Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	

To: The Commission

COMMENTS OF THE BROADBAND ACCESS COALITION

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The Broadband Access Coalition ("Coalition") hereby submits its Comments in response to the above-captioned Notice of Inquiry ("*Mid-Band NOI*" or "*NOI*").[1]

I. Introduction And Summary

As a critical first step to achieve the over-arching objectives of the *Mid-Band NOI*, the Coalition urges the Commission to expeditiously issue a Notice of Proposed Rulemaking ("NPRM") to authorize the deployment of high-throughput, licensed, point-to-multipoint ("P2MP") fixed wireless broadband services in the 3700 – 4200 MHz band. These P2MP links can facilitate the rapid deployment of much-needed gigabit and near-gigabit fixed broadband service to rural and other underserved areas.

On June 21, 2017, the Coalition filed a Petition for Rulemaking (the "Petition") proposing to amend and modernize Parts 25 and 101 of the Commission's Rules to enable deployment of high-throughput, licensed P2MP fixed wireless broadband services in the 3700 – 4200 MHz band in a spectrally efficient manner, while protecting Fixed-Satellite Service ("FSS") and Fixed Service ("FS") incumbents from harmful interference through frequency coordination. The vast majority of the hundreds of Comments filed enthusiastically supported

[1] *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, GN Docket No. 17-183, FCC 17-104 (rel. Aug. 3, 2017).

the Petition, recognizing that the availability of a significant amount of mid-band spectrum can help satisfy the urgent need to make better broadband available to rural and other underserved Americans.[2] In its Reply Comments, Alphabet Access offered further support for the Petition:

> [The Coalition] has proposed a straightforward set of modifications to the Part 101 rules that would allow [P2MP] broadband access in the 3700 – 4200 MHz band. Because these modifications do not represent fundamental changes to Part 101, and would produce a well-understood service that is similar to operations in other bands, the Commission can and should adopt them quickly, as a first step in the process of more widespread reform across the larger mid-band frequency range.[3]

The Petition proposes specific and concrete rule changes that would enable the immediate introduction of P2MP fixed wireless broadband service into the 3700 – 4200 MHz band without disrupting incumbent operations. As the Petition explains, implementing P2MP services can be done rapidly and simply, using existing Part 101 frequency coordination procedures. The Petition also explains that the Commission can implement rules now for the immediate deployment of P2MP broadband that will not preclude later entry into the band by mobile services.

In less densely populated areas, fixed wireless technology is an efficient and cost-effective way for consumers to receive broadband services in their homes and at their businesses and community anchor institutions. In a growing number of rural areas, fixed wireless technology is being combined with optical fiber to form a hybrid fiber-wireless architecture.

II. The Broadband Access Coalition

The Coalition is a diverse and growing group of nearly 30 wireline and wireless broadband service providers, technology companies, equipment vendors, trade associations,

[2] The strong support for the Petition is summarized in the Reply Comments of the Broadband Access Coalition, RM-11791 (filed Aug. 22, 2017) ("Coalition Reply Comments"), at 4 – 9.
[3] Reply Comments of Alphabet Access, RM-11791 (filed Aug. 22, 2017), at 5.

frequency coordinators and non-profit advocacy groups that support the development and deployment of licensed P2MP service as a new means to enable affordable, high-throughput, last-mile broadband access in rural and other high-cost areas. New members of the Coalition include NTCA – The Rural Broadband Association, the Rural Wireless Association and Baicells Technologies. A complete list and brief description of each Coalition member is provided in Exhibit 1.

III. The *Mid-Band NOI*

In the *Mid-Band NOI*, the Commission "seek[s] comment on the bands between 3.7 and 24 GHz with the most potential to support increased flexible use, including wireless broadband services."[4] The Commission specifically seeks comment on the 3700 – 4200, 5925 – 6425, and 6425 – 7125 MHz bands. These Comments focus exclusively on the 3700 – 4200 MHz band.[5]

The Commission "seek[s] comment on how existing service rules governing commercial services could be modified to further promote flexible use, stimulate investment, and encourage intensive deployment …."[6] With regard to the 3700 – 4200 MHz band, the Commission "seek[s] comment … on the potential for more intensive use of the … band for wireless broadband."[7] Further, the Commission seeks comment:

> on whether to alter our existing service rules to permit more intensive fixed use in the 3.7 – 4.2 GHz band by allowing the deployment of [P2MP] broadband services …. Commenters are urged to propose specific changes to coordination requirements and technical and operational rules, and to suggest mechanisms for sharing between FSS and FS.[8]

[4] *Mid-Band NOI* at ¶ 12.
[5] Members of the Coalition may also be filing individual Comments related to the 3700 - 4200 MHz band and the other bands that are subject to the *NOI*.
[6] *Mid-Band NOI* at ¶ 12.
[7] *Id.* at ¶ 16.
[8] *Id.* at ¶ 18.

The Commission also asks whether "incumbent users need to update information about their operations"[9] and "how existing service rules governing GSO FSS and FS could be modified to further promote flexible use in the [3700 – 4200] MHz band …."[10]

IV. Expeditious Grant Of The Petition Will Fulfill The Objectives Of The NOI

The Petition anticipates and addresses the key questions raised in the *Mid-Band NOI* regarding the 3700 – 4200 MHz band, and sets forth a rapid, simple, and concrete path to attain its objectives. In keeping with the Commission's request that "parties not repeat arguments already made on specific issues [raised by the *Mid-Band NOI*] in other proceedings,"[11] the Coalition respectfully requests that the Petition, and the Coalition Reply Comments, be fully considered in this proceeding.[12] In these Comments, the Coalition provides only a brief summary of its previous filings, focused on the specific questions raised by the *Mid-Band NOI*.

A. The Commission Can Encourage Intensive Deployment And More Efficient Use Of The Band By Implementing The Proposals In The Petition

The Petition sets forth very specific proposals to accelerate the process of making the 3700 – 4200 MHz band available for the rapid deployment of gigabit and near-gigabit fixed broadband service to rural and other underserved Americans.[13] Specifically, the Petition proposes a new Subpart K to Part 101 enabling deployment of licensed, P2MP fixed wireless broadband service while protecting FSS and FS incumbents from harmful interference. The modernized rules would include the following:

- Expansion of Part 101 to include P2MP fixed wireless broadband service.

[9] *Id.* at ¶ 12.
[10] *Id.* at ¶ 16.
[11] *Id.* at n. 15.
[12] *See generally* Coalition Reply Comments.
[13] According to the Commission's *2016 Broadband Progress Report*, 31 FCC Rcd 699, 731 – 732 (¶ 79) (2016), five percent of all Americans lack access to fixed broadband service at even 4/1 Mbps, six percent lack access to 10/1 Mbps service, and 39 percent of rural Americans (23 million people) lack access to 25/3 Mbps service.

- Licenses would be issued for self-defined areas coordinated under Part 101, with a 30-day reservation period and one-year build-out requirement to incentivize expeditious deployment.
- Licenses would be awarded in 20-megahertz channels. No licensee could obtain access to more than 40 megahertz in a given area unless it first meets its build-out requirements for the initial 40 megahertz.
- Licensees could obtain licenses for up to 160 megahertz in an area.
- Frequency agile radios capable of operating across the entire 3700 – 4200 MHz band, and able to accommodate any 20-megahertz channel, would be required.

The shared use of the band for P2MP broadband services can be implemented rapidly and simply by the Commission and service providers because:

- Incumbent and future FSS and FS providers will be protected from harmful interference, and no relocation will be required.
- Existing Part 101 frequency coordination procedures will be used.
- No complicated sharing mechanisms are required. SAS is not required: fixed services will be sharing with fixed services, all registered FSS and FS locations will be entitled to protection, and all new licensed P2MP (access point) locations will be known in advance.
- No new allocations are required either globally or in the United States.
- There are no Federal government allocations in the band.
- Development of equipment will benefit from equipment being used in the adjacent 3650 - 3700 MHz band.

B. The FCC Can Rapidly Move Forward to Enable P2MP In The 3700 – 4200 MHz Band Without Precluding Future Use For Mobile Services

The Commission can implement rules for P2MP *now* that will not preclude future entry by mobile services, should the Commission elect to do so. However, the *future* possibility of using portions of the 3700 – 4200 MHz band for sharing among fixed and mobile services should not, in any way, be allowed to delay immediate allocation and use of the band for P2MP services as described in the Petition, action that can yield immediate and tangible public interest benefits without foreclosing future mobile use of the band. As the Coalition explained in its Petition:

> The 3700 – 4200 MHz band is not now, and will not for several years, be suitable for mobile use given the existing deployment of FSS earth stations and FS P2P links. The future possibility of using portions of the band for sharing between

> P2MP and mobile services should not, in any way, be allowed to delay immediate allocation for and use of the band by P2MP services.[14]

The proposals in the Petition are ripe for a rulemaking. By contrast, the *Mid-Band NOI* raises a broad range of questions regarding the use of three different spectrum bands. Options under consideration for the 3700 – 4200 MHz band include repurposing all or part of the band, a reallocation that could involve the long-term clearing or relocation of incumbent licensees.

Broadband service to rural areas is needed today. On September 21, 2017, Chairman Pai reiterated that his "number one priority would be closing the digital divide and making sure that all Americans can enjoy the benefits that come with broadband."[15] P2MP in the 3700 – 4200 MHz band will address this pressing need to increase broadband coverage in rural areas and other unserved and underserved areas.

C. Adding P2MP Broadband Service Will Result In Far More Intensive Use Of The 3700 – 4200 MHz Band

At present, the 3700 – 4200 MHz band is severely underutilized, primarily as a result of the antiquated "full-band, full-arc" licensing policy which requires protection for every satellite earth station across the entire 500 megahertz of the 3700 - 4200 MHz band. In order to construct a new terrestrial link, a Part 101 licensee must successfully complete a frequency coordination process ensuring that there will be no harmful interference to incumbent operations, namely FSS receive earth stations. Based on the legacy "full-band, full-arc" licensing regime, frequency coordinators must assume that all FSS earth stations are always using all 500 megahertz of spectrum in the band. In fact, a typical FSS earth station is using only 23 – 36 megahertz,

[14] Petition at 6.
[15] Remarks of Chairman Ajit Pai at the Kansas Broadband Conference, Wichita, Kansas, Sept. 21, 2017, at 1.

leaving unused – but currently unavailable to terrestrial P2P or prospective P2MP operators – a staggering 464 to 477 megahertz of fallow spectrum.

By authorizing licensed P2MP broadband service in the 3700 – 4200 MHz band, the Commission will facilitate far more efficient utilization of the band. P2MP broadband service providers will be able to deploy extensive facilities using unused frequencies across the country, while offering full protection to incumbent FSS and FS operators.

D. Adding P2MP Broadband Service To The 3700 – 4200 MHz Band Can Be Accomplished With Only A Few Changes To The Rules Governing Incumbent Operators

The Commission asks "how existing service rules governing GSO FSS and FS could be modified to further promote flexible use in the [3700 – 4200] MHz band."[16] The Commission also asks whether "incumbent users need to update information about their operations."[17] The good news is that deployment of P2MP broadband service in the 3700 – 4200 MHz band can be implemented with very few rule changes for the incumbent operators.

1. No Changes To FS Rules Are Needed

No rule changes whatsoever are needed for FS services. FS incumbents will be protected by the requirement that new P2MP service providers must successfully complete frequency coordination before deployment. FS providers seeking to deploy new links will continue to use the long-standing frequency coordination process. It should come as no surprise, then, that the Fixed Wireless Communications Coalition and the Utilities Technology Council, two of the leading associations representing the interests of FS operators, support the Petition.[18]

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[16] *Mid-Band NOI* at ¶ 16.

[17] *Id.* at ¶ 12.

[18] Comments of the Fixed Wireless Communications Coalition, RM-11791 (filed Aug. 7, 2017), at 2, and Comments of Utilities Technology Council, RM-11791 (filed Aug. 7, 2017), at 1.

2. The FCC Should Change Its "Full-Band, Full-Arc" Policy For Licensing Satellite Earth Stations

To accommodate P2MP broadband services, the Commission will need to modify its antiquated, decades-old, "full-band, full-arc" policy – a policy which has never been codified. The Commission could simply modify its policy to grant earth station licenses only for the specific frequencies (and orbital slots) in which satellite earth stations will operate. However, the Coalition recognizes that such a policy would limit flexibility for satellite earth station operators, and would not directly address the "full-band, full-arc" licenses already issued by the Commission. Instead, the Coalition has proposed that the Commission modify its rules to permit FSS operators to retain their current licenses to operate across the entire 3700 – 4200 MHz band, but limit interference protection to the frequencies on which the earth station is actually operating at a given time. Those frequencies would simply be added electronically to the Commission's database, and considered by all frequency coordinators at the time they receive a coordination request from either an FS or P2MP applicant. In the event the FSS earth station needs to temporarily or permanently change frequencies or point at a different position on the arc, the satellite operator would be required to update the database, and potentially interfering terrestrial uses could be relocated to new frequencies as determined by the frequency coordinator. The Coalition has invited SIA and its members to participate in the process of determining how the coordination process can ensure protection of and flexibility for FSS earth stations.

3. The Commission Should Expeditiously Require Updates Of Satellite Earth Station Operating Parameters

In its Petition, the Coalition urges the Commission to require FSS licensees operating in the 3700 – 4200 MHz band to update the IBFS database as soon as possible so the Commission

can determine which earth station licenses are still in operation.[19] SIA agreed with the Coalition that "a clean-up of the Commission's International Bureau Filing System ("IBFS") database containing earth station licensing and registration information is appropriate to ensure its ongoing accuracy and completeness."[20] The Coalition has no objection to SIA's proposal that any such database updating should offer amnesty to operators that correct inaccurate information in the database on a timely basis in a manner specified by the Commission.[21] The goal of the clean-up process would be to obtain the most accurate information possible so that frequency coordination can ensure interference-free co-existence.

The Coalition further proposes that the licensees of active earth stations provide, on a one-time basis and if and when any further changes are made, limited additional information – specifically, the frequencies used and the orbital slot being accessed.[22] Earth station operators can readily provide such information, and the information will be highly valuable to the Commission as it reviews potential sharing of the 3700 – 4200 MHz band and to P2P and prospective P2MP licensees as they review deployment opportunities in the 3700 – 4200 MHz band. Further, the Coalition submits that C-band FSS operators would affirmatively want to provide such information to support their assertions regarding the use of the entire 3700 – 4200 MHz band.

[19] *See* Petition at 24 – 25.
[20] SIA Opposition at 8.
[21] *See id.* at 9.
[22] *See* Petition at 25.

V. Conclusion

For the reasons set forth above, the Broadband Access Coalition urges the Commission to expeditiously issue an NPRM to authorize the deployment of high-throughput, licensed, P2MP fixed wireless broadband services in the 3700 – 4200 MHz band. The rapid deployment of P2MP access points will significantly help to address the digital divide by enabling much-needed gigabit and near-gigabit fixed broadband service to rural and other underserved areas.

Respectfully submitted,

BROADBAND ACCESS COALITION

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EXHIBIT 1

BROADBAND ACCESS COALITION MEMBERS

New Members (Joined After Comments Were Filed On August 7, 2017)

NTCA – The Rural Broadband Association

NTCA – The Rural Broadband Association represents approximately 850 independent, community-based telecommunications companies and cooperatives and more than 400 other firms that support or are themselves engaged in the provision of communications services in the most rural portions of America. All NTCA service provider members are full service rural local exchange carriers ("RLECs") and broadband providers, and many also provide fixed wireless, mobile wireless, video, satellite and/or other competitive services in rural America.

Rural Wireless Association

The Rural Wireless Association is a trade association representing rural wireless carriers who each serve fewer than 100,000 subscribers. RWA's members have joined together to speed the delivery of new, efficient and innovative wireless technologies to remote and underserved communities.

Baicells Technologies

Founded by an LTE pioneer and led by distinguished veterans from the fixed wireless market, Baicells is a disruptive provider of LTE solutions for fixed wireless, small cells, and LTE IoT markets.

Existing Members

Mimosa Networks, Inc.

Mimosa Networks is a leading provider of 5G Fixed wireless solutions that enable service providers to connect dense urban and hard-to-reach rural homes at a fraction of the cost of fiber-to-the-premises solutions.

WISPA

The Wireless Internet Service Providers Association (WISPA) is a membership-driven trade association that promotes the development, advancement and unity of the fixed wireless Internet service provider industry. WISPA has over 800 members that support WISPA's advocacy, education and other collaborative industry initiatives.

Open Technology Institute at New America

OTI and its Wireless Future Program work at the intersection of technology and policy to promote more open, fast and affordable wireless broadband connectivity and, more generally, universal access to communications technologies that are both open and secure. OTI is part of New America, a nonprofit and nonpartisan policy institute based in Washington, D.C.

All Points Broadband

All Points Broadband is a fixed wireless broadband provider serving customers in Virginia, Maryland and West Virginia.

American Library Association

The American Library Association (ALA) is the oldest and largest library association in the world. Founded in 1876, its mission is "to provide leadership for the development, promotion and improvement of library and information services and the profession of librarianship in order to enhance learning and ensure access to information for all."

Amplex Electric

Amplex is a fixed wireless broadband provider serving customers in Northwestern Ohio.

Cambium Networks

Cambium Networks is a leading global provider of fixed wireless networking solutions that connect the unconnected – People, Places and Things. Cambium Networks makes it possible for service providers and industrial, enterprise and government network operators to build affordable, reliable, high-performance connectivity.

Consumer Federation of America

The Consumer Federation of America is a national organization of more than 250 nonprofit consumer groups that was founded in 1968 to advance the consumer interest through research, advocacy, and education.

ConVergence Technologies, Inc.

ConVergence Technologies, Inc. provides Telecom, Wireless Broadband and IT infrastructure solutions to organizations throughout United States. ConVergence provides solutions that address all the technology needs of public, private and government organizations.

Cincinnati Bell Inc.

Cincinnati Bell Inc. provides integrated communications solutions – including local and long distance voice, data, high-speed Internet and video – that keep residential and business customers in Greater Cincinnati and Dayton, Ohio connected with each other and with the world.

Ethoplex

Ethoplex is a fixed-wireless operator serving the residential, business, MDU, and educational markets in Southeastern Wisconsin.

Intelliwave

Intelliwave broadband is a fixed wireless and fiber optic service provider that serves thousands of residential and commercial customers across 15 counties in Appalachian Ohio. Access to additional spectrum will help us speed our goal of serving all the unserved residents of our region.

Intelpath

Intelpath provides Frequency Analysis, Spectrum Management Solutions, and FCC License Procurement for Microwave Service Providers. By maintaining proprietary software and databases, Intelpath engineers select channels that enable optimal use of available spectrum.

JAB Wireless, Inc. dba Rise Broadband

JAB is the largest fixed wireless broadband provider in the United States, with more than 180,000 customers in 16 states.

Public Knowledge

Public Knowledge is a nonprofit digital rights advocacy organization headquartered in Washington, D.C. Public Knowledge promotes freedom of expression, an open internet, and access to affordable communications tools and creative works. Public Knowledge also works to shape policy on behalf of the public interest.

Quantenna Communications

Quantenna is a global leader and innovator of leading-edge performance Wi-Fi solutions. Quantenna introduced the world's first 10G Wi-Fi technology for a new generation of access points in home, enterprise and public spaces and continues to innovate.

Red Spectrum Communications, LLC

Red Spectrum is a high speed Internet Services Provider owned and operated by the Coeur d'Alene Tribe in North Idaho. Red Spectrum provides services through fixed wireless and fiber optic networks.

Schools, Health & Libraries Broadband Coalition

The SHLB Coalition is a broad-based organization of anchor institutions, commercial companies and non-profit broadband providers, foundations, public interest groups, and others that work together to develop and support policies to improve broadband connectivity for anchor institutions and their communities in all regions of the country – urban, suburban and especially rural.

Sho-Me Power Electric Cooperative

Sho-Me provides power to nine Rural Electric Cooperatives (RECs) who serve 26 counties in Missouri. Sho-Me Technologies, LLC, a subsidiary of Sho-Me Power, provides broadband services over an advanced optical network in Missouri. Sho-Me Technologies d/b/a Neighborhood Wireless, LLC, is dedicated to providing high-speed wireless Internet in Missouri.

SpeedConnect

SpeedConnect serves customers with wireless broadband internet, DISH TV and telephone service in Arizona, Idaho, Illinois, Iowa, Michigan, Minnesota, Montana, Nebraska, South Dakota and Texas.

Wisper, ISP, Inc.

Wisper ISP is a high-speed Internet provider to more than 12,000 business and residential customers in Illinois, Missouri, Oklahoma, Arkansas and Kansas.

Telrad Networks Ltd

Telrad Networks is a recognized pioneer in the telecom industry, facilitating the connectivity needs of millions of end-users through operators, ISPs and vertical markets around the globe. Our current focus is on LTE products designed to enable wireless broadband connectivity, empowering our customers with solutions that look toward the future – while offering the versatility and affordability required to meet the existing needs of evolving wireless networks.

US Internet

US Internet, located in Minneapolis, Minnesota, is a provider of Internet and Fiber Optic Services. With its roots firmly entrenched in the ISP sector, US Internet offers a dynamic portfolio including the Minneapolis Wireless Network and Data Center services.