

1212 New York Ave., N.W.  
Suite 900  
Washington, DC 20005  
202.525.5717



*Free Markets. Real Solutions.*  
[www.rstreet.org](http://www.rstreet.org)

---

In the Matter of )  
 )  
 )  
Promoting Investment in the ) GN Docket No. 17-258  
3550–3700 MHz Band )  
 )  
 )  
 )

---

## Reply Comments of R Street Institute

Respectfully submitted,

\_\_\_\_\_  
*/s/*

Tom Struble  
Technology Policy Manager

Joe Kane  
Technology Policy Associate

January 29, 2018

## Table of Contents

I.	Introduction & Summary.....	3
II.	Right-size PAL License Areas.....	6
A.	Census Tract PALs Would Likely Cause Problems in Urban Areas .....	7
B.	Larger License Areas Would Offer Substantial Benefits .....	8
C.	Reducing Transaction Costs Would Facilitate Secondary Markets.....	11
III.	Offer Long-Term Licenses with Potential for Renewal .....	13
IV.	Eliminate The N-1 Rule & PAL Aggregation Limit.....	16
V.	Weigh the Costs and Benefits of Specific-Channel Bidding.....	18
VI.	Conclusion.....	19

## I. Introduction & Summary

The Federal Communications Commission (“FCC” or “Commission”) has been working to develop a Citizens Broadband Radio Service (“CBRS”) in the 3550–3700 MHz spectrum band (“3.5 GHz band”) since the President’s Council of Advisors on Science and Technology (“PCAST”) first proposed a three-tiered spectrum hierarchy for the band in 2012.<sup>1</sup> This proposal was revolutionary in at least two ways. First, by using a spectrum access system (“SAS”) to dynamically manage wireless operations in real time, the FCC could enable private use of the 3.5 GHz band without interfering with incumbent operations or having to incur the substantial costs of first moving those incumbents to other spectrum bands.<sup>2</sup> Second, by layering exclusive Priority Access Licenses (“PALs”) on top of unlicensed General Authorized Access (“GAA”), the FCC could commingle licensed and unlicensed operations in the same band and allow the market to dictate how the 3.5 GHz band will be used based on consumer demand and the nature of different wireless service offerings.<sup>3</sup>

This revolutionary proposal is as promising today as it was when first devised in 2012. For that reason, the R Street Institute (“R Street”) joined a coalition effort opposing T-Mobile’s petition to turn the entire 3.5 GHz band into PALs.<sup>4</sup> Since 2012, it has become

---

<sup>1</sup> See President’s Council of Advisors on Sci. & Tech., Exec. Office of the President, *Report to the President: Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth*, 22–27 (July 2012) [hereinafter 2012 PCAST Report], <https://goo.gl/8ujmqa>.

<sup>2</sup> See *id.*

<sup>3</sup> See *id.*

<sup>4</sup> See Letter from Center for Rural Strategies et al. to Chairman Ajit Pai et al., Federal Communications Commission, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550–3650 MHz Band*, GN Docket No. 12-354 (June 19, 2017)

increasingly clear that the wireless industry views the 3.5 GHz band as a key component in mobile 5G service offerings going forward.<sup>5</sup> However, T-Mobile's approach would have effectively removed one of the most important features of the CBRS framework.<sup>6</sup> Instead of turning the 3.5 GHz band into merely a 5G band, the FCC should maintain a flexible approach that can accommodate various services and business models.

However, investment in the 3.5 GHz band is vital for its long-term success, and there are concerns that the current PAL rules are inadequate to foster such investment.<sup>7</sup> PAL rules that restrict investment in the licensed tier of spectrum risk turning the 3.5 GHz band into merely another unlicensed band.<sup>8</sup> For the 3.5 GHz band to truly live up to the promise

---

[hereinafter CBRS Coalition Letter], <https://goo.gl/5C22z7>; see also Petition of T-Mobile USA, Inc. for Rulemaking to Maximize Deployment of 5G Technologies in the Citizens Broadband Radio Service, RM-11798, 9–11 (June 19, 2017) [hereinafter T-Mobile Petition], <https://goo.gl/5HDVfN>.

<sup>5</sup> See, e.g., T-Mobile Petition, *supra* note 4, at 5 (“Notably, spectrum in the 3.5 GHz band is the *only* mid-band spectrum available for 5G in the U.S. spectrum pipeline.”); *id.* at 6 (“Moreover, 5G in the 3 GHz band is a global race. Other regions and countries have already begun to act to make spectrum in the 3 GHz band, including the 3.5 GHz band, available for 5G operations[.]”).

<sup>6</sup> See CBRS Coalition Letter, *supra* note 4, at 3–4.

<sup>7</sup> See, e.g., Petition of CTIA for Rulemaking to Amend the Commission's Rules Regarding the Citizens Broadband Radio Service in the 3550–3700 MHz Band, RM-11788, 2–9 (June 16, 2017) [hereinafter CTIA Petition], <https://goo.gl/FprVo9> (describing the investment risks posed by the existing PAL rules).

<sup>8</sup> Indeed, without the PAL tier, the CBRS framework in the 3.5 GHz band would be similar to the FCC's framework for television white spaces (“TVWS”), which has been heavily criticized for generating little investment and allowing valuable low-band spectrum to go under-utilized for years, imposing substantial opportunity costs upon the American people. See, e.g., Dorothy Robyn, Charles Jackson & Coleman Bazelon, *Unlicensed Operations in the Lower Spectrum Bands: Why is No One Using the TV White Space and What Does That Mean for the FCC's Order on the 600 MHz Guard Bands?*, TPRC 43: THE 43RD RES. CONF. ON COMM., INFO. & INTERNET POL'Y (Apr. 1, 2015), <https://goo.gl/asU6ji>.

of the original PCAST proposal, the CBRS framework must foster strong investment in PALs while also leaving ample spectrum available for opportunistic GAA use.<sup>9</sup> Therefore, R Street commends the FCC for launching this notice of proposed rulemaking (“NPRM”) and seeking comment on potential ways to encourage investment in PALs and, ultimately, utilization of CBRS throughout the 3.5 GHz band.<sup>10</sup>

In these reply comments, we address four aspects of the PAL licensing rules and respond to arguments raised on both sides of each. First, on the issue of geographic license areas for PALs, the Commission should adopt a hybrid approach that utilizes larger license areas for urban areas while maintaining smaller ones for rural areas. Second, on the issue of term lengths and renewability, the Commission should adopt longer term lengths and a renewal regime designed both to maximize efficient use of the 3.5 GHz band and to stimulate secondary-market transactions among PALs. Third, on the issue of how many PALs will be auctioned in each license area, the Commission should eliminate the N-1 rule and make seven PALs available in each license area. Finally, on the issue of specific-channel bidding, the Commission should weigh the costs and benefits of the proposal, and perhaps seek further comment, as it is unclear whether the benefits of implementing specific-channel bidding would outweigh the associated costs.

---

<sup>9</sup> See 2012 PCAST Report, *supra* note 1, at 23.

<sup>10</sup> See Notice of Proposed Rulemaking and Order Terminating Petitions, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258 (Oct. 24, 2017) [hereinafter NPRM], <https://goo.gl/XVEBXo>; see also R St. Inst. Notice of Ex Parte, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258 (Oct. 18, 2017), <https://goo.gl/W9ATiY> (commending the FCC for launching this NPRM to examine proposed changes to the PALs in order to promote investment in the 3.5 GHz band).

## II. Right-size PAL License Areas

In 2015, the Commission established a PAL framework with geographic license areas that corresponded to census tracts.<sup>11</sup> Many commenters expressed concerns about these relatively small license areas for PALs,<sup>12</sup> while others insisted that larger license areas would frustrate many potential use cases and business models.<sup>13</sup> A hybrid approach that right-sizes PALs based on the characteristics of the license area should allay both sets

---

<sup>11</sup> See NPRM, *supra* note 10, ¶¶ 20–27; Report and Order and Second Further Notice of Proposed Rulemaking, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550–3650 MHz Band*, GN Docket No. 12-354, ¶ 96 (Apr. 21, 2015) [hereinafter 2015 CBRS Order], <https://goo.gl/bjZvUB> (“We adopt census tracts as the appropriate geographic license size for PALs.”); Order on Reconsideration and Second Report and Order, *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550–3650 MHz Band*, GN Docket 12-354, ¶ 15 (May 2, 2016) [hereinafter 2016 CBRS Order], <https://goo.gl/RcFWvd> (“A PAL is defined as a non-renewable authorization to use a 10 megahertz channel in a single census tract for three years.”).

<sup>12</sup> See, e.g., Comments of AT&T Servs., Inc., *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 5–7 (Dec. 28, 2017) [hereinafter AT&T Comments], <https://goo.gl/9evHv5>; Comments of CTIA, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 8–10 (Dec. 28, 2017) [hereinafter CTIA Comments], <https://goo.gl/BkTfgN>; Comments of NCTA—The Internet & Television Ass’n, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 3–11 (Dec. 28, 2017) [hereinafter NCTA Comments], <https://goo.gl/ccX6yw>; Comments of T-Mobile USA, Inc., *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 8–10 (Dec. 28, 2017) [hereinafter T-Mobile Comments], <https://goo.gl/6a1VvT>; Comments of Verizon, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 8–14 (Dec. 28, 2017) [hereinafter Verizon Comments], <https://goo.gl/Cdf1HY>.

<sup>13</sup> See, e.g., Comments of Google LLC, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 5–14 (Dec. 28, 2017) [hereinafter Google Comments], <https://goo.gl/QBNndY>; Comments of Open Tech. Inst. & Pub. Knowledge, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 19–29 (Dec. 28, 2017) [hereinafter OTI/PK Comments], <https://goo.gl/zGiS3r>; Comments of Microsoft Corp., *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 4–6 (Dec. 28, 2017) [hereinafter Microsoft Comments], <https://goo.gl/Bj19M2>; Comments of Wireless Internet Serv. Providers Ass’n, *Promoting Investment in the 3550–3700 MHz Band*, GN Docket No. 17-258, 24–38 (Dec. 28, 2017) [hereinafter WISPA Comments], <https://goo.gl/pbtZiQ>.

of fears. To wit, the Commission should use partial economic areas (“PEAs”) for PALs in urban and suburban areas, but census tracts for PALs in rural areas.

### **A. Census Tract PALs Would Likely Cause Problems in Urban Areas**

Census tracts as license areas for all PALs would likely cause problems, particularly in urban areas, where access to infrastructure is more difficult and expensive, and where environmental factors may create interference problems that substantially reduce the utility of the 3.5 GHz band. Bigger license areas, like PEAs, would reduce transaction costs, stimulate deployment, and promote productive use of CBRS. Additionally, the alleged benefits of using census tracts are overstated. Thus, the Commission should change the license area for PALs in urban areas to use PEAs instead.

A first problem with census tract PALs is their sheer number.<sup>14</sup> This attribute increases the complexity and transaction costs associated with auctioning small PALs, relative to larger areas. More importantly, licensing PALs based on census tracts creates many more boundaries at which harmful interference becomes a concern.<sup>15</sup> Operators in these license areas will either reduce their power levels to avoid crossing the border of their license area or risk harmful interference with a neighbor. Either outcome reduces the productivity of the 3.5 GHz band. While these sorts of boundary issues would still exist with

---

<sup>14</sup> See, e.g., Verizon Comments at 10 (“At the census tract level, the 3.5 GHz band would contain over 74,000 license areas that, within themselves, contain more than 518,000 PALs.”).

<sup>15</sup> See e.g., *Id.* (“This cluttered and chaotic environment could create substantial interference risks and thus necessitate operational adjustments or ‘buffering zones’ that would significantly limit the utility of the band and result in less efficient and intensive use”).

larger license areas, they are multiplied by the more numerous borders that census tract PAL license areas necessitate.

Supporters of census tract PAL license areas argue that owners of individual venues, like hotels or factories, would be harmed by the use of PEAs because they would be unable to buy PEA-sized PALs but would be able buy smaller PALs specifically for their venues.<sup>16</sup> However, census tract license areas do not solve this problem, as they are often still too large to cover only a single venue, meaning a venue owner seeking to obtain its own PAL would still have to buy a larger license than needed to cover the venue.<sup>17</sup>

## **B. Larger License Areas Would Offer Substantial Benefits**

When combined with secondary markets, larger PAL license areas would address the concerns commenters have raised and also offer substantial benefits. Therefore, larger license areas—such as PEAs—are preferable in many cases, especially in densely populated urban areas. Arguments that increasing license sizes will harm small businesses or individual venues do not adequately account for market mechanisms that would make larger sizes *more* advantageous to such operators.

In addition to the reduction in transaction costs that would be achieved by limiting the sheer number of licenses, larger license areas will also be more effective at facilitating the development of secondary markets. For example, if a larger carrier buys a PEA-sized

---

<sup>16</sup> See, e.g., Google Comments at 12; OTI/PK Comments at 26–29.

<sup>17</sup> For example, in the District of Columbia, Census Tract 49.02 contains both the Washington Convention Center and the Marriott Marquis hotel. See *Census Tract 49.02, District of Columbia, District of Columbia*, USBOUNDARY.COM (last visited Jan. 29, 2018), <https://goo.gl/n9Pajm>.



license, the Commission's proposal would allow it to disaggregate that license and lease or sell to smaller venue owners exactly the area they need.<sup>18</sup> Secondary markets allow operators to cheaply reconcile the mismatch between demand and the unit of supply. In this sense, census tract license areas are analogous to eight-packs of hotdog buns that accompany a six-pack of hotdogs. PEA license areas are more like one firm buying many hotdog buns in bulk and selling six of them to the hotdog owner. Likewise, selling sections of a larger license that exactly match the needs of smaller venues would benefit both parties. This would likely result in more productive use of the spectrum since license areas could be tailored to suit the individual needs of small operators more easily than with a blunt, one-size-fits-all approach of census-tract PALs nationwide.

Supporters of census tract license areas argue that disaggregation of licenses on the secondary market will not meet the needs of small operators, claiming that such operators have been unsuccessful at acquiring spectrum in other secondary markets in the past.<sup>19</sup> However, these claims incorrectly assume that an operator who failed to secure a block of spectrum in a secondary market would successfully have done so if that block were auctioned as a smaller license. On the contrary, we should expect the buyer to lose the auction for the spectrum it could not get on the secondary market.

Consider the following example: Suppose a hotel owner wants to buy a subset of a large carrier's PEA-sized license that covers her hotel. The hotel owner will offer the carrier

---

<sup>18</sup> See NPRM ¶¶ 31–32.

<sup>19</sup> See, e.g., WISPA Comments at 43–44; Google Comments at 20–21; *but see* Mobile Future, *FCC Spectrum Auctions and Secondary Market Policies: An Assessment of the Distribution of Spectrum Resources Under the Spectrum Screen*, iii (Nov. 2013), <https://goo.gl/TetBDX> (“Both non-nationwide and nationwide operators have secured substantial spectrum resources through secondary market license assignment and transfer transactions”).

a price up to the marginal benefit she expects from the spectrum. If the carrier declines the offer, this action demonstrates that, for whatever reason, the carrier values that spectrum more than the hotel owner was willing to pay for it. In other words, the carrier is willing to give up at least that amount of money to keep that block of spectrum.

If supporters of census-tract license sizes got their wish, however, the outcome would be the same: The hotel owner would bid on the census tract in which the hotel is situated,<sup>20</sup> and it will bid a dollar amount up to the marginal benefit it expects from the spectrum—the same amount it offered to the carrier in the previous scenario. Also, since the larger carrier could also bid in this auction, and we already know that it is willing to give up more than the hotel is to possess that block of spectrum, the carrier will outbid the hotel owner and win the auction. Smaller license areas, therefore, will not necessarily result in PALs going to small operators more often than they would in the secondary market of PEA-sized PALs. The fact that some firms have been unable to secure spectrum they want in the past does not indicate that secondary markets have failed or that they are inefficient. It indicates only that the spectrum sought by such players could be used more productively by others.

More specifically, Google argues that the use of unlicensed spectrum by small businesses who were unable to buy spectrum licenses in secondary markets indicates that such markets are “not sufficient to create the meaningful spectrum opportunities for businesses outside the telecommunications industry.”<sup>21</sup> Such an inference is unwarranted.

---

<sup>20</sup> An area that is likely larger than what it needs since it is the whole census tract rather than a custom-tailored section carved out of a PEA. This fact alone may be enough to price the hotel out of the auction.

<sup>21</sup> Google Comments at 20–21.

The example of unlicensed use shows only that small businesses were willing to deploy some form of broadband infrastructure when the price was lower—indeed, the monetary price of accessing unlicensed spectrum is zero. And while Google is surely correct that there is demand among small businesses for higher-quality, licensed spectrum, the existence of that demand does not mean that small businesses' use of such spectrum would be more productive than alternative uses. The preferences of different potential users, as demonstrated by their actions to buy or sell at particular prices, actually suggest the opposite.

WISPA further argues that secondary markets will be ineffective “[b]ecause secondary market transactions are voluntary,” and “there often may be no incentive for a licensee to engage in secondary market transactions[.]”<sup>22</sup> This claim is difficult to support. Large-area licensees would leave money on the table if they do not engage in secondary-market transactions that would be profitable to them. And if a proposed secondary-market transaction is not profitable to the licensee, then, by the economic logic explained above, we should expect that same licensee to also win the auction for a smaller area by itself anyway.

### **C. Reducing Transaction Costs Would Facilitate Secondary Markets**

To be sure, transaction costs abound in the spectrum market as much as in any other, so the initial conditions of the market are highly relevant to the outcome.<sup>23</sup> Both large and small license areas would generate transaction costs. For example, it is costly for

---

<sup>22</sup> WISPA Comments at 43.

<sup>23</sup> See, e.g., Ronald Coase, *The Problem of Social Cost*, 3 J. OF L. & ECON. 1, 15 (Oct., 1960), <https://goo.gl/CWmC6R>.

the FCC to run auctions, and as a government agency it has little incentive or ability to cut costs. On the other hand, there is good reason to think that private parties in secondary markets would be better at mitigating transaction costs, mostly because they can gain profit by doing so.

Secondary markets would work to the benefit of large and small players alike, as holders of large PALs have an incentive to make it easy for small businesses to buy PAL subsets that cover their particular area of interest.<sup>24</sup> It is also likely that large carriers owning PALs in the same area would compete to give small businesses the best deal for a subset of that PAL, and this process will further promote the efficiency of the secondary market and, ultimately, the productive use of the 3.5 GHz band.

Moreover, secondary markets can work both ways: They can disaggregate large licenses into smaller ones or aggregate smaller licenses into bigger ones. We suspect that the transaction costs associated with aggregating small licenses—plus the losses from interference concerns at the boundaries of the more numerous areas—outweigh the transaction costs associated with disaggregation by private parties who have strong incentives to facilitate those transactions. Therefore, merely allowing aggregation of census tract PALs on the secondary market would not resolve concerns over transaction costs and allocation inefficiencies.<sup>25</sup>

---

<sup>24</sup> Assuming the small businesses value the spectrum more than the PAL holder does.

<sup>25</sup> Aggregating census tract PALs in the first instance, through package bidding, could alleviate some transaction costs, NPRM ¶ 25, but that is essentially no different from our hybrid proposal of using PEAs for urban areas and census tracts in rural areas.

Also, in any case, the fact that even areas as small as census tracts would frequently be too large for individual venues means that disaggregation would often still be necessary even if all PALs were auctioned in census tracts.<sup>26</sup> Thus, the Commission should allow both aggregation and disaggregation of PALs and reduce transaction costs as much as possible in order to stimulate the secondary market.<sup>27</sup>

### **III. Offer Long-Term Licenses with Potential for Renewal**

The Commission should promote investment in PALs by enabling greater long-term certainty for licensees. The best way to provide that certainty is to offer long-term PALs with the potential to renew licenses at the expiry of their terms.<sup>28</sup> The record shows that using three-year PAL terms without renewal is likely to severely hamstring investment, as well as productive use of the 3.5 GHz band.<sup>29</sup> Lengthening the PAL license term to 10 years and allowing for renewal would surely be a more productive arrangement.

If operators can expect to profit from their investments for the foreseeable future, rather than face triennial uncertainty about their ability to recoup costs, they will be more willing to invest in PALs and CBRS infrastructure. Under three-year licenses without renewal expectancy, investment decisions would be skewed toward more short-term projects rather than more capital-intensive ones that may provide greater consumer benefits in the long run. In this sense, spectrum licenses are akin to real property. We would expect a landowner to undertake the projects that contribute most to the value of

---

<sup>26</sup> See, e.g., *Census Tract 49.02*, *supra* note 17.

<sup>27</sup> NPRM ¶ 31.

<sup>28</sup> See *id.* ¶ 17.

<sup>29</sup> See, e.g., CTIA Petition, *supra* note 7, at 2–9.

her land when she expects to be able to profit from those improvements for many years to come. It would be nonsensical and economically destructive for the federal government to reclaim all land every three years and auction it to the highest bidder. It makes no better sense to do so in the case of spectrum licensing.

Some commenters express concern that longer licenses would be too expensive for small businesses and would make CBRS spectrum unresponsive to changing conditions or needs.<sup>30</sup> As with concerns about license areas being too big, these concerns could also be addressed through disaggregation and robust secondary markets. If a small business wants a shorter-term license, it can lease it from a holder of a longer license. Claims that PALs with longer terms will fetch higher prices at auction and will, therefore, be out of reach for small businesses do not adequately account for this fact. Moreover, while the upfront cost may be higher, the price per year will likely be the same (or even lower, given the possibility of second-degree price discrimination). Three-year PALs simply make the owner pay the 10-year price incrementally over multiple auctions. The main difference in that case is the added cost of administering those additional auctions.

Likewise, if economic conditions change such that innovative and different uses for a given PAL are more valuable than its original use, those wishing to implement the change will purchase the right to do so from the original licensee. As in the discussion of license areas, if the secondary market transaction does not take place, it will be because the

---

<sup>30</sup> See, e.g., OTI/PK Comments at 29; Comments of Google Inc. and Alphabet Access, *Petitions for Rulemaking Regarding the Citizens Broadband Radio Service*, GN Docket No. 12-354, 26 (July 24, 2017), <https://goo.gl/GPXRKp> (discounting the promise of secondary markets in light of “incumbent carriers’ buy-and-hold behavior in other bands”); Microsoft Comments at 3.

alternative was not really as valuable as another use. The Commission should not assume that licensees would leave money on the table by declining an offer that they value more than they value holding their existing license. Given this, the incumbent would likely outbid the new entrant in a triennial auction, so the uncertainty and other costs to investment would likely not even result in beneficial side effects.

These reasons also explain why strict buildout requirements are not necessary to ensure efficient use of spectrum. Opportunistic GAA use throughout the 3.5 GHz band means that spectrum can be utilized regardless of whether a PAL licensee actively deploys service in the whole license area. The Commission is required to include performance requirements with its spectrum licenses,<sup>31</sup> but requiring PAL licensees to maintain an active registration in the SAS and threatening them with penalties for interfering with incumbent users should be adequate to comply with the text of the Communications Act.

Even if buildout requirements did exist and stripped licensees of their PALs for failing to adequately deploy service, the future outcomes will not improve the situation for the same reasons present in the license size and length discussions: If someone else could have used the spectrum more productively, they would have bought it in the secondary market. The fact that such offers failed to materialize, or at least were not accepted, demonstrates that the current licensee is willing to pay more than anyone else for the

---

<sup>31</sup> See 47 U.S.C. § 309(j)(4)(B) (“In prescribing regulations [for spectrum auctions] the Commission shall—....include performance requirements, such as appropriate deadlines and penalties for performance failures, to ensure prompt delivery of service to rural areas, to prevent stockpiling or warehousing of spectrum by licensees or permittees, and to promote investment in and rapid deployment of new technologies and services”).

license, so that licensee would simply win the auction when its “unused” spectrum goes back on the block.

The secondary market essentially functions as a continuous auction in which anyone who values a PAL more than its current user can outbid her by making a voluntary deal on the secondary market. Indeed, Professor Paul Milgrom proposes slight modifications to the triennial auctions so that they “create something resembling an active secondary market for licenses[.]”<sup>32</sup> The Commission, however, need not settle for “something resembling” a secondary market; it can have the real thing.<sup>33</sup>

#### **IV. Eliminate The N-1 Rule & PAL Aggregation Limit**

The Commission should eliminate the N-1 rule, which limited the number of PALs auctioned to one less than the number of bidders in a license area, with no PALs being auctioned if there is only one bidder.<sup>34</sup> As licensed spectrum, the value of PALs derives largely from their interference protection. The fact that there may be only one or a few operators who desire this protection for their services does not mean that such protection is not valuable. There may be many GAA users in a given license area, but only one or two willing to pay for interference protection. There is no economic reason to limit the number of PALs those operators can acquire at market rates, even if those market rates for PALs

---

<sup>32</sup> Letter from Paul Milgrom, Auctionomics, to Ms. Marlene H. Dortch, Secretary, FCC, GN Docket No. 12-354, 6 (Aug. 7, 2017), <https://goo.gl/ChFavT>

<sup>33</sup> See also Verizon Comments at 6 (“Rather than attempt to simulate the effects of a well-functioning secondary market with a new and untried economic instrument, Verizon encourages the Commission to use more established mechanisms that can take advantage of the opportunities offered by the secondary market itself.”).

<sup>34</sup> NPRM ¶ 42.



are quite low in some areas. That demand, and therefore price, varies in different contexts is an aspect of markets actually functioning in the real world, not a reason to restrict their functioning.

In the 2016 Second Report and Order, the Commission made an exception to this N-1 rule for “Rural Areas that may exhibit lower demand than other areas.”<sup>35</sup> This exception indicates that the Commission both has the statutory authority to allocate a number of PALs greater than or equal to the number of bidders and that it recognizes the benefits of licensed spectrum even in locations with relatively low demand. These benefits are not dependent on whether the spectrum is located in a rural or more urban area; low demand is low demand no matter where it occurs. The same logic that led the Commission to make an exception for rural areas should lead it to not restrict the number of PALs in any area regardless of the number of bidders.

While restricting the number of available PALs could generate higher auction returns, which could be used for deficit reduction and the like, raising more money for the treasury is not a cognizable interest for the FCC under the Communications Act.<sup>36</sup> Additionally, eliminating the current spectrum aggregation limit of 40 MHz—or four of the seven 10 MHz PALs available in each market—would allow for substantial rivalry and competition during PAL auctions even in markets with few bidders.<sup>37</sup> In such a scenario, the low number of bidders would not necessarily mean a lack of competitive bidding, nor would it mean that the spectrum will be used inefficiently or unproductively. The

---

<sup>35</sup> 2015 CBRS Order, *supra* note 11, ¶ 50.

<sup>36</sup> 47 U.S.C. § 309(j)(7)(B).

<sup>37</sup> NPRM ¶ 27.

Commission should simply sell as many PALs as possible, to however many bidders are willing to purchase them.

## V. Weigh the Costs and Benefits of Specific-Channel Bidding

Given the increased throughput and other technical benefits associated with wide spectrum channels, licensees that hold multiple PALs in a single area should be allowed to operate on contiguous frequencies when possible. As Microsoft points out,<sup>38</sup> the existing rules already call for the SAS to assign channels contiguously both for multiple channels held by the same licensee in a single PAL area,<sup>39</sup> and for channels held by the same licensee between contiguous license areas.<sup>40</sup> However, some commenters still argue that the Commission should adopt specific-channel bidding.<sup>41</sup>

Specific-channel bidding could provide PAL bidders with greater long-term certainty, thereby increasing investment, but it is unclear whether that added benefit (greater investment in some PALs, but potentially less investment in others) would outweigh the added costs of running a second auction. Specific-channel bidding could also create potential conflicts with regard to how licensees who have paid for a particular channel will interact with incumbent federal users.<sup>42</sup> This could potentially lead to an interoperability challenge similar to what happened with the lower 700 MHz band.<sup>43</sup> The

---

<sup>38</sup> Microsoft Comments at 8–9.

<sup>39</sup> 47 C.F.R. §§ 96.25(b)(2)(i), 96.59(b).

<sup>40</sup> 47 C.F.R. § 96.59(b).

<sup>41</sup> See, e.g., AT&T Comments at 11–12.

<sup>42</sup> See, e.g., OTI/PK Comments at 35.

<sup>43</sup> See Report and Order and Order of Proposed Modification, *Promoting Interoperability in the 700 MHz Commercial Spectrum*, WT Docket No. 12-69 (Oct. 29, 2013), <https://goo.gl/AQPW2y>.

benefits from specific-channel bidding may outweigh all of these costs, however, particularly if regulations are in place to preempt any interference or interoperability challenges like those just described, but it remains unclear. The question may warrant further consideration. While CBRS in the 3.5 GHz band has already been more than five years in the making, it is still more important to get the licensing framework and auction design done right than it is to get it done soon.

## **VI. Conclusion**

Once again, we thank the Commission for launching this proceeding and seeking input on potential changes to the PAL framework and auction design that may promote investment in the 3.5 GHz band. We look forward to engaging further with the Commission and other commenters on these issues in the future.

Respectfully submitted,

\_\_\_\_\_/s/\_\_\_\_\_  
Tom Struble  
Technology Policy Manager

Joe Kane  
Technology Policy Associate

January 29, 2018