.⁴³ While providing this greater flexibility, the FCC is maintaining key protections, "including requiring interoperability and guarding against price hikes by ensuring that consumers transitioning to new networks get access to services at similar or lower price points."⁴⁴ These regulatory reforms can speed up copper retirement initiatives and allow companies to reallocate funds to expand coverage for cable, fiber, or wireless—without disconnecting consumers from critical services.

To further speed copper retirement without leaving rural America unconnected, the FCC should proactively approve telecom mergers it deems to be in the public interest using an economic, not social, lens. Due to the high capital costs to build, maintain, and operate a broadband network, mergers and acquisitions enable companies to take advantage of greater economies of scale, effectively shrinking their costs in proportion to their revenue.⁴⁵ Approving competitive mergers without delay can allow businesses to leverage those economies of scale earlier, freeing up more capital for infrastructure build-out and expansion, helping them expand modern communications technology to the areas where they are trying to retire copper.

In the cases of the Verizon-Frontier acquisition and the T-Mobile and US Cellular acquisition, social policy goals became entangled with economic goals, delaying both deals.⁴⁶ Given that rapidly improving AI technologies threaten the broadband ecosystem, the FCC should stay focused on the economics and quickly allow companies to expand better services to copper-dependent rural areas.

⁴¹ "2025-09-29 DPI Reducing Barriers Comments.Docx," n.d., accessed October 30, 2025, <https://digitalprogress.tech/wp-content/uploads/2025/10/2025-09-29-DPI-Reducing-Barriers-Comments.pdf>.

⁴² Jennifer Michel, "FCC Unanimously Approves Measure to Speed Transition from Copper Lines," Broadband Breakfast, July 24, 2025, <https://broadbandbreakfast.com/fcc-unanimously-approves-measure-to-speed-transition-from-copper-lines/>.

⁴³ "DOC-412688A1.Pdf,"

⁴⁴ "DOC-410304A1.Pdf," n.d., March 20, 2025, <https://docs.fcc.gov/public/attachments/DOC-410304A1.pdf>.

⁴⁵ Nate Karren, "Report: The Need for Mergers in High-Fixed-Cost Industries – The American Consumer Institute Center for Citizen Research", The American Consumer Institute, October 14, 2025, <https://www.theamericanconsumer.org/2025/10/report-the-need-for-mergers-in-high-fixed-cost-industries/>.

⁴⁶ Brendan Carr [@BrendanCarrFCC], "I am concerned by Verizon's continued focus on promoting DEI. I expect all regulated businesses to end invidious forms of discrimination. <https://t.co/b2536EeOmk>," Tweet, Twitter, February 27, 2025, <https://x.com/BrendanCarrFCC/status/1895211283089367318>; and Brendan Carr [@BrendanCarrFCC], "NEW: T-Mobile has agreed to end its DEI policies as specified in a filing with the FCC. 'T-Mobile will no longer have any individual roles or teams focused on DEI.' Another good step forward for equal opportunity, nondiscrimination, and the public interest. <https://t.co/iAqB66WKiH>," Tweet, Twitter, July 9, 2025, <https://x.com/BrendanCarrFCC/status/1942992414404157570>.

Similarly, thoughtful permitting changes can speed up copper retirement since much infrastructure buildout is stuck behind long National Environmental Protection Act (NEPA) reviews and permitting processes. Before the 2024 Committee on Natural Resources, Michael Romano testified that multi-year NEPA reviews frequently hold up broadband deployment projects.⁴⁷ In one case, a fiber project that was built entirely on existing infrastructure and subject to a streamlined categorical exclusion was delayed for 9 months before approval was given, during which time the ground froze over, delaying the project an additional 5 months.⁴⁸ Even within the scope of categorical exclusions, projects can be hamstrung by slow delays and paperwork.

To correct these issues, the FCC can use its authority covering categorical exclusions from NEPA and implement two helpful reforms:⁴⁹

- Impose “shot clocks” when NEPA reviews are triggered. The FCC already has time limits for local governments to prevent review processes from dragging out longer than 90 days for new attachments to existing structures or 150 days for new structures.⁵⁰ Imposing these same limits at the federal level is a common-sense extension of existing precedent and can reduce the number and duration of delays due to environmental assessments (EAs).
- Limit EAs’ scope to only the triggering issue. Currently, under existing rules, when a project falls outside of a categorical exclusion and triggers an environmental assessment, builders are required to complete a full evaluation including whether the project is in a wilderness area, wildlife preserve, floodplain, wetlands, or historic or tribal sites; determine impacts on endangered species or critical habitats; assessing radiofrequency radiation exposure compliance; implementing mitigation, signage, and access controls for RF safety; coordinating shared compliance and EAs for collocated licensees; whether the project would significantly alter surface terrain; and whether antenna or lighting structures could affect migratory birds.⁵¹ Instead, require builders to submit an EA tailored to what caused the project to lose its categorical exception in the first place. For example, if the facility is to be built in a wetland, but it has no antenna structure, do not require information regarding antennae. This can eliminate much of the excess bulk paperwork that may slow down infrastructure build-out.

⁴⁷ Michael Romano, “Before the United States House of Representatives Committee on Natural Resources Subcommittee on Federal Lands Legislative Hearing on H.R. 3283, H.R. 3299, H.R. 5401, H.R. 6012, H.R. 7976, and H.R. 8012 Washington, DC July 9, 2024,” NaturalResources.House.Gov, July 9, 2024, https://naturalresources.house.gov/uploadedfiles/testimony_romano070924.pdf.

⁴⁸ Romano, “Before the United States House of Representatives Committee on Natural Resources Subcommittee on Federal Lands Legislative Hearing on H.R. 3283, H.R. 3299, H.R. 5401, H.R. 6012, H.R. 7976, and H.R. 8012 Washington, DC July 9, 2024.”

⁴⁹ “Tower and Antenna Siting–Federal Communications Commission,” FCC, accessed October 30, 2025, <https://www.fcc.gov/wireless/bureau-divisions/competition-infrastructure-policy-division/tower-and-antenna-siting>.

⁵⁰ “City of Arlington v. FCC,” Oyez, accessed October 30, 2025, <https://www.oyez.org/cases/2012/11-1545>.

⁵¹ “eCFR:: 47 CFR Part 1 -- Practice and Procedure,” eCode of Federal Regulations, accessed October 30, 2025, <https://www.ecfr.gov/current/title-47/chapter-I/subchapter-A/part-1#subpart-I>.

Finally, like states reforming their COLR laws, the FCC would be wise to forbear enforcement of 47 U.S. Code Section 214 discontinuance requirements for areas where multiple broadband carriers compete. During proposed rulemaking in July and September 2025, the FCC received an overwhelming majority of public comments in favor of forbearance. Commentators highlighted that the current rules requiring carriers to request permission before discontinuing copper service in well-served areas were created nearly 100 years ago as part of the Communications Act of 1934 to regulate a vastly different telecommunications landscape.⁵² Continued enforcement has, therefore, become a barrier to modernization, tying up resources for compliance that could be better spent on upgrading and expanding infrastructure to connect all consumers to better internet services.⁵³ While forbearance can accelerate network modernization today, it must be understood that such a solution can easily be undone again at a later date. Longer-lasting reform would be ideal; however, forbearance is a good place to start and has strong support under ongoing notices for proposed rulemaking.⁵⁴ The FCC should listen to the public comments it received and either pause enforcement or revise the outdated requirements under Section 214.

With each of these concrete actions, the FCC can trim back burdensome permitting paperwork and delays that often hold back copper retirement and the buildout of better replacement technology.

Conclusion

As artificial intelligence advances, the United States will continue to see an increase in internet traffic. However, due to imminent shortages in spectrum and rural dependency on outdated copper wiring, the U.S. broadband ecosystem is not ready to meet the heightened demand. America's internet infrastructure needs upgrading.

Solutions can be pursued at both the state and federal levels. Congress should build on the success of the One Big Beautiful Bill Act's spectrum pipeline and use follow-up legislation to continue adding bandwidth to the commercial spectrum supply. To accelerate the replacement of outdated copper wiring, the FCC can approve mergers based on economic, rather than social, goals, amend NEPA rules regarding categorical exclusions, and revise or forbear from enforcing Section 214 discontinuance requirements. Finally, at the state level, reforming Carriers of Last Resort laws to more closely match the FCC's copper retirement rules can unlock resources for companies to build out landline replacements, improving rural service without disconnecting emergency communications systems. Together, these solutions can foster faster, more available connections for all American consumers, both rural and urban, as artificial intelligence drives dramatic change in the digital age.

⁵² Diana Eisner and Nirali Patel, "2025 09 29 Final UST Comments Network Modernization.Pdf," FCC Electronic Comment Filing System, accessed October 27, 2025, <https://www.fcc.gov/ecfs/document/109291513505400/1>.

⁵³ James Erwin, "Digital Liberty Copper Retirement Submission.Pdf," FCC Electronic Comment Filing System, accessed October 27, 2025, <https://www.fcc.gov/ecfs/document/10930053219942/1>.

⁵⁴ Nate Karren, "Accelerating Network Modernization Reply Public Comment," The American Consumer Institute, November, 2025, <https://www.theamericanconsumer.org/wp-content/uploads/2025/11/Accelerating-Network-Modernization-Reply-Public-Comment.pdf>.



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