

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

In the matter of )  
Inquiry Concerning the Deployment of )  
Advanced Telecommunications Capability )  
to All Americans in a Reasonable and )  
Timely Fashion, 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 )

GN Docket No. 10-159

**COMMENTS OF CONNECTED NATION, INC.**

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## SUMMARY

In the *Seventh Broadband Deployment Notice of Inquiry (Advanced Services Inquiry)*, the Commission asks several questions that directly address the value and utility of the granular maps of broadband availability information that are the produce of the NTIA's implementation of the Broadband Data Improvement Act of 2008.

Connected Nation, Inc., is the largest contractor for BDIA-funded mapping projects in the country and is currently performing broadband inventory projects for South Carolina, Illinois, Ohio, Michigan, Florida, Iowa, Texas, Tennessee, Minnesota, Alaska, Nevada, Kansas, and the Territory of Puerto Rico. Connected Nation provided NTIA with broadband availability data in those jurisdictions earlier this year and will submit updated data in October 2010. These states and territories account for 34% of the U.S. population and 41% of the land mass of the U.S.

Connected Nation believes that the data it has collected for states and the NTIA in this process is extremely useful to the Commission in this *Advanced Services Inquiry*. In these Comments, Connected Nation summarizes the process it uses to collect and verify this information and provides examples of the utility and value that analysis of this data can provide. In particular, attached to these comments is the *Iowa Broadband Report* that Connected Nation's Iowa subsidiary, Connect Iowa, released last month at the request of the Iowa Utilities Board. That report utilizes the BDIA data to examine the availability of different broadband tiers, describe deployment by technology platform, and provide a series of county-level analyses. Connected Nation is in the process of providing similar analyses for other jurisdictions over the coming weeks and months and will provide all of these analyses to the Commission in this docket.

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The American Recovery and Reinvestment Act of 2010 (the “Recovery Act”) has inspired a renewed and vigorous attention to the deployment and adoption of broadband services across the United States. The Recovery Act not only funded the Department of Commerce, National Telecommunications and Information Administration (“NTIA”) Broadband Technology Opportunities Program and the Department of Agriculture, Rural Utilities Service Broadband Investment Program, but the Recovery Act also sparked the development of the National Broadband Plan and has spawned dozens of state, local and community efforts that are all directed at quickening the diffusion and use of broadband technology, for the betterment of the economy and society as a whole.

Congress has established that an important—and indeed critical—component of this collective effort is a renewed attention and commitment to learning more about the *actual* state of broadband availability and infrastructure throughout the United States and territories. Not simply numbers on a table, not estimates or projections—but information on actual availability and performance of the nation’s broadband infrastructure, which is

continuously updated and verified by agencies and research personnel that are on the ground and in communities, at the state and local level. To this end, Congress in 2008 passed the Broadband Data Improvement Act (“BDIA”),<sup>1</sup> which empowered states to designate and contract with entities to collect and map broadband service availability and to develop state and local plans for spurring increased broadband network deployment and adoption.<sup>2</sup> The Recovery Act funded these BDIA grant programs, and at this moment, dozens of such entities are now hard at work receiving and verifying data from hundreds of broadband providers across the country. In February 2011, these state-led efforts will be joined in an interactive and searchable National Broadband Map that will be verified and maintained by the NTIA.

In the *Seventh Broadband Deployment Notice of Inquiry (Advanced Services Inquiry)*,<sup>3</sup> the Federal Communications Commission (the “Commission”) asks several questions that directly address the value and utility of the granular maps of broadband availability information that are the product of the NTIA’s implementation of the BDIA. In these Comments, Connected Nation, Inc., summarizes the BDIA broadband geographic inventory process and provides examples of the utility and value that the collected data have for the Commission’s *Advanced Services Inquiry*, the implementation of the National Broadband Plan, and other purposes.

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<sup>1</sup> Pub. L. No. 110-385, 122 Stat. 4097 (codified at 47 U.S.C. §§ 1301-04).

<sup>2</sup> Specifically, the BDIA states that these efforts are “to provide a baseline assessment of broadband deployment in each State” and “to create within each State a geographic inventory map of broadband service” that will “identify gaps in such service” and “provide a baseline assessment of statewide broadband deployment in terms of households with high-speed availability.” 47 U.S.C. § 1304(e)(1), (10).

<sup>3</sup> *In the Matter of 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*, GN Docket No. 10-159, Seventh Broadband Deployment Notice of Inquiry, FCC 10-148 (rel. Aug. 6, 2010) (“*Advanced Services NOI*”).

Connected Nation, through its state and territorial subsidiaries, is the largest contractor for BDIA-funded mapping projects in the country. Connected Nation has been mapping broadband availability since 2004, beginning in Kentucky, and later expanded to Tennessee in 2007, Ohio and South Carolina in 2009, and North Carolina, Minnesota and Colorado in 2009. Since Congress began to offer states matching grants for such efforts through the Recovery Act, in the last year Connected Nation has contracted to perform mapping projects for South Carolina, Illinois, Ohio, Michigan, Florida, Iowa, Texas, Tennessee, Minnesota, Alaska, Nevada, Kansas, and the Territory of Puerto Rico. All told, these states and territories account for 34% of the U.S. population and 41% of the land mass of the U.S.

Connected Nation strongly believes that the maps and information it is collecting as part of the BDIA program are and will be useful for the Commission in making its assessment of the extent to which advanced telecommunications services are being deployed. Section I below describes the process Connected Nation utilizes to collect and verify the information that it twice annually provides to the NTIA. While no data set is perfect, Connected Nation aggressively tries to verify service provider claims of availability and employs a team of eleven expert network engineers who validate data received from service providers through extensive field testing.

The SBDD mapping program is still evolving, with these efforts leading to the publication of the National Broadband Map by the NTIA by February 17, 2011. In “interactive and searchable” form,<sup>4</sup> the National Broadband Map promises to be an

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<sup>4</sup> 47 U.S.C. § 1305(l); *see also* 47 U.S.C. § 1304(g)(2). The BDIA requires that grantees are to “rely upon the data rate benchmarks for broadband service utilized by the [Federal Communications] Commission to reflect different speed tiers.” 47 U.S.C. § 1304(e)(4).

important tool for policymakers, researchers, community leaders, and the public as a whole. The Commission and the NTIA have entered into a Memorandum of Understanding in which the Commission will have access to the data gathered by Connected Nation and other BDIA mapping agents, in order to “integrat[e] and analyz[e] state and territory data sets and then creating a conformed dataset.”<sup>5</sup> But the Commission and other policymakers need not wait until February 2011 to make use of this tremendous public resource; the information already collected by Connected Nation and other SBDD grantees already can provide important insight for this *Advanced Services Inquiry*.

Section I includes examples of the types of analyses that the data already collected by Connected Nation and other SBDD grantees collect can provide. In August 2010, Connect Iowa (Connected Nation’s subsidiary) released a report on the status of broadband availability and adoption in Iowa at the request of the Iowa Utilities Board, the state agency that is supervising the statewide mapping process.<sup>6</sup> The *Iowa Broadband Report*, which is attached as Appendix A to these Comments, contains a series of analyses—such as availability of different broadband tiers, deployment by technology platform, and county-level analyses. Connected Nation is in the process of providing similar analyses for other jurisdictions over the coming weeks and months. As this research is prepared, Connected Nation will provide all of this information and data to the Commission for this *Advanced Services inquiry*.

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<sup>5</sup> Federal Communications Commission, RFQ-10-000020 (June 21, 2010) (available at: <http://www.fcc.gov/omd/contracts/pre-award/RFQ-10-000020-rfq-letter.pdf>) at 1.

<sup>6</sup> Connect Iowa, *Iowa Broadband: Current Market Analysis & Initial Recommendations for Acceleration of Iowa’s Broadband Market* (Aug. 2010) (“*Iowa Broadband Report*”), available at: <http://connectiowa.org/documents/ConnectIowaBroadbandAnalysis082010FINAL.pdf>, attached as Appendix A.

Section II discusses the Commission's specific questions in the *Advanced Services Inquiry* as they relate to the utility of the BDIA-mapping programs for its analysis in this docket. In short, Connected Nation believes that the granular information that it is helping thirteen jurisdictions collect, verify and analyze will be extremely useful for policymakers and the public. In addition, Connected Nation is conducting consumer and business surveys in each of these jurisdictions, and the information and data on why consumers adopt broadband should also be useful to the Commission's task in this docket. While the data collected by Connected Nation and other SBDD grantees is by no means perfect and cannot answer every question, the NTIA program will represent the largest, most granular, comprehensive and verified set of data on broadband availability in the United States that has ever been collected.

## **I. THE BROADBAND DATA IMPROVEMENT ACT MAPPING PROGRAM**

In 2008, Congress, noting the importance of broadband infrastructure to the economic development and social welfare of state and local communities, passed the Broadband Data Improvement Act, which established a process in which states would receive federal grants from the NTIA to map, assess and promote broadband deployment and adoption in their communities.<sup>7</sup>

The Recovery Act provided NTIA up to \$350 million to invest in these state and local efforts via federal matching grants. The NTIA's State Broadband Data and Development Program was developed to allocate these grants to states and territories with these Recovery Act funds. NTIA has initially provided funding for the collection of

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<sup>7</sup> 47 U.S.C. § 1304.

broadband deployment data on a semi-annual basis in 2010 and 2011,<sup>8</sup> and it is currently considering applications that would continue the broadband deployment collection program through 2014, as well as expand the scope of the SBDD grants in order to follow the mandate of the BDIA.<sup>9</sup> Comprehensive information on the SBDD program can be found at the BroadbandUSA.gov website, <http://www2.ntia.doc.gov/SBDD>. As of this writing, NTIA has committed over \$100 million to these state-led mapping and broadband planning efforts.

**A. Designation of Entities**

The BDIA gives states and territories the option of undertaking this mapping and broadband promotion project either through a governmental agency or through a non-profit entity, such as Connected Nation. Connected Nation works directly with and supports the efforts of a host of state government offices in its thirteen jurisdictions. According to the NTIA, the majority of jurisdictions have designated a state office or agency as the “eligible entity” for SBDD grants, which means that the primary responsibility for collection and verification of broadband availability data falls with the particular agency. However, nonprofits like Connected Nation, One Economy, and others often work in support of those government-led efforts. Connected Nation is an active participant, either as a state-designated grant recipient or a contractor with the state agency, in twelve states and the Territory of Puerto Rico.

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<sup>8</sup> See State Broadband Data and Development Grant Program, Department of Commerce, National Telecommunications and Information Administration, Notice of Funds Availability and Solicitation of Applications, 74 Fed. Reg. 32545 (July 8, 2009) (“SBDD NOFA”).

<sup>9</sup> Press Release, NTIA, *NTIA To Accept Updated Grant Applications From States for Broadband Improvement and Mapping Activities* (May 28, 2010).

## **B. The Scale and Scope of Data Collection**

The first step in the SBDD mapping program is to identify the broadband service providers in a state that have either last mile or middle mile facilities in the state. This identification is conducted using private and public databases, including the Commission's Form 477 data. In consultation with relevant state agencies, Connected Nation investigates those lists to ascertain which are in fact providing service in each jurisdiction presently. Armed with this list, Connected Nation and other SBDD grant recipients are then required by NTIA program rules to execute with those providers non-disclosure agreements ("NDA") upon request. All of these NDAs must comply with the definition of confidentiality set by the NTIA. Importantly, that NDA does not restrict NTIA's access to and use of the data collected, and it does not limit the NTIA from sharing that information with other federal agencies, such as the Commission.

Connected Nation contacts each service provider and endeavors to collect information about their broadband infrastructure inventory, by speed tiers and type of platform, as specified by NTIA program rules. This detailed information includes availability of broadband services to households and businesses by census block, nine "maximum advertised" download speed tiers (ranging from 768 200 kbps to over 1 Gbps), eleven "maximum advertised" upload speed tiers (ranging from less than 200 kbps to over 1 Gbps), nine "typical downstream speed" tiers, eleven "typical upstream speed" tiers, and eleven technology platforms (ADSL, SDSL, other copper, DOCSIS 3.0, other cable, fiber, fixed unlicensed wireless, fixed licensed wireless, mobile wireless, electric power line, and satellite). Table 1 lists each of these fields of data collected.

**Table 1. Last Mile Technology and Service Data Fields**

<b>Technology Platform</b>	<b>Maximum Advertised Download Speed</b>	<b>Typical Download Speed</b>	<b>Maximum Advertised Upload Speed</b>	<b>Typical Upload Speed</b>
Asymmetric DSL	768 kbps < 1.5 Mbps	768 kbps < 1.5 Mbps	<200 kbps	<200 kbps
Symmetric DSL	1.5 < 3 Mbps	1.5 < 3 Mbps	>200 kbps < 768 kbps	>200 kbps < 768 kbps
Other Copper Wireline (e.g., Ethernet, T-1)	3 Mbps<6 Mbps	3 Mbps<6 Mbps	768 kbps < 1.5 Mbps	768 kbps < 1.5 Mbps
DOCSIS 3.0 Cable	6 Mbps < 10 Mbps	6 Mbps < 10 Mbps	1.5 < 3 Mbps	1.5 < 3 Mbps
Other Cable Modem	10 Mbps < 25 Mbps	10 Mbps < 25 Mbps	3 Mbps<6 Mbps	3 Mbps<6 Mbps
Fiber to Premises	25 Mbps < 50 Mbps	25 Mbps < 50 Mbps	6 Mbps < 10 Mbps	6 Mbps < 10 Mbps
Terrestrial Fixed Wireless - Unlicensed	50 Mbps < 100 Mbps	50 Mbps < 100 Mbps	10 Mbps < 25 Mbps	10 Mbps < 25 Mbps
Terrestrial Fixed Wireless - Licensed	100 Mbps < 1 Gbps	100 Mbps < 1 Gbps	25 Mbps < 50 Mbps	25 Mbps < 50 Mbps
Terrestrial Mobile Wireless	>1 Gbps	> 1 Gbps	50 Mbps < 100 Mbps	50 Mbps < 100 Mbps
Electric Power Line			100 Mbps < 1 Gbps	100 Mbps < 1 Gbps
Satellite			> 1 Gbps	> 1 Gbps
Other				

Pursuant to the program rules, in the spring of this year, Connected Nation reported to the NTIA data for each of its jurisdictions, and in October 2010 it will provide a complete and comprehensive update for all thirteen of its jurisdictions.

The result of this process is a wealthy and rich dataset that contains a range of speed tiers (both upload and download) across multiple broadband technology platforms. Since these data are reported in separate fields, which allows one to generate reports and cross-cuts that. Because the data sets contain information on speed tiers that range up to 100 Mbps and over 1 Gbps, they would, for instance, allow the allow the Commission to track progress towards the National Broadband Plan’s goals of connecting 100 million

homes to 100 Mbps networks and of connecting community anchor institutions to gigabit-per-second networks.<sup>10</sup> In addition, the data also may allow for studies that compare the availability and quality of unlicensed versus licensed fixed wireless services, or that analyze the interplay between different speed tier offerings between rivalrous network platforms.

Connected Nation reports the availability of network platforms and each of the speed tiers above on a census block basis. For census blocks that are larger than two square miles in area, Connected Nation reports platform availability information at the address or “street segment” level, as described by the U.S. Census Bureau.

Connected Nation also collects information on broadband infrastructure that is important to the National Broadband Plan’s focus upon connecting the nation’s community anchor institutions. SBDD awardees are required to research and compile a report of schools, libraries, medical and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations that includes latitude/longitude and broadband connectivity (speed and type). This community anchor institution information will be important in tracking implementation of the National Broadband Plan’s goal to connect each such institution with broadband, and that database of information also is directly relevant to Section 706’s requirement that the Commission track the deployment of advanced services to the nation’s schools.

SBDD mapping data also can help policymakers understand the deployment of Internet backhaul facilities. SBDD mapping awardees are required to collect, verify and

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<sup>10</sup> Omnibus Broadband Initiative, Federal Communications Commission, *Connecting America: The National Broadband Plan* (March 2010) at 25-26 (Goal Nos. 1 and 4).

report broadband infrastructure data on middle mile and Internet backhaul connection points. These data are reported to the NTIA twice a year by provider, connection technology and capacity, along with specific latitude, longitude and elevation of the connection point.

### **C. Comprehensiveness of Collection**

Pursuant to the BDIA and NTIA program rules, service providers are not required to provide information unless they are recipients of BTOP or BIP grants. However, in most jurisdictions, Connected Nation has been successful at receiving data from the vast majority of broadband service providers in those states. The first set of data that Connected Nation collected and reported in Spring 2010 contained broadband coverage information from over 77% of the identified broadband service providers in those jurisdictions.<sup>11</sup>

It is important to note that the Spring 2010 submission was the first set of data solicitation and collection from the SBDD program. For many service providers, especially smaller firms like unlicensed wireless ISPs, comprehensive availability maps may have been nonexistent, and the first contact or information they might have had about the SBDD program might have been through a phone call or letter from Connected Nation.

Participation is continually tracked and monitored. Every quarter, SBDD grantees file a report with NTIA and the states that track participation and list the service

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<sup>11</sup> Connected Nation, *Official Submission to the National Telecommunications and Information Administration Under the State Broadband Data and Development Grant Program*. These submissions were made on March 31, 2010 for Kansas, Illinois and Tennessee; on April 30, 2010 for Florida, Michigan, Minnesota, Nevada, Ohio, Puerto Rico and South Carolina; on May 28, 2010 for Iowa and Texas; and on June 30, 2010 for Alaska.

providers that participate. As a result, whether a service provider declines to participate is a matter of public record.

#### **D. Verification and Coverage Estimates**

The NTIA requires that all SBDD grantees verify broadband availability data through a secondary source. This verification can be through independent validation, an independent review of local infrastructure, telephone surveys, or on-the-ground research and assessments.<sup>12</sup>

Connected Nation utilizes several methods to verify the information it receives from service providers. After Connected Nation receives data from providers in various formats, it essentially translates this information into a service territory map that conforms to the SBDD program guidelines. Connected Nation uses statistical data verification methods to validate the data, and also uses its consumer survey data to contrast estimates of broadband availability across rural and non-rural households in particular area.

These initial, granular (yet preliminary) maps are then released in an interactive form to the public. In this way, consumers, businesses, community leaders and other stakeholders have the ability to “crowd-source” the accuracy and comprehensiveness of the map.<sup>13</sup> This allows for a real-world comparison of the broadband landscape to the information initially received from service providers. As a result of this process,

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<sup>12</sup> SBDD NOFA, 74 Fed. Reg. 32553 at n. 27; *see also* U.S. Department of Commerce, National Telecommunications and Information Administration, *State Broadband Data and Development Program (Broadband Mapping Program) Frequently Asked Questions* (available at: [http://www2.ntia.doc.gov/files/BTOP\\_BroadbandMappingFAQs.pdf](http://www2.ntia.doc.gov/files/BTOP_BroadbandMappingFAQs.pdf)) at 4.

<sup>13</sup> For an example, *see* Connected Tennessee, Interactive Map (Beta Version), available at: [http://connectedtennessee.org/broadband\\_landscape/interactive\\_map.php](http://connectedtennessee.org/broadband_landscape/interactive_map.php); Connected Tennessee, “Connected Tennessee Seeks Input from Tennessee Communities to Ensure Accuracy of Tennessee Broadband Map,” (Sep. 7, 2010), available at: <http://www.connectedtennessee.com/documents/BroadbandInquiryPR.pdf>.

Connected Nation routinely receives and process inquiries from these preliminary maps and utilizes this feedback to identify and investigate areas in which the initial data may need to be improved.

This feedback is essential in providing another level of verification for the broadband availability maps. In addition, an important by-product of this crowd-sourcing approach is to facilitate communication between unserved communities and service providers. An example of how this process can succeed recently occurred in a rural community of Leelanau County in Northern Michigan. In that instance, a small business that dependent upon dialtone learned of Connected Nation's Connect Michigan initiative and used Connect Michigan's feedback tool on the Internet. Within a week, the small business was receiving service from a local wireless Internet Service Provider that was looking to expand to that rural area of the state.<sup>14</sup>

Connected Nation also uses field testing to verify availability data independently. Connected Nation employs a field team of network engineers that perform actual, on-the-ground analyses that verify the availability of broadband service. This engineering team proactively seeks to confirm the existence (or lack thereof) of broadband availability in randomly selected locations throughout each state. For example, Connected Nation engineers will test wireless signal strengths, drive to locations to see if infrastructure (such as a towers or remote terminal) is physically present where it has been claimed to be, confirm the coordinates of broadband facilities, cross-reference and verify grades or elevations, and survey and test actual downstream and upstream throughput speeds. This independent analysis and verification process occurs continuously.

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<sup>14</sup> See Appendix B ("Nonprofit Helps Fast Internet Reach Rural Leelanau"), available at: <http://wwj.cbslocal.com/2010/08/24/nonprofit-helps-fast-internet-reach-rural-leelanau/>.

Although Connected Nation collects data from service providers on a census block basis, Connected Nation's maps do not assume that the full geography of a census block is "served" when a service provider reports that it is offering service to some households in that census block. Instead, Connected Nation has developed a geoprocessing tool estimates the percent of households in a block that are likely to be served. This tool essentially estimates that households are likely to be located alongside roads and calculates the ratio of how much of the roadline network in that block is likely to be covered by the claimed broadband service.

**E. The Value of Data to Policy: The *Iowa Broadband Report***

As the Commission noted in the *Advanced Services Inquiry*, it is working with NTIA and state grantees to develop the National Broadband Map, and Connected Nation is supporting those efforts. Connected Nation has provided NTIA broadband inventory data for every one of its thirteen jurisdictions as part of the initial, Spring 2010 data submission. Connected Nation is currently in the process of providing the NTIA updates to this data for the required October 2010 submission. This update will include data from providers that did not participate in the initial submission and will also include coverage updates that are the result revised submissions, field reviews and secondary validations.

As a result, while the National Broadband Map will not be published until February 2011, the Commission and NTIA will, within the next month, have two large sets of data on broadband availability from the twelve states and Puerto Rico in which Connected Nation subsidiaries are supporting state SBDD grantees. It also should have similar data collected from other SBDD grantees in other jurisdictions as well.

Connected Nation believes that even the thirteen jurisdictions for which it has provided

data contains a wealth of information about the status of the availability of advanced services in the United States. This information can and should be used to inform the Commission’s policy decisions.

For instance, this data can be utilized to analyze the deployment of services at several different speed tiers (ranging from 768 kbps to over 1 Gbps) and terrestrial platform (cable, DSL, fiber, fixed wireless, and mobile wireless). In addition, since much of this data are reported by census blocks, detailed cross-cuts on the availability in rural and urban areas are possible. This month Connected Nation released the *Iowa Broadband Report*, an initial assessment requested by the Iowa Utilities Board, which is attached as Appendix A. In particular, the report describes how 77% of Iowa households have access to advertised download speeds of at least 6 Mbps and 87% have access to networks that support advertised speeds of 3 Mbps or more. *See* Table 2.

**Table 2. Availability of Download Speeds from Fixed Platforms in Iowa**

Estimate Of Broadband Service Availability In The State Of Iowa – By Speed Tier Among Fixed Platforms			
SBDD Download Speed Tiers	Unserved Households (000s)	Served Households (000s)	Percent Households By Speed Tier
At Least 768-1500 Kbps	53	1,096	95.36%
At Least 1.5-3 Mbps	93	1,056	91.90%
At Least 3-6 Mbps	142	1,007	87.60%
At Least 6-10 Mbps	261	888	77.27%
At Least 10-25 Mbps	299	850	73.98%
At Least 25-50 Mbps	979	170	14.80%
At Least 50-100 Mbps	1,013	136	11.82%
At Least 100-1000 Mbps	1,109	40	3.49%
At Least 1 Gbps	1,137	13	1.10%

Source: *Connect Iowa, May 2010.*

The 3 Mbps and 6 Mbps service tier levels are roughly commensurate with the Commission’s National Broadband Availability Target of 4 Mbps actual download speed. However, as the *Iowa Broadband Report* notes, the 77-87% availability level found by Connect Iowa contrasts with the FCC’s Broadband Availability Gap Model, which estimates that approximately 95% of Iowa housing units will have access to broadband services that meet the National Broadband Availability Target absent a subsidy. Since the FCC Model was generated in part with state broadband inventory data collected in other states,<sup>15</sup> this analysis demonstrates how updates and granular SBDD data can lead to a more comprehensive understanding of broadband availability nationwide.

The *Iowa Broadband Report* also describes the extent of deployment of different broadband platforms in the state. Table 3 summarizes some of this data.

**Table 3. Availability of at least 768 kbps downstream in Iowa, by Platform**

Availability Estimate by Broadband Platform in the State of Iowa			
Platform Type	Served Households (000s)	Percent of Households Served	Number of Providers - By Platform
Cable	842	73.30%	34
DSL	996	86.64%	117
Fiber	102	8.91%	44
Fixed Wireless	623	54.22%	47
Mobile	1,041	90.56%	6
Total -All Platform Except Mobile	1,096	95.36%	167
Total – All Platforms	1,142	99.37%	173

*Note: The numbers of providers across each platform do not add up to the total of 173 due the fact that providers may offer service using various technology platforms.*

*Source: Connect Iowa, May 2010.*

<sup>15</sup> Omnibus Broadband Initiative, Federal Communications Commission, *The Broadband Availability Gap*, OBI Technical Paper No. 1 (Apr. 2010) (“*Broadband Availability Gap*”) at 23 (noting use of data from Minnesota, Pennsylvania, California, Alabama and Wyoming state mapping programs).

Since it is collected at the census block level (at the largest), analysis of SBDD data can involve a granular analysis of platform availability. For instance, the *Iowa Broadband Report* contains data on the availability of service over each of these platforms at the county level.<sup>16</sup>

The *Iowa Broadband Report* also demonstrates how SBDD availability data may be plotted against federal universal service fund disbursements to study whether there is a linkage between universal service high-cost loop support for voice and the deployment of 768 kbps downstream and other broadband service tiers in rural areas. Table 4 summarizes this analysis.

**Table 4. Availability of 768 kbps downstream in Rural and Non-Rural Counties in Iowa in which Providers are Eligible for High Cost USF**

Estimates of Broadband Availability Across Rural & Non-Rural Counties with Varying Degree of Geography Served by Providers Eligible for HCL, LSS and ICLS Support						
	Percentage of County Territory Served by Providers Eligible for Support					
	Less than 10%	Between 10-20%	Between 20-50%	Between 50-75%	Between 75-100%	Total*
All Counties	87.17%	88.77%	94.08%	95.61%	94.48%	92.32%
Only Rural Counties	86.96%	86.74%	93.23%	95.40%	94.85%	91.84%
Only Urban & Suburban Counties	88.24%	92.56%	97.48%	97.21%	90.32%	94.2%
Number of Counties	12	23	35	17	12	99

This simple average county-level availability estimate is lower than the statewide estimate for broadband availability (95.36%) due to the fact that it does not weight county estimates by the underlying population in each county.

Source: For broadband availability rates, *Connect Iowa*, 2010. For USF eligibility, *Iowa Utilities Board*.

The SBDD data can also begin to provide preliminary assessments on the extent to which the nation’s community anchor institutions are on the path to meeting the National

<sup>16</sup> Appendix A at Table 10.

Broadband Plan’s goal of connecting each to gigabit-per-second broadband networks. For example, the Iowa data indicate that of those community anchor institutions that knew the technology that served them, only 23% of such institutions are directly connected to fiber optic networks. Table 5 provides a summary of the connectivity of community anchor institutions, by broadband technology platform, in Iowa.

**Table 5. Broadband Connectivity of Iowa Community Anchor Institutions**

Broadband Technology Platform Among Subset CAIs that Report Broadband Platform Data	
Technology Platform	Percent of CAIs Served by Platform (among those who knew their broadband platform)
Asymmetric DSL	17.1%
Symmetric DSL	11.9%
Other Copper Wireline	13.9%
Cable Modem-DOCSIS	4.0%
Cable Modem-Other	19.6%
Optical Carrier/Fiber	23.3%
Satellite	2.2%
Terrestrial Fixed Wireless-Unlicensed	0.5%
Terrestrial Fixed Wireless-Licensed	7.8%
Terrestrial Mobile Wireless	0.1%

Source: Connect Iowa, May 2010.

The *Iowa Broadband Report* also contains a wealth of demand-side data that was collected by Connect Iowa through a survey of Iowa consumers in March 2010. This survey research, which Connected Nation is in the process of completing and releasing for other states and Puerto Rico, contains detailed information on the demand-side barriers to broadband adoption that are specific to Iowa. Over the coming weeks, after it

processes the October 2010 submission, Connected Nation will be publishing similar supply and demand side data for other jurisdictions, and Connected Nation will provide these results to the public and the Commission as soon as they are completed. Connected Nation also would be happy to provide additional information, analyses and results.

**F. Summary**

In summary, the mapping data collected pursuant to the NTIA's SBDD program already constitute a reasonably comprehensive and powerful tool for analyzing and assessing the status of broadband deployment in the United States. This information is collected at granular geographic levels for multiple download and upload speed tiers and multiple categories of providers. Such rich data allow for a host of sophisticated analyses of the status of deployment of broadband in the United States. In addition, the information collected is comprehensive and subject to verification procedures and semi-annual updates. The Iowa snapshots shown above and described in detail in Appendix A are only a fraction of the possible analyses that could be undertaken with this data.

Connected Nation is committed to undertaking this analysis, and since the Commission is already partnering with the NTIA in verifying and utilizing this data for the National Broadband Map, the Commission today has full access to the rich data already collected by SBDD grantees. After essentially one year of funding and operations, it is clear that the NTIA's SBDD program is the most comprehensive and granular assessment of the status of actual broadband deployment that has ever been undertaken in the United States. Moreover, this data can be analyzed *today* and analysis need not wait the publication of the National Broadband Map in February 2011. Stated simply, the broadband geographic inventory data that has been collected by Connected

Nation and other SBDD grantees is and will be an important resource for the Commission's *Advanced Services Inquiry* and other policy decisions.

## II. RESPONSE TO SPECIFIC QUESTIONS IN THE *NOI*

In this Section, Connected Nation provides specific responses to questions posed by the Commission in the *Advanced Services Inquiry*, that are specific to the broadband availability information that it collects and the utility that this data offers the Commission:

**¶ 12: Given that the Commission will no longer have Recovery Act funds, what are the best sources of available data that the Commission can use to populate the [Broadband Availability Gap] Model? As mentioned above, the Model also is based on data collected from states and other federal entities. Is it advisable for the Commission to collect updated data from these state and federal sources given that any request to update the data may impose costs and burdens upon these government entities?**

The Commission's Broadband Availability Gap Model that was prepared by the Commission's Omnibus Broadband Initiative relies in significant part from state-level data that was gathered in various states, including the data collection work done in Minnesota by Connected Nation in 2009 as part of a state-funded program for mapping the broadband inventory in the state.<sup>17</sup>

As noted above, because of its Memorandum of Understanding with the NTIA, the Commission will be "integrating and analyzing" data that Connected Nation and other SBDD grantees have collected and submitted to the NTIA on the availability of broadband technology. Conceivably, that data could be employed either to help keep the

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<sup>17</sup> *Broadband Availability Gap* at 23 (noting use of data from Minnesota, Pennsylvania, California, Alabama and Wyoming).

Broadband Availability Gap Model up to date or to serve as inputs to a new model in a manner similar to which state-level data was utilized as an input to the original Broadband Availability Gap Model.

**¶ 18: Are there other sources of data the Commission could rely on to estimate broadband availability?**

As discussed in more detail in Section I above, Connected Nation believes that the datasets it and others have collected pursuant to the SBDD program represent the most comprehensive and detailed geographic assessment and inventory of broadband availability that exists in the United States today. As Appendix A demonstrates for the State of Iowa, this data can facilitate and support a large number of policy-relevant analyses and queries. Connected Nation is committed to ensuring that its data are verified, accurate and comprehensive so that policymakers, researchers and the public can utilize this data to promote the widespread adoption and use of broadband technology.

**¶20: We seek comment on the National Broadband Map and its relationship to this *Inquiry*. This interactive map will be an extremely valuable national resource that can be used by all stakeholders to better understand the state of broadband deployment throughout the country. Given the relevant target dates, it appears likely that [the] National Broadband Map will not be in final form until after the release of the next broadband deployment report. What impediment does that pose to the use of any data underlying the National Broadband Map that might be relevant to this proceeding, and how might any such impediments be overcome?**

Connected Nation agrees with the Commission that when released in February 2011, the National Broadband Map “will be an extremely valuable natural resource that can be used by all stakeholders to better understand the state of broadband deployment

throughout the country.” But there is no reason why detailed, policy relevant analyses and research cannot be undertaken by utilizing the data that have already been collected and already reported to NTIA by Connected Nation and other SBDD grantees.

Moreover, as the Commission notes, the Commission is already tasked with analyzing this SBDD data for the NTIA in order to support the National Broadband Map project.

As discussed above, in the thirteen states and territories in which it is conducting the mapping process, Connected Nation has already provided the NTIA with data sets that include information from 77% of the broadband providers that are operating in those states and territories. These thirteen jurisdictions are geographically diverse and cover over one-third of the U.S. population and two-fifths of the U.S. land mass. Standing alone, Connected Nation’s submissions for these thirteen jurisdictions constitute an important resource for the Commission’s *Advanced Services Inquiry*. As noted above, Connected Nation intends to perform data analyses similar to that which it conducted in the attached *Iowa Broadband Report* and is certainly open to discussing other ways in which this data can be analyzed.

**¶20: Will the Commission also be able to use the underlying geographic data to help determine where service offering actual speeds of 4 Mbps download and 1 Mbps upload is available to subscribers today (or such other benchmark as the Commission adopts)? If so, what methodology should the Commission use to make such determinations, and what information justifies use of that methodology?**

The NTIA program rules stipulate the download and upload service tiers that Connected Nation and other SBDD grantees must collect and report. *See* Table 1 above. As the Commission is well aware, the difference between “advertised” and “typical”

speeds and “actual” speeds is only now being explored and understood. Over time, this knowledge gap is likely to shrink.

At the same time, the data collection on “advertised” and “typical” speeds that Connected Nation and other SBDD grantees are collecting can provide signs and guideposts as to where broadband service available to consumers and businesses today is likely to meet the National Broadband Availability Target. The difference between “actual” and “advertised” speeds is approximately a factor of two – as a result, the data that Connected Nation collects for the availability of “advertised” broadband speeds above 3 Mbps and above 6 Mbps downstream can indicate where 4 Mbps “actual” is likely to be available. At a minimum, this information can provide a jumping off point for further research, assessment and validation.

The attached *Iowa Broadband Report* indicates how this analysis may be performed. In particular, Table 13 of that report provide a county-by-county comparison of the availability of “advertised” 3 Mbps download speeds against the Commission’s Broadband Availability Gap estimates. In Iowa, 77% of households have access to fixed, terrestrial broadband of at least 6 Mbps advertised download, and 87% of households have access to fixed, terrestrial broadband of 3 Mbps advertised download or more. These measurements contrast with the Broadband Availability Gap Model’s estimate of 95% availability in Iowa of the National Broadband Availability Target.

It also should be noted that the Broadband Data Improvement Act requires that the NTIA grant program collect information by reference to “the data rate benchmarks for broadband service utilized by the Commission . . .”<sup>18</sup> As a result, if the Commission

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<sup>18</sup> 47 U.S.C. § 1304(e)(4).

changes its data rate benchmarks to include tiers of actual download and upload speeds, data collection under the BDIA program will conform.

**¶ 22: Are there other issues related to the National Broadband Map and/or the Commission's maps illustrating the Model? Are there other mapping issues that the Commission should consider? Are there any concerns about the sources and quality of data used to create these [SBDD] maps? To the extent the Commission collects geographic data of broadband deployment, should it use the same area or coding for all types of broadband facilities or are there reasons that would justify the use of different geographic areas for different types of broadband deployment data?**

As discussed above, Connected Nation believes that the broadband inventory maps it has produced, and those that other SBDD grantees have presumably generated, are the most granular, complete and accurate source of broadband availability that is available to policymakers today. NTIA program rules require secondary verification of the broadband availability data that is submitted as part of the SBDD program. As discussed above, Connected Nation employs a number of verification techniques, which ranging from consumer speed tests and interactive maps to on-the-ground field research by network engineers. This verification process is ongoing, and Connected Nation employs a team of network engineers that perform on-the-ground field surveys.

Participation by most service providers in the SBDD mapping program is not mandatory. For this reason, Connected Nation continuously contacts service providers in its jurisdictions, a process that includes phone calls, letters, and outreach through trade associations. This is an ongoing and iterative process, and Connected Nation expects that these participation levels will improve over time. On the whole, participation by the larger and more significant broadband providers has been high across our jurisdictions, and the status of non-participating providers is a matter of public record. While not

perfect, the lack of participation by some service providers in the program should not diminish the value of the data that Connected Nation, and other SBDD grantees, *have* received, verified and processed.

### **III. CONCLUSION**

As discussed above, the data currently being collected, verified, and submitted by Connected Nation and other SBDD grantees are an extremely valuable resource that would greatly assist the Commission in its obligation under Section 706 to assess whether advanced services are being made available to all Americans in a timely manner. The Commission has already utilized data collected at the state level to help generate the Broadband Availability Gap Model that was the centerpiece of the National Broadband Plan. Now that more data are being collected and verified from more states, the Commission should continue to rely upon this valuable, taxpayer-funded resource.

Consistent with its mission, Connected Nation is committed to providing useful, accurate, verifiable and sound analysis of this data. The information contained in the attached *Iowa Broadband Report* represents only the tip of the iceberg of analyses that these state broadband inventories are capable of providing policymakers.

Perhaps as important as the data is the process that the SBDD program has sparked in local communities. Across the country, funding for state broadband mapping and planning has spawned a host of task forces and stakeholder gatherings that bring together interested agencies and policymakers and representatives of the broader economy to discuss the importance of expanding broadband access in their communities. By itself, the process can produce tangible results, such as connecting a local artist and

small businessman in Northern Michigan to broadband (Appendix B). And while that process is only beginning, it is fast becoming an important means to the end of connecting consumers, small businesses, and community anchor institutions to the broadband Internet.

Respectfully submitted,

[submitted electronically]  
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