

**Before the  
Federal Communications Commission  
Washington D.C. 20554**

In the Matter of )  
 )  
Inquiry Concerning the Deployment of Advanced ) GN Docket No. 12-228  
Telecommunications Capability to All Americans )  
in a Reasonable and Timely Fashion, and Possible )  
Steps to Accelerate Such Deployment Pursuant to )  
Section 706 of the Telecommunications Act of )  
1996, as Amended by the Broadband Data )  
Improvement Act )

To: The Commission

**COMMENTS OF  
THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

The Wireless Internet Service Providers Association (“WISPA”) hereby submits its Comments in response to the *NOI* adopted in this proceeding.<sup>1</sup> As further discussed herein, WISPA agrees with the Commission’s conclusion that broadband has not been deployed to all Americans in a reasonable and timely manner, and suggests ways that the provision of broadband service can be effectively accelerated.

**Introduction**

WISPA is a trade association founded in 2004 to represent the interests of fixed wireless Internet service providers (“WISPs”), vendors and their customers. WISPs rely primarily on unlicensed spectrum in the 900 MHz, 2.4 GHz and 5 GHz bands, along with lightly licensed spectrum in the 3650-3700 MHz band and, in some cases, licensed 2.5 GHz spectrum. WISPs provide fixed wireless broadband service to more than three

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<sup>1</sup> *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Ninth Broadband Progress Notice of Inquiry, GN Docket No. 12-228, FCC 12-91, rel. Aug. 21, 2012 (“*NOI*”).

million people, businesses and first responders in rural and underserved. In some areas, WISPs provide the only terrestrial fixed broadband service that consumers can access because there are no other non-satellite alternatives for broadband access to the Internet. For instance, in Illinois, almost 38 percent of the land area has no broadband availability except from a fixed wireless broadband provider.<sup>2</sup> Similarly, in Texas, nearly 75 percent of the land area has no broadband availability except from a WISP; 24 percent of the households can receive broadband service only from a WISP. As the table at Exhibit 1 shows, states with large rural areas are more likely to contain areas where service is available only from a fixed wireless broadband provider. In other areas – typically urban and suburban areas – WISPs compete against cable, DSL and fiber technologies, some of which are subsidized by the Commission’s universal service program. Significantly, WISPs are not eligible for Universal Service Fund (“USF”) subsidies because they are not deemed to be providers of “telecommunications” under current statutory interpretations. As a result, WISPs rely on their own funding and private investment to build and operate their networks and provide broadband service.

The area covered by a WISP network depends on several factors. In many cases, a single tower can provide point-to-multipoint service within a radius of ten miles or more. In other areas, terrain, foliage and other obstructions may limit service distances. WISPs can expand their service areas by adding “access points,” which are used to fill in the unserved areas. Access points are generally located on vertical structures of all kinds -- shared towers, water tanks, grain silos and buildings. Further, the power levels and propagation characteristics of each of the unlicensed bands are different. WISPs innovate

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<sup>2</sup> See Exhibit 1.

by selecting frequencies, equipment and design techniques to achieve the best coverage for the customers they desire to serve.

In many areas, WISPs provide service that is comparable in speed, latency and data capacity to wired broadband service. In other areas, WISPs experience capacity constraints resulting from customers' increased use of bandwidth-intensive applications such as Netflix as well as from congested license-free spectrum that must be shared with other spectrum users, including smart-grid networks and other WISPs. In some areas, there is little or no competition for second-mile access resulting in the cost of backhaul being so high as to preclude the building of last mile fixed wireless broadband networks.

Despite many challenges, in the last few years WISPs have greatly expanded their coverage areas and subscribership. WISPA estimates that, in the last year alone, over 500,000 new customers have begun receiving fixed wireless broadband service from WISPs. This growth trend is expected to continue.

### **Discussion**

In the *Eighth Broadband Progress Report*,<sup>3</sup> the Commission determined, based solely on the National Broadband Map,<sup>4</sup> that nearly 19 million people do not have access to fixed broadband service, and concluded that “broadband was not being deployed to all Americans in a reasonable and timely fashion.” Of those not able to obtain fixed

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<sup>3</sup> Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, Eighth Broadband Progress Report, GN Docket No. 12-228, FCC 12-91, rel. Aug. 21, 2012 (“*Eighth Broadband Progress Report*”), at Sections I and IV.

<sup>4</sup> See *id.* at ¶ 30.

broadband, people living in rural and Tribal areas “are disproportionately lacking such access” – some 14.5 million unserved Americans live in rural areas.<sup>5</sup>

The Commission documents in the *Eighth Broadband Progress Report* the steps it has taken improve fixed broadband access and adoption in unserved areas.<sup>6</sup> WISPA supported the Commission’s efforts to make more spectrum available for wireless backhaul and, to a more limited extent, agreed with some aspects of the Commission’s USF reform proposals. As the Commission continues to address the broadband gap, there are several steps it can take to help to reduce the number of Americans who do not receive broadband services.

### ***More Unlicensed Spectrum***

Spectrum is the oxygen that breathes life into fixed wireless broadband networks. In large part, WISPs have succeeded because the non-exclusive 900 MHz, 2.4 GHz, 3650-3700 MHz and 5 GHz bands are not subject to competitive bidding under Section 309(j) of the Communications Act of 1934, as amended (the “Act”). Rather, services operating in those bands require users to share spectrum with each other and, in some cases, federal users – something WISPs do very often and do well.

The Commission should continue to make more unlicensed spectrum available for fixed broadband. There are several proceedings that are now underway, or that will be launched soon, that can provide dramatic benefits to WISPs and thereby expand fixed broadband deployment. In WISPA’s view, the most important thing the Commission can do to expedite service to unserved Americans is to make available unlicensed spectrum in

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<sup>5</sup> *Id.*

<sup>6</sup> See *Eighth Broadband Progress Report* at Section II.

these bands under rules that do not preclude use for unlicensed fixed wireless broadband services.

- *Shared use of the 4.9 GHz Band.* The Commission has invited comment on a plan to allow unlicensed commercial use of the 4940-4990 MHz band on a shared basis with public safety users.<sup>7</sup> WISPA plans to file Comments in this proceeding supporting responsible shared use of this band.
- *3550-3650 MHz Band.* Chairman Genachowski recently announced that the Commission “will initiate formal steps by the end of the year” to “free[] up spectrum in the 3.5 GHz band.”<sup>8</sup> The 3550-3650 MHz band is adjacent to the 3650-3700 MHz band that many WISPs are using today to provide fixed broadband service. WiMAX equipment is readily available for these frequencies. WISPA strongly supports addition of 100 megahertz of spectrum in this band for fixed broadband.
- *TV White Space Spectrum.* The incentive auction proceeding the Commission plans to launch at its meeting next week will have a profound impact on the ability of WISPs to expand into unserved areas. The propagation characteristics of TV spectrum will enable coverage to areas that would otherwise remain unserved because of terrain and foliage blockage. WISPA understands that the auctioning of TV spectrum may reduce the amount of unlicensed TV white space spectrum overall, but urges the Commission to expedite band-clearing in a way that ensures that the remaining unlicensed spectrum is re-packed in a spectrally efficient manner that preserves a sufficient amount of spectrum for unlicensed fixed wireless broadband use.
- *5 GHz Bands.* The National Telecommunications and Information Administration (“NTIA”) is charged by the Middle Class Tax Relief and Job Creation Act of 2012 with preparing reports on whether the 5350-5470 MHz and 5850-5925 MHz bands can be made available for unlicensed use on a shared basis with incumbent federal users.<sup>9</sup> These bands lie immediately adjacent to the 5 GHz bands that WISPs are already using to provide fixed broadband service as well as the point-to-point backhaul to support those services. The addition of all or some of the 195 megahertz of additional spectrum in these bands would help ease congestion and, given the proximity of these bands to existing unlicensed bands, can be easily integrated into

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<sup>7</sup> *Amendment of Part 90 of the Commission’s Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Fourth Report and Order and Fifth Further Notice of Proposed Rulemaking, WP Docket No. 07-100, PS Docket No. 06-229 and WT Docket No. 06-150, FCC 12-61, rel. June 13, 2012.

<sup>8</sup> *News Release*, “FCC Chairman Julius Genachowski Announces Plans to Initiate Formal Steps on Spectrum Recommendations from the President’s Council of Advisors on Science and Technology (PCAST)”, rel. Sept. 12, 2012.

<sup>9</sup> *See* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012), § 6406.

existing operations. WISPA looks forward to analyzing these NTIA reports and plans to participate in Commission proceedings that would establish rules for effective commercial use.

In addition, access to additional spectrum for fixed wireless broadband service helps alleviate other conditions. The lack of sufficient unlicensed spectrum forces some WISPs to place data caps on their customers<sup>10</sup> to address congestion caused by increased use of bandwidth-intensive applications. By increasing the amount of spectrum and by increasing the geographic areas where that spectrum can be deployed in a cost-effective manner, the Commission can enable WISPs to delay and possibly avoid implementing data caps and other restrictive network management practices.

### ***Universal Service Reform***

As broadband operators, WISPs are not considered to be providers of “telecommunications” under the Act, and therefore are ineligible to receive USF subsidies. WISPA strongly believes that, in administering the new Connect America Fund (“CAF”), the Commission should be extremely careful to ensure that subsidies do not flow – by design or by lack of oversight – to areas that already are served by incumbent fixed broadband providers. Instead, the Commission should direct funds only to areas that lack access to terrestrial fixed broadband. In this regard, WISPA has asked the Commission to reconsider its definition of “unsubsidized competitor” so that telecommunications carriers in areas where voice and broadband services are currently provided by different entities cannot receive CAF subsidies.<sup>11</sup> If this rule change is not adopted, WISPs will find themselves competing with federally subsidized carriers – which are much larger than the typical WISP – and who will severely jeopardize WISP’s

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<sup>10</sup> See NOI at ¶ 18.

<sup>11</sup> See WISPA’s Petition for Partial Reconsideration, WC Docket No. 10-90, *et al.*, filed Dec. 29, 2011.

ability to remain in business. In addition, WISPA has opposed efforts that would expend CAF Phase I funds in areas that are already served by fixed broadband providers<sup>12</sup> or for purposes unintended by the Commission's rules.<sup>13</sup> By adopting WISPA's positions in these ongoing proceedings, the Commission would ensure that CAF funds are used only to support areas that are truly "unserved."

In addition to these points, WISPA recommends the following:

*Contribution Methodology.* WISPA has opposed the Commission's proposal to require broadband providers, even those that do not provide "telecommunications," to contribute to CAF.<sup>14</sup> Not only are there questions about the Commission's authority to impose such a requirement, there are also concerns about the wisdom of saddling unsubsidized broadband providers with financial obligations that could be used to help fund their competitors. Moreover, WISPs would be forced to pass through these funding obligations to their customers, which likely would deter broadband adoption in contravention to Section 706 of the Act and Commission policies.

*Remote Areas Fund.* WISPA also has supported forbearance from enforcement of eligibility criteria that currently prohibit WISPs and other non-ETCs from obtaining funding through the Remote Areas Fund ("RAF").<sup>15</sup> WISPs employ a low-cost deployment model that enables fixed wireless broadband service to be provided to remote areas where wired technologies cannot be cost-effectively deployed. WISPs are therefore

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<sup>12</sup> See WISPA's Opposition to Petition for Waiver, WC Docket No. 10-90, *et al.*, filed July 12, 2012 ("CenturyLink Opposition") (opposing CenturyLink petition for waiver of CAF Phase I rules).

<sup>13</sup> See WISPA's Opposition to Windstream Election and Petition for Waiver, WC Docket No. 10-90, *et al.*, filed Aug. 24, 2012 (opposing Windstream petition for waiver of CAF Phase I rules).

<sup>14</sup> See Comments of the WISPA, Docket Nos. 06-122 and 09-51, filed July 9, 2012; WISPA Reply Comments, Docket Nos. 06-122 and 09-51, filed Aug. 6, 2012.

<sup>15</sup> See WISPA Comments, WC Docket No. 10-90, *et al.*, filed Jan. 18, 2012, at 8-14.

well-positioned to use RAF funds to deploy service to those areas that are the hardest to reach and to serve.

*Self-Provisioning.* Many WISPs, especially those operating in rural and remote areas, lack affordable access to second-mile and middle-mile facilities. To help alleviate this situation, WISPA has supported a “self-provisioning” obligation that would require carriers, as a condition to receiving CAF support, to allow unsubsidized competitors to interconnect and, in turn, offer broadband service in adjacent unserved and unsubsidized areas.<sup>16</sup> Without spending any additional CAF funds, the Commission can adopt this measure and provide opportunities for WISPs and others to establish new access points to serve areas that would otherwise remain unserved.

### ***Data Collection***

The Commission seeks comment on the data it should use to further its understanding of broadband availability.<sup>17</sup> For purposes of determining those areas that are unserved, the Commission should continue to rely on the federally funded National Broadband Map. While less than perfect, the Map is a dynamic and evolving resource that is continuously being improved as state contractors gather more information and employ new methods to enhance accuracy.

The Commission asks whether the Map overstates broadband deployment.<sup>18</sup> In WISPA’s view, the Map both *overstates* and *understates* broadband coverage. WISPA believes that the Map often overstates DSL coverage while often understating the extent of fixed wireless broadband coverage. In some cases, WISPs may provide coverage information to the state mapping contractor that describes only the areas where they can

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<sup>16</sup> See *id.* at 5-7.

<sup>17</sup> See *NOI* at ¶ 6.

<sup>18</sup> See *id.* at ¶ 31.

provide high-quality broadband service even though their potential service area is larger. Parts of their coverage area where service would be lower in quality are intentionally not reported as “covered.” As WISPA member Washington Broadband informed the Commission in a separate proceeding:

The coverage area that I map is based on where WBI can provide quality service that is not affected by foliage or terrain, and which is within a reasonable range of one of WBI’s towers and access points. I do not include areas that WBI may be able to serve with a poor quality service. As a result, the maps that WBI provides to Sanborn [the mapping contractor] actually *understate*, not *overstate*, our coverage.<sup>19</sup>

WISPA believes that this situation is not uncommon, and is especially true in cases where the mapping contractor uses only a spectrum analyzer to determine the presence of a signal, without actually testing for full availability of the service. WISPA also recognizes that, in other cases, the Map may overstate coverage by imputing coverage for a portion of a census block to the entire census block.<sup>20</sup>

As an additional problem, mapping contractors in different states may employ different methods to obtain coverage information. For example, one state may compute propagation based on certain technical assumptions while others may attempt to independently derive actual propagation or rely solely on information provided by the broadband provider. States sometimes have different means to verify the data, or, in some cases, may have no verification process at all. The result is a map that, from state to state, shows broadband coverage in a variety of different ways.

The Commission seeks comment on “how to improve our assessment of broadband deployment, our identification of unserved areas, and our demographic

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<sup>19</sup> Opposition of Washington Broadband, Inc. to CenturyLink Waiver Petition, filed July 12, 2012, at Exhibit 1, p.2.

<sup>20</sup> See *NOI* at ¶ 32.

analysis.”<sup>21</sup> WISPA recommends that the states and their contractors, in consultation with the Commission, adopt uniform mapping criteria for the National Broadband Map. The Map should be based on a common set of predictable inputs such that the depiction of “served” and “unserved” areas is the same in all states. Given that the Map will be used to determine the locations where CAF support will be provided, it is essential that the Map be truly national and not just an amalgamation of separate state mapping processes. Until such time as the mapping process is perfected, the Commission should rely on the then-current version of the National Broadband Map. Finally, allowing the introduction of external and extraneous data threatens to undermine the impartiality of the Map in favor of the private interests of carriers that may seek to gain subsidies for areas that should not be eligible for CAF subsidies.<sup>22</sup>

### **Conclusion**

WISPA appreciates the opportunity to participate in this important proceeding, and recommends adoption of the proposals recited herein to accelerate the availability of cost-effective fixed broadband service to unserved areas.

Respectfully submitted,

September 20, 2012

**WIRELESS INTERNET SERVICE  
PROVIDERS ASSOCIATION**

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<sup>21</sup> *Id.*

<sup>22</sup> See WISPA’s Opposition to Petition for Reconsideration, WC Docket No. 10-90, *et al.*, filed Feb. 9, 2012.

## **Exhibit 1**

## State-by-State Wireless Mapping

The table below was created by Brian Webster Consulting ([www.Broadband-Mapping.com](http://www.Broadband-Mapping.com)) on behalf of the Wireless Internet Service Providers Association (WISPA). The data is compiled from the raw data provided by each state to the NTIA National Broadband Map. It has been created entirely from this public data and not from any outside source.

The table below shows the availability of terrestrial fixed broadband on a state-by-state basis. The state mapping agencies in most cases collected the wireless Internet service provider (WISP) tower data and ran their own internal RF propagation studies. Although WISPs do serve other parts of these states, the areas where they are competing with cable, DSL, and fiber-to-the-home services are not represented.

As an important note, satellite and mobile wireless carriers were not considered for service as part of this study because they do not provide the full equivalent of terrestrial fixed broadband functionality. The household counts are based on 2008 occupied household information.

Additional information, including maps of the states, is available on request.

State	Occupied Households Passed by WISPs 2008	Total Occupied Households 2008	% Households passed by WISPs only	Land Area in Sq. Mi. Uniquely passed by WISPs	Total Land Area	% land area uniquely covered by WISPs	Households Per Square Mile Statewide	Households Per Square Mile of WISP Only Served Blocks
AK	12,443	237,034	5.25%	5,414.40	674,341.40	0.80%	0.35	2.30
AL	21,724	1,938,130	1.12%	2,080.63	52,448.99	3.97%	36.95	10.44
AR	69,319	2,942,753	2.36%	10,407.21	53,183.97	19.57%	55.33	6.66
AZ	98,382	2,336,959	4.21%	19,092.32	114,024.60	16.74%	20.50	5.15
CA	178,743	12,764,753	1.40%	16,646.70	163,824.03	10.16%	77.92	10.74
CO	95,698	1,959,789	4.88%	37,257.29	104,007.40	35.82%	18.84	2.57
CT	no exclusive WISP areas							
DC	no exclusive WISP areas							
DE	585	343,554	0.17%	30.63	2,487.39	1.23%	138.12	19.10
FL	27,755	7,628,143	0.36%	845.13	65,849.95	1.28%	115.84	32.84
GA	37,934	3,652,043	1.04%	3,970.59	59,472.47	6.68%	61.41	9.55
HI	7,688	436,273	1.76%	99.72	10,961.50	0.91%	39.80	77.10
IA	49,196	1,247,553	3.94%	11,500.03	56,185.49	20.47%	22.20	4.28
ID	51,646	562,067	9.19%	16,888.70	82,751.00	20.41%	6.79	3.06
IL	137,330	4,851,822	2.83%	21,062.00	55,593.00	37.89%	87.27	6.52
IN	61,140	2,543,090	2.40%	5,505.05	35,870.00	15.35%	70.90	11.11
KS	56,666	1,118,858	5.06%	22,620.42	82,219.29	27.51%	13.61	2.51
KY	34,817	1,762,321	1.98%	2,614.05	40,389.70	6.47%	43.63	13.32
LA	19,357	1,792,856	1.08%	1,687.78	51,890.27	3.25%	34.55	11.47

MA	2,489	2,615,877	0.10%	214.98	7,838.00	2.74%	333.74	11.58
MD	5,529	2,202,016	0.25%	281.60	12,397.20	2.27%	177.62	19.63
ME	37,903	555,653	6.82%	7,965.90	35,302.23	22.56%	15.74	4.76
MI	173,834	4,009,186	4.34%	14,513.30	56,809.00	25.55%	70.57	11.98
MN	51,163	2,096,616	2.44%	11,220.77	86,716.58	12.94%	24.18	4.56
MO	22,689	2,387,051	0.95%	3,207.36	69,655.31	4.60%	34.27	7.07
MS	3,131	1,165,764	0.27%	661.65	48,458.26	1.37%	24.06	4.73
MT	21,916	394,719	5.55%	15,567.07	146,643.14	10.62%	2.69	1.41
NC	33,572	3,756,683	0.89%	1,915.01	53,816.48	3.56%	69.81	17.53
ND	17,969	275,615	6.52%	17,241.54	70,500.64	24.46%	3.91	1.04
NE	77,845	730,577	10.66%	45,227.25	77,243.02	58.55%	9.46	1.72
NH	4,407	523,124	0.84%	742.69	9,332.02	7.96%	56.06	5.93
NJ	-	3,284,958	0.00%	2.78	8,711.76	0.03%	377.07	0.00
NM	33,620	764,708	4.40%	36,505.18	121,614.00	30.02%	6.29	0.92
NV	73,000	994,992	7.34%	8,221.09	110,460.69	7.44%	9.01	8.88
NY	7,783	7,336,803	0.11%	836.50	54,459.66	1.54%	134.72	9.30
OH	151,893	11,870,733	1.28%	11,925.10	40,953.00	29.12%	289.86	12.74
OK	73,705	1,477,008	4.99%	13,152.37	69,896.26	18.82%	21.13	5.60
OR	142,760	1,516,658	9.41%	31,321.17	96,003.00	32.63%	15.80	4.56
PA	23,957	5,062,337	0.47%	1,943.61	45,996.09	4.23%	110.06	12.33
RI	no exclusive WISP areas							
SC	15,393	1,825,000	0.84%	1,038.21	32,017.90	3.24%	57.00	14.83
SD	8,463	317,343	2.67%	4,044.34	76,953.85	5.26%	4.12	2.09
TN	32,432	2,556,644	1.27%	2,504.68	42,137.60	5.94%	60.67	12.95
TX	2,094,479	8,924,973	23.47%	199,899.00	268,808.00	74.36%	33.20	10.48
UT	22,052	857,504	2.57%	11,655.91	84,821.29	13.74%	10.11	1.89
VA	19,726	3,093,328	0.64%	1,042.12	42,752.78	2.44%	72.35	18.93
VT	9,313	253,271	3.68%	1,224.83	9,594.84	12.77%	26.40	7.60
WA	50,225	2,581,680	1.95%	14,585.00	71,098.86	20.51%	36.31	3.44
WI	55,711	2,291,855	2.43%	5,729.51	65,355.27	8.77%	35.07	9.72
WV	18,206	757,767	2.40%	1,292.63	24,211.61	5.34%	31.30	14.08
WY	10,517	215,923	4.87%	12,458.45	97,105.00	12.83%	2.22	0.84