Before the
National Telecommunications and Information Administration
U.S. Department of Commerce
Washington, D.C. 20230

In the Matter of	)	
	)	
Developing a Sustainable Spectrum	)	Docket No. 181130999-8999-01
Strategy for America's Future	)	RIN 0660-XC044
	)	

COMMENTS OF FRONTIER COMMUNICATIONS CORPORATION AND WINDSTREAM SERVICES, LLC

Frontier Communications Corporation ("Frontier") and Windstream Services, LLC ("Windstream") are pleased to submit their comments to the National Telecommunications and Information Administration's (NTIA) Request for Comments regarding developing a comprehensive, long-term national spectrum strategy.[1] Frontier and Windstream applaud NTIA's leadership in this important area. Between the two companies, Frontier and Windstream have successfully expanded broadband to millions of rural Americans and are eager to continue bringing faster broadband to millions more. By maximizing opportunities for additional fixed wireless deployments – whether through clearing additional spectrum, allowing opportunistic use, incentivizing agencies to share spectrum, or other strategies – NTIA can help accelerate our investments as we bring faster speeds to many more unserved and underserved rural Americans.

As background, our companies have an extensive track record in bringing broadband to rural Americans, particularly in the hardest-to-serve areas where other large internet providers will not build. Between the two companies, Frontier and Windstream are in the process of investing more than three billion dollars to bring broadband to more than a million homes and

[1] *See Notice Request for Comment, NTIA, Developing a Sustainable Spectrum Strategy for America's Future*, 83 FR 245, Docket No. 181130999-8999-01, RIN 0660-XC044 (Dec. 21, 2018).

businesses (representing almost two and a half million Americans) through year-end 2020 as part of Phase II of the Connect America Fund ("CAF") program. In building out under CAF, we have leveraged wireless deployments – primarily in the unlicensed 5 GHz band – to provide faster speeds to some of the most remote areas, and we hope to leverage other possible bands, including the 3.5 GHz Citizens Broadband Radio Service ("CBRS") Band to continue rolling out more broadband. We look forward to continuing expanding on these great successes,[2] and as we have explained in FCC proceedings, smart wireless rules and access to additional spectrum can help fuel further rural broadband deployment.[3]

Recognizing this substantial potential, Frontier and Windstream urge NTIA to incorporate and consider fixed wireless use cases in any long-term spectrum strategy. In other words, it is not just mobility driving significant demand for wireless spectrum, and NTIA should not only maximize the spectrum available but also consider where fixed wireless deployments would be uniquely suited for sharing bandwidth with federal users. Simply put, making more spectrum commercially available will increase connectivity across the board, whether for fixed, mobile, internet of things, or other uses.

Indeed, incorporating fixed wireless into long-term spectrum planning can help the Administration accelerate achieving its goal of closing the urban-rural digital divide.[4] As

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[2] *See* Carl Weinschenk, *Windstream Fixed Wireless Now Available to More Than 350,000 Businesses*, Telecompetitor (Sept. 12, 2018), https://bit.ly/2sj5omg; Mike Dano, *Windstream Peels Back the Curtain on Its Fixed Wireless Deployments*, FierceWireless (May 7, 2018), https://bit.ly/2o5mX7B (explaining that Windstream is offering wireless broadband to thousands in Iowa and Oklahoma and is looking at further deployments in locations in Missouri, Nebraska, and elsewhere).

[3] *See, e.g.*, Comments of Frontier, Windstream, and Consolidated, GN Docket No. 17-183 & RM-11791 (Oct. 2, 2017) ("*Mid-Size ILECs 3.7-4.2 Comments*"); Comments of Frontier, Windstream, and Consolidated, GN Docket 17-258 (Dec. 28, 2017) ("*Mid-Size ILECs CBRS Comments*").

[4] *See, e.g.*, White House, *Building a Stronger America: Rural Infrastructure for the 21st Century* (Feb. 20, 2018), *available at* https://www.whitehouse.gov/briefings-statements/building-stronger-america-rural-infrastructure-21st-century/ ("President Trump understands how important expanding broadband access is to ensuring a better quality of life and increasing economic opportunity for rural Americans.").

Frontier and Windstream can attest, having deployed to hundreds of thousands of rural locations, fixed wireless is a critical tool in the kit for expanding broadband. With many Americans still lacking access to broadband, particularly at higher speeds,[5] access to fixed wireless spectrum can help reduce this gap. Indeed, as the FCC has explained, "fixed wireless providers are more likely to serve rural and suburban markets when other fixed Internet services such as cable and fiber" may be less cost effective.[6]

Continued technological improvements only further underscore the importance of considering fixed uses in long-term planning and making as much spectrum available as possible. For instance, as recently as five to ten years ago, the conventional wisdom was that spectrum above 2 GHz and certainly above 5 GHz had limited applications for connectivity. Now, this same high-band spectrum promises gigabit speeds given the wide swaths of spectrum available, in addition to very low latency. Technological advances obviate the threat of rain fade and other interference that has hampered fixed wireless in the past.[7] While the current marketing and hype surrounding the technical advances that are "5G" focuses solely on mobility, these same technological advances offer additional tools for expanding fixed broadband.

In seeking to maximize spectrum available, including for fixed wireless, NTIA should not shy away from sharing solutions – indeed fixed wireless solutions may further increase the bands of spectrum feasible for sharing. The wireless ecosystem is only just beginning to scratch the surface of the potential of spectrum sharing between Federal and non-Federal users, as

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[5] *See, e.g., In the Matter of Communications Marketplace Report*, https://docs.fcc.gov/public/attachments/DOC-355217A1.pdf, ¶¶ 185, 247 (adopted Dec. 12, 2018) ("*Communications Marketplace Report*").

[6] *Communications Marketplace Report*, ¶ 180.

[7] *See* Rick Hausman, *Fixed Wireless: Singing in the Rain*, Windstream Business Blog (Dec. 19, 2018), https://bit.ly/2FuG0mg.

highlighted by, for example, the 2012 report of the President's Council of Advisors on Science and Technology.[8] Frontier and Windstream have both been early testers of the shared 3.5 GHz CBRS Band[9] and are excited about the potential for fixed broadband as soon as this becomes commercially available, hopefully in the very near future. Based on the early promise of this band, NTIA should rapidly further expand these types of tests in spectrum sharing to fully unleash the value of its spectrum holdings for not only the government users themselves, but also all Americans.

While sharing is certainly feasible regardless of the use case, fixed wireless is particularly well-suited for facilitating sharing; by design the transmitters and receivers are set at fixed points. With fixed deployments, there is never a worry that a consumer is going to wander into a sensitive area with their cellphone creating harmful interference. Accordingly, while NTIA should explore freeing spectrum for shared use wherever possible, it should especially explore sharing with fixed uses in bands it may otherwise consider off the table.

Additionally, NTIA should not hesitate to explore freeing spectrum in bands that would only or primarily be accessible to rural areas. While the economics may or may not balance out for mobile carriers operating in rural areas, such spectrum may be particularly attractive for rural fixed deployments where carriers are not required to provide blanket coverage. Again, there are no concerns of wandering handsets with fixed carriers, and fixed carriers can deploy the spectrum on a targeted basis, using spectrum that many mobile carriers would have often historically left fallow.

NTIA should also to explore all possible avenues toward incentivizing federal agencies to

[8] President's Council of Advisors on Science and Technology, *Report to the President: Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth* (July 2012), https://bit.ly/2odsHi2 ("*PCAST Report*").

[9] *See, e.g.*, Frontier Communications Corporation, Experimental License, File No. 0264-EX-CN-2018 (granted June 6, 2018); BOB, LLC (a Windstream subsidiary) License, WQIF263 (granted Jan. 24, 2018).

share, lease, or sell their spectrum, and, in doing so, further unleash the current hidden value of the government's spectrum assets. Frontier and Windstream would be eager to explore leasing spectrum from federal users, including in rural areas. On the one hand, imposing spectrum fees on government users could be a good "stick" to incentivize sharing by agencies and should be fully explored. On the other hand, allowing government spectrum holders to uncover value through a leasing (or potentially, reverse auction) method could be a good "carrot." Frontier and Windstream would not be alone in expressing interest. As, for instance, the 2012 PCAST report noted, while fixed wireless providers often cannot compete for "the sort of large license coverage areas sold in FCC auctions, they express strong demand for secondary leases or licenses that could be paid over time from increased subscriber revenue."[10] Indeed, "market-based sharing regimes have the potential to generate on-going revenues for the Treasury in the form of spectrum usage fees."[11] NTIA should begin exploring direct government leasing as soon as feasible. Or, even better, NTIA should explore opportunistic use and use-it-or-lose-it opportunities. Just as opportunistic sharing would unleash greater spectrum value in the pure commercial spectrum context, so too would it do so in the federal context.

Ultimately, as NTIA continues to develop its comprehensive, long-term National Spectrum Strategy, it should incorporate fixed wireless considerations. Many carriers, including Frontier and Windstream, are eager to leverage spectrum as an additional tool to expand next-generation broadband speeds and to help close the digital divide. Moreover, considering fixed wireless as a potential use case in federal/non-federal sharing scenarios can enable the government to free even more spectrum, especially where existing federal uses could be subject

[10] *PCAST Report*, p.45.

[11] *PCAST Report*, p. 46.

to interference from mobile handsets. And fixed wireless users, who have traditionally been shut out of secondary market transactions and unable to compete for large spectrum licenses, are particularly likely to be interested in exploring market-based sharing regimes, including in the rural areas that may not be as attractive to the largest mobile interests. For all these reasons, Frontier and Windstream urge NTIA to incorporate fixed wireless prominently into a long-term national spectrum strategy.

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Respectfully submitted,

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