Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion	)	GN Docket No. 19-285

COMMENTS OF
THE FREE STATE FOUNDATION[1]

I. Introduction and Summary

These comments are submitted in response to the Commission's Notice of Inquiry regarding Section 706's requirement that the agency determine and report annually on "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion." These comments show that available data supports an affirmative answer to that question. Additionally, these comments support continued use of the 25 Mbps/3 Mbps speed benchmark for defining fixed broadband services as well as its existing LTE standard based on minimum advertised speeds of 5 Mbps upload/1 Mbps that meet 10 Mbps/3 Mbps speed tests for defining mobile broadband services. Those speed thresholds support applications and other uses that consumers presently widely demand. Furthermore, these comments show that fixed and mobile services compete for consumers and increasingly are used as substitutes. The Commission's upcoming report should address this issue by analyzing the circumstances in which advanced 4G LTE and 5G services are substitutable or potentially substitutable for fixed services.

[1] These comments express the views of Randolph May, President of the Free State Foundation, and Seth Cooper, Senior Fellow and Director of Policy Studies of the Free State Foundation. The views expressed do not necessarily represent the views of others associated with the Free State Foundation. The Free State Foundation is a nonpartisan, non-profit free market-oriented think tank.

Market data available for 2018 supports an affirmative determination that broadband is being reasonably and timely deployed to all Americans. For example, U.S. broadband providers invested about $80.0 billion in network infrastructure in 2018, up more than $3.1 billion from the $76.9 billion invested in 2017. Also, wireless industry investment in 2018 increased $1.8 billion to a total of $27.4 billion, and cell sites in operation rose 8%. As of September 2018, there were 18.4 million U.S. fiber broadband homes, up from a 15 million a year before. Cable broadband providers served over 66 million high-speed Internet customers as of year-end 2018. And the satellite broadband industry reported a 12% increase in subscribers in 2018. And Ookla tests revealed that average mobile speeds in early 2019 increased to 33.88 Mbps/9.75 Mbps, while average fixed broadband speeds increased to 96.25 Mbps/32.88 Mbps in the middle of 2018.

The Commission should retain its fixed broadband benchmark speeds of 25 Mbps/3 Mbps. It also should retain its mobile broadband benchmark of LTE service based on advertised minimum speeds of 5 Mbps/1 Mbps that meet 10 Mbps/3 Mbps speed test thresholds. And the Commission should again decline to crank the agency's broadband benchmark standard up to 100 Mbps. Section 706 is properly understood to require a realistic analysis of available infrastructure capable of supporting applications and uses that a substantial majority of consumers actually use.

A family can stream several videos simultaneously using only a fraction of the 100 Mbps threshold that Commissioner Rosenworcel, for years, has advocated as a new benchmark. Popular online video services like Netflix, Hulu, and Amazon Prime require download speeds of not more than 10 Mbps for HD streaming video or 5 Mbps for standard definition. Video gaming services and other popular Internet applications typically

recommend similar minimum speeds. It is wrong to suggest that, in the here and now, nothing less than 100 Mbps should qualify as broadband service.

The time is ripe for the Commission to conduct a more careful and wide-ranging analysis of wireline/wireless broadband substitution. Mobile broadband services increasingly are capable of providing Internet users with functions comparable to those offered by fixed broadband services, including access to video. About 60% of global mobile traffic in 2018 was for video applications. And consumers increasingly view both services as substitutes. A June 2018 survey by the Internet Innovation Alliance found 43% of U.S. consumers preferred mobile access or had no technology preference while 47% preferred fixed broadband. Also, a 2019 survey by Pew Research found 17% of U.S. adults and 25% of low-income adults are "smartphone-only" Internet users. Furthermore, new 5G networks promise average speeds at least ten times faster than LTE networks, with peak speeds exceeding LTE by perhaps 100 times. The performance capabilities of 4G LTE services offering HD-streaming capable or better speeds and new 5G services lead to the conclusion that both technologies are close or potential substitutes for fixed broadband services.

Even if the Commission determines – as it should – that advanced telecommunications capability is being reasonably and timely deployed to all Americans, the agency should continue to remove barriers to infrastructure investment. We fully expect forthcoming data for 2018 will likewise show deployment progress that exceeds progress made in prior years. And we recommend the Commission's next report find that broadband is being reasonably and timely deployed to all Americans.

II. Market Data Supports the Conclusion That Broadband Is Being Reasonably and Timely Deployed to All Americans

Initial industry reports from 2018 provide evidence that broadband continues to be reasonably and timely deployed to all Americans:

- In 2018, "the [wireless] industry's investments increased $1.8 billion to a total of $27.4 billion."[2]
- "In 2018, 349,344 cell sites were in operation—up 8 percent."[3]
- As of September 2018, there were 18.4 million U.S. fiber broadband homes, up from approximately 15 million a year before. As of that date, fiber broadband was marketed to 39.2 million homes.[4]
- Cable broadband providers served more than 66 million high-speed Internet customers as of year-end 2017 and they now serve more than 68 million high-speed customers.[5]
- Households connected by cable broadband adoption programs increased to over 1.5 million households in 2018, up from 1.25 million in 2017.[6]
- The satellite broadband industry reported a 12% increase in subscribers in 2018.[7]
- "U.S. broadband providers invested approximately $80.0 billion in network infrastructure in 2018, up more than $3.1 billion from $76.9 billion in 2017."[8]
- Ookla speed tests for the first and second quarters of 2018, show average mobile speeds of 27.33 Mbps/8.63 Mbps. For the second and third quarters of that same year, average fixed speeds of 96.25 Mbps/32.88 Mbps. And for the

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[2] CTIA, 2019 Annual Survey Highlights (June 2019), available at: https://api.ctia.org/wp-content/uploads/2019/06/2019-Annual-Survey-Highlights-FINAL.pdf.
[3] CTIA, 2019 Annual Survey Highlights.
[4] RVA, LLC (Fiber Broadband Assoc.), "North American Advanced Broadband Report" (Dec. 10, 2018), at: http://clarusbroadband.com/wp-content/uploads/2019/02/LifestyleImpactOfFiber20183.pdf.
[5] Compare NCTA, "Broadband By the Numbers," at: https://www.ncta.com/broadband-by-the-numbers (last accessed Nov. 18, 2019) with NCTA, "Industry Data" at: https://www.ncta.com/industry-data/cables-customer-base (last accessed Nov. 18, 2019).
[6] NCTA, "Broadband By the Numbers.
[7] Satellite Industry Association, "2019 State of the Satellite Industry Summary" (May 2019), at: https://www.sia.org/wp-content/uploads/2019/05/2019-SSIR-2-Page-20190507.pdf.
[8] USTelecom, USTelecom Research Brief: "U.S. Broadband Investment Continued Upswing in 2018" (Jul. 31, 2019), at: https://www.ustelecom.org/wp-content/uploads/2019/07/USTelecom-Research-Brief-Capex-2018-7-31-19.pdf.

first and second quarters of 2019, average mobile speeds increased to 33.88 Mbps/9.75 Mbps.[9]

We fully expect forthcoming data for 2018 will likewise show progress in broadband deployment that exceeds progress made in prior years.

Additionally, next-generation broadband technologies will enable deployment of faster and more reliable services to many more Americans within the next few years. As widely reported, wireless carriers are now deploying 5G network services in major cities, with continued network expansion to follow. Mobile phone manufacturers expect to significantly increase shipments of 5G phones by 2020. Wi-Fi 6, which is expected to deploy by 2022, will offer superior connectivity for connected devices.

Industry reports also identify fiber build-outs across the nation that will continue to expand access to broadband services.[10] Fiber enables gigabit speeds, and it is reported that 23% of Americans can access gigabit service and over 67% can access 500 Mbps services as of the third quarter 2019.[11] Meanwhile, the cable broadband operators' 10G project to upgrade fixed connections will increasingly deliver gigabit and multi-gigabit speed services in 2021 and 2022.[12] Also, the anticipated launch of next-generation satellites, including by HughesNet

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[9] Ookla, Speedtest: Report: United States: Mobile (July 18, 2018), at https://www.speedtest.net/reports/united-states/2018/#mobile; Ookla, Speedtest: Report: United States: Fixed (December 12, 2018), at https://www.speedtest.net/reports/united-states/2018/#fixed; Ookla, Speedtest: Report: United States: Mobile (January 9, 2018), at https://www.speedtest.net/reports/united-states/.

[10] *See, e.g.*, Carl Weinschenk, "C Spire Expanding Fiber Broadband Footprint," Telecompetitor (Oct. 31, 2019), at: https://www.telecompetitor.com/c-spire-expanding-fiber-broadband-footprint/; Bernie Arnason, "Verizon Exec Reveals 5G PON-on-a-Stick Proof of Concept at Calix Connextions," Telecompetitor (Oct. 28, 2019) (reporting Verizon has been building approximately 1,400 route miles of fiber per month, across 60 markets), at: https://www.telecompetitor.com/verizon-exec-reveals-5g-pon-on-a-stick-proof-of-concept-at-calix-connexions/; Mike Robuck, "CenturyLink extends fiber reach in U.S., Europe," FierceTelecom (Jul. 23, 2019), at https://www.fiercetelecom.com/telecom/centurylink-goes-deep-fiber-expansion-u-s-and-europe.

[11] BroadbandNow Research, "The State of Broadband in America, Q3, 2019" (Oct. 23, 2019), at: https://broadbandnow.com/research/q3-broadband-report-2019.

[12] *See, e.g.*, NCTA, "10G" at: https://www.10gplatform.com (last accessed Nov. 18, 2019).

and ViaSat, is expected to enable dramatically improved satellite broadband service.[13]

III. The Commission Should Maintain Broadband Definition Benchmarks That Reflect Widespread Consumer Demand

For purposes of defining "advanced telecommunications capability," the Commission's next report should again adhere to its fixed broadband benchmark speeds of 25 Mbps download/3 Mbps upload as well as its mobile broadband benchmark of LTE service with advertised minimum speeds of 5 Mbps download/1 Mbps upload. Also, for purposes of presenting a fuller picture of deployment progress, the next report should again feature figures for a wider range of speed tiers. Higher speed LTE service figures also ought to be included where available. The *2019 Broadband Deployment Report*'s categories based on availability of (1) fixed services, (2) mobile LTE services, (3) either of the services, and (4) both services are similarly useful for comparisons as well as tracking progress and therefore should be retained.

The Commission should again decline to crank the agency's broadband benchmark from 25 Mbps up to 100 Mbps. Section 706 requires the Commission annually to determine and issue a report on "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion." It is properly understood to require a realistic analysis of available services capable of supporting widely demanded applications and uses.

The *Wall Street Journal*'s August 20 report, "The Truth About Faster Internet: It's Not Worth It" makes clear what is known to many Internet users: A family, including family with children, can stream six or seven videos simultaneously using only a fraction of the 100 Mbps

[13] Seth L. Cooper, "Satellite Broadband Services Will Enhance Competition and Reach New Consumers," *FSF Blog* (Mar. 14, 2018), at: http://freestatefoundation.blogspot.com/2018/03/satellite-broadband-services-will.html.

definitional threshold that Commissioner Rosenworcel, for years, has advocated.[14] The statute does not direct the Commission to be "bold" or "audacious." While it is admirable for policymakers to look ahead, it is wrong to suggest that, in the here and now, nothing less than 100 Mbps qualifies as broadband service. And the Commission should not be in the position of advocating that consumers purchase more broadband than they need to satisfy their present demands.

Prior comments submitted by Free State Foundation scholars concerning the Commission's Broadband Deployment Reports have made the obvious point that popular online video services like Netflix, Hulu, and Amazon Prime require download speeds of not more than 10 Mbps for HD streaming video or 5 Mbps for standard definition streaming video.[15] Many video gaming services and other popular Internet applications similarly recommend download minimum speeds of not more than 10 Mbps, and certainly not more than 25 Mbps.

Raising the threshold definition of broadband to 100 Mbps would appear to bolster the claim, wrongfully, that broadband is not being deployed on a "reasonable and timely" basis. By applying a 100 Mbps standard rather than 25 Mbps – instantaneously! – supposedly there would be fewer competitors offering "broadband" service. Such a manufactured result would be used to claim that more regulation is needed. But the substantial evidence and academic literature shows that more regulation, especially public utility-like regulation of broadband, discourages investment and innovation.

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[14] Shalini Ramachandran, Thomas Gryta, Kara Dapena, and Patrick Thomas, "The Truth About Faster Internet: It's Not Worth It," *The Wall Street Journal* (Aug. 2019, 2019).

[15] *See, e.g.*, FCC, Notice of Inquiry, GN Docket No. 19-285, (Statement of Commissioner Jessica Rosenworcel, Dissenting). *See also* Randolph J. May, "A Summer Reading Recommendation for FCC Commissioner Rosenworcel," *FSF Blog* (Aug. 24, 2019), at: http://freestatefoundation.blogspot.com/2019/08/a-summer-reading-recommendation-for-fcc.html.

IV. The Commission Should Take Seriously the Evidence for Fixed/Mobile Substitution

Repeating the result of prior reports, the *2019 Broadband Deployment Report* found that "there is insufficient evidence in the record to conclude that mobile and fixed broadband services are full substitutes in all cases."[16] This finding disregards substitution-related data. The time is ripe for the Commission to conduct a more incisive analysis of fixed/mobile broadband substitution.

Technological differences between mobile and fixed wireless, while significant, are less pronounced than in the past due to network convergence. About 60% of global mobile data traffic is expected to be offloaded onto fixed networks by 2022.[17] By that time, a projected 71% of 5G mobile traffic will be offloaded onto fixed networks.[18] Comcast and Charter Communications offer hybrid Wi-Fi/cellular mobile wireless services. DISH Networks plans to provide Internet-of-Things (IoT) and 5G services. Ligado Networks' modification applications propose an integrated satellite/terrestrial IoT network.[19] Convergence is further indicated by nationwide geostationary fixed-satellite broadband coverage by Hughes Network Systems and ViaSat,[20] and by fixed wireless broadband services that combine Wi-Fi, cell towers, and backhaul.[21]

Both fixed and mobile services offer broadband Internet access, even though they rely on different network architectures, particularly over the last mile to consumers. Importantly,

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[16] FCC, *2019 Broadband Deployment Report*, GN Docket No. 18-238 (released May 29, 2019), at ¶ 27.
[17] Cisco Systems, Cisco's Visual Networking Index (VNI) (June 6, 2017), available at: https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html.
[18] *Id*.
[19] *See* Reply Comments of the Free State Foundation, Comment Sought on Ligado's Modification Applications, IB Docket No. 11-109, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045 (July 19, 2018), at: https://www.fcc.gov/ecfs/filing/10719575514007.
[20] *See* Cooper, "Satellite Broadband Services Will Enhance Competition and Reach New Consumers.
[21] Michael J. Horney, "Fixed Wireless Could Help Reach More Rural Consumers," *FSF Blog* (November 24, 2017), at: https://freestatefoundation.blogspot.com/2017/11/fixed-wireless-broadband-could-help.html.

mobile broadband Internet technology is increasingly capable of providing access to video content, and consumers are increasingly demanding that capability. Mobile data demand for video viewing continues to rise. A February 2019 report found that mobile video constituted about 59% of global mobile traffic in 2017.[22] That same report forecasted that global mobile video traffic will account for 79% of all mobile data traffic by 2022.[23] A June 2019 report found that 60% of global mobile traffic in 2018 was for video applications.[24]

Additionally, there is additional evidence that an increasing number of Internet users view mobile broadband as substitutes or at least as potential substitutes. A June 2018 survey found 43% of U.S. consumer respondents preferred mobile access or had no technology preference while 47% preferred fixed broadband preference.[25] According to an early 2019 survey by Pew Research Center, 17% of U.S. adults are "smartphone-only Internet users," a share that has doubled since 2013.[26] About one fourth of lower-income adults are "smartphone-only" Internet users. Also, 37% of U.S. adults say they mostly use a smartphone when accessing the Internet. Although not a broadband statistic, the National Health Interview survey's finding 57.1% that American homes were wireless-only for voice services and that 76.5% of adults 25-34 lived in wireless-only homes during the last half of 2018 provides another indicator of substitutability.[27]

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[22] Cisco, Visual Networking Index https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.pdf.
[23] *Id*.
[24] Ericsson Mobility Report (June 2019), at: https://www.ericsson.com/49d1d9/assets/local/mobility-report/documents/2019/ericsson-mobility-report-june-2019.pdf.
[25] Internet Innovation Alliance (IIA), "Evolving Preferences: Consumer Preferences Tilting Toward Mobile Broadband" (July 17, 2018), at 4, available at: https://internetinnovation.org/wp-content/uploads/IIA_ConsumerPreferences_Whitepaper.pdf.
[26] Monica Anderson, "Mobile Technology and Home Broadband 2019" Pew Research Center (June 13, 2019), at: https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/.
[27] Stephen J. Blumberg and Julian V. Lake, "Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July-December 2018," Division of Health Interview Statistics, National

The nationwide launch of competing advanced 5G services, in particular, should compel the Commission to acknowledge mobile and fixed broadband substitution. As the Commission's *2019 Broadband Deployment Report* stated:

> [W]e anticipate that, in the future, mobile services will continue to expand and become more versatile, with technological advances such as 5G potentially allowing mobile services to provide performance characteristics such as speed and service quality that are similar to fixed services.[28]

According to Accenture Strategy, 5G networks promise average speeds of at least ten times those on LTE networks, with peak speeds exceeding LTE perhaps by 100 times. Those capabilities lead to a conclusion that both enhanced 4G LTE services offering HD-streaming capable or better speeds and new 5G services are close or potential substitutes for fixed mobile broadband services.

V. The Commission Should Take Additional Actions to Remove Regulatory Barriers to Broadband Infrastructure Investment

Even if the Commission determines – as it should in this inquiry – that advanced telecommunications capability is being reasonably and timely deployed to all Americans, the imperative to proactively identify and remove regulatory barriers to broadband infrastructure investment remains. To build on the pro-investment and pro-adoption momentum that now exists, the Commission should follow through on initiatives to remove barriers to investment in next-generation broadband infrastructure and encourage rapid deployment:

- Clear part or all of the C-Band spectrum using some form of market-oriented private auction, enabling flexible spectrum use by terrestrial mobile service providers in exchange for compensation for any "holdouts."[29]

Center for Health Statistics (released June, 2019), available at: https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201906.pdf.

[28] *2019 Broadband Deployment Report*, at ¶ 11.

[29] Gregory J. Vogt, "Achieving a Balanced Decision to Reallocate C-Band Spectrum," *Perspectives from Free State Foundation Scholars*, Vol. 14, No. 39 (Nov. 14, 2019), at: https://freestatefoundation.org/wp-content/uploads/2019/11/Achieving-a-Balanced-Decision-to-Reallocate-C-Band-Spectrum-111419-2.pdf;

- Make a decision on Ligado Networks' modified applications to build a hybrid satellite-terrestrial wireless network for operations in unused L-band spectrum, which would offer Internet-of-Things (IoT) connectivity to business enterprises.[30]

- Issue a ruling that clarifies aspects of Section 6409(a) of the Spectrum Act regarding non-substantial modifications to towers and base stations to clear away local administrative barriers to wireless infrastructure upgrades.[31]

- Adopt a rulemaking to better explain and reinstitute exemptions for small cell construction from historic and environmental reviews attached to certain federal projects. (The D.C. Circuit's August 2019 decision vacating the *Accelerating Wireless Broadband Deployment Order* acknowledges there is room for the Commission to do so.)

- Adopt the proposed rulemaking to update its Over-the-Air Device (OTARD) rule to include hub and relay antennas for fixed wireless signals, thereby prohibiting local restrictions on use of such equipment in areas within a property user's exclusive control.[32]

- Adopt its proposed rulemaking to pare back legacy "unbundling" regulation "to reflect [competitive] marketplace realities and to remove unnecessary regulatory burdens that can inhibit the deployment of, and transition to, next-generation networks."[33]

- Reinvigorate its authority under Sections 10 and 11 by adopting a rebuttable presumption of market competitiveness as procedural rules in order to eliminate legacy regulations based on old technology and competitive assumptions.[34]

Randolph J. May and Gregory J. Vogt, "A Free Market Approach Should Be Used to Reallocate C-Band Spectrum," *Perspectives from Free State Foundation Scholars,* Vol. 14, No. 17 (Jul. 17, 2019), at: https://freestatefoundation.org//wp-content/uploads/2019/08/A-Free-Market-Approach-Should-Be-Used-to-Reallocate-C-Band-Spectrum-071719.pdf.

[30] *See* Reply Comments of the Free State Foundation, Comment Sought on Ligado's Modification Applications, IB Docket No. 11-109, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045 (July 19, 2018).

[31] *See* Comments of the Free State Foundation, Implementation of State and Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012; WT Docket No. 19-250, et al. (Oct. 29, 2019), at: https://freestatefoundation.org/wp-content/uploads/2019/10/FSF-Comments-–-Obligation-to-Approve-Modification-Requests-Under-Section-6409a-102919.pdf.

[32] Seth L. Cooper, "FCC's Proposed Update to Over-the-Air Device Rule Would Boost 5G," *FSF Blog* (May 31, 2019), at: http://freestatefoundation.blogspot.com/2019/05/fccs-proposed-update-to-over-air-device.html.

[33] FCC, Fact Sheet: Modernizing Unbundling and Resale Rules in an Era of Next-Generation Networks and Services, Notice of Proposed Rulemaking – WC Docket No. 19-308 (Oct. 29, 2019), at: https://docs.fcc.gov/public/attachments/DOC-360518A1.pdf.

[34] *See* Randolph J. May and Seth L. Cooper, "A Proposal for Improving the FCC's Regulatory Reviews," *Perspectives from FSF Scholars*, Vol. 12, No. 1 (January 3, 2017), available at: https://freestatefoundation.org/wp-content/uploads/2019/10/A-Proposal-for-Improving-the-FCC%E2%80%99s-Regulatory-Reviews-010317.pdf; Reply Comments of the Free State Foundation, 2016 Biennial Review of

VI. Conclusion

For the foregoing reasons, the Commission should find that broadband is being reasonably and timely deployed to all Americans and act in accordance with the views expressed herein.

Respectfully submitted,

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Telecommunications Regulations, CG Docket No. 16-124, EB Docket No. 16-120, IB Docket No. 16-131, ET Docket No. 16-127, PS Docket No. 16-128, WT Docket No. 16-138, WC Docket No. 16-132 (January 3, 2017), available at: https://ecfsapi.fcc.gov/file/10103299930129/FSF%20Reply%20Comments%20Sec%2011%20-%20Final_2.pdf; and Randolph J. May and Seth L. Cooper, "A Proposal for Improving the FCC's Forbearance Process," *Perspectives from FSF Scholars*, Vol. 12, No.4 (January 17, 2017), available at: https://freestatefoundation.org/wp-content/uploads/2019/10/A-Proposal-for-Improving-the-FCC%E2%80%99s-Forbearance-Process-011717.pdf.