

**OFFICIAL OCTOBER 2010 UPDATE SUBMISSION TO  
THE NATIONAL TELECOMMUNICATIONS AND INFORMATION  
ADMINISTRATION UNDER THE  
STATE BROADBAND DATA AND DEVELOPMENT GRANT PROGRAM  
FOR THE STATE OF NEVADA**

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October 1, 2010

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## COVER LETTER

September 29, 2010

Ms. Anne W. Neville  
SBDD Grant Program Director  
National Telecommunications and Information Administration  
U.S. Department of Commerce  
1401 Constitution Avenue, NW Room 4716  
Washington, DC 20230

Dear Ms. Neville:

As the Designated Entity, and in partnership with the Nevada Governor’s Office and the Nevada Broadband Task Force (NBBTF), please accept this submission from Connected Nation on behalf of the state of Nevada’s State Broadband Data and Development (SBDD) Grant Program, Connect Nevada.

These artifacts should be found to be compliant with the October 1, 2010, deadline for the semi-annual data update and in accordance with the terms of the July 1, 2009, Notice of Funds Availability (NOFA) and all subsequent clarifications pertaining to delivery of State-Level Mapping of Broadband Service Availability. This packet includes:

### ***Inventory of Deliverables, Connect Nevada: October 1, 2010***

<u>NOFA Requirement</u>	<u>Data Transfer Model</u>	<u>Data Description</u>
Appendix A: 1(a)(i)	BB_Service_CensusBlock	Broadband Service Availability of Facilities-Based Providers in Census Blocks of No Greater Than Two Square Miles in Area
Appendix A: 1(a)(ii)	BB_Service_RoadSegment	Broadband Service Availability of Facilities-Based Providers by Road Segment in Census Blocks Larger in Area Than Two Square Miles
Appendix A: 1(b)	BB_Service_Wireless	Broadband Service Availability of Wireless Services Not Provided to a Specific Address
Appendix A: 3(b)	BB_ConnectionPoint_MiddleMile	Broadband Service Infrastructure Middle-Mile and Backbone Interconnection Points
Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing
Appendix A: 4	n/a	Community Anchor Institutions-Narratives

VII.A.1(a)	n/a	Accuracy and Verification Report
n/a	DataPackage.xls	Worksheets of Contact Information, Data Dictionary, and Provider Summary Table
n/a	n/a	Broadband Provider Roster and Participation Status

In addition, this data update submission should be found to be compliant with the additional program requirements instituted by the National Telecommunications and Information Administration since the time of the initial SBDD data submission for the Connect Nevada program, on April 30, 2010. Specifically, these new requirements are:

**Census Blocks**

This dataset should be found to be in full compliance with the request to use Census 2000 geography with the availability of wireline broadband services in census blocks with area of no greater than two square miles.

**SBDD Data Transfer Model**

The submission of the broadband dataset for October 1, 2010, is contained within the SBDD Data Transfer Model as released on the Grantee Workspace on September 9, 2010. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information on each provider as possible.

It is therefore with great pleasure that the Connect Nevada program submits this first, semi-annual data update under the State Broadband Data and Development Grant Program. We will continue in partnership with the Nevada Governor’s Office and the NBBTF to implement the joint purposes of the Recovery Act and the BDIA by the gathering of comprehensive and accurate state-level broadband mapping data, developing state-level broadband maps, aiding in the development and maintenance of a national broadband map, and undertaking statewide initiatives for broadband planning.

As the submission of this semi-annual data update is concentrated on the delivery of Broadband Service Availability and Community Anchor Institutions (CAI) data, we provide the following insight into the compilation of these datasets contained herein.

***Broadband Service Availability — Provider Outreach***

This data update submission under the SBDD includes the participation of approximately 81.5% of the Nevada provider community, or 44 of 54 total providers. Of the 44 participating providers, 14 supplied an update to their network or coverage area(s), while 26 have reported no change. The remaining 4 represents providers who supplied initial submission data but were non-responsive in the October 2010 update effort or could not verify coverage areas at the time of this submission; therefore their initial dataset is being put forward as part of this compilation. A complete roster by provider depicting participation status and contact record is contained herein. The 10 providers that are not represented in the attached datasets are currently in some form of progress toward data submission but were not able to either submit or verify coverage areas at the time of this submission.

As the aforementioned roster and attached methodology documentation will attest, it is the collective opinion of the Connect Nevada principals that all commercially reasonable efforts were made to account for 100% of the known Nevada broadband provider community, pursuant to this semi-annual data update submission.

At the program's inception, Connect Nevada launched a website to create awareness about the initiative. Connectnv.org continues to serve a prominent role in the outreach and data collection effort. This program asset provides a way for the general public to participate in the process by offering interactive tools for users to test their connection speed, submit broadband inquiries, or contact a program representative. These program stakeholders are an essential component in the larger Connect Nevada data validation methodology.

As an indicator of stakeholder penetration, the Connect Nevada website encountered 1,645 unique visits during this reporting period (2,120 total to date for the life of the grant which was awarded on December 20, 2009). Additionally, this pronounced Web activity netted 20 broadband inquiries over this same reporting period (21 grant inception to date). The website also provides the BroadbandStat application, which allows the consumer to confirm or dispute the coverage represented on the broadband inventory map. These consumer initiated actions are facilitated through the Connect Nevada website and offer the citizens a vehicle to provide information regarding availability in their respective service area, either in affirmation or contest of the reported data represented in the Connect Nevada mapping artifacts. Since the initial data collection and release of corresponding maps, feedback in the form of broadband inquiries has allowed Connected Nation to identify additional areas that are in need of field validation, which is scheduled as soon as possible. Additional information on field validation can be found in the Field Validation Narrative.

### ***Community Anchor Institutions***

Connect Nevada has established an ongoing mechanism for gathering data on the location and broadband connectivity of Community Anchor Institutions (CAI), in accordance with the data requirements of the SBDD NOFA Technical Appendix.

In conjunction with the NBBTF, significant additional research and outreach was conducted during this data update reporting period by Connect Nevada to continue identification of existing, centralized sources for CAI connectivity data. Outreach was coordinated with the NBBTF to distribute the CAI survey to institutions throughout the state. The NBBTF assisted in the outreach effort by providing their contact information for their CAI partners. Connect Nevada has identified and processed a list of CAI through a combination of datasets including publicly available and privately held datasets from online sources, including:

- The National Public Safety Information Bureau  
<http://www.safetysource.com>
- American Hospital Association  
[http://www.hospitalconnect.com/hospitalconnect\\_app/hospitalfinder](http://www.hospitalconnect.com/hospitalconnect_app/hospitalfinder)
- National Center for Education Statistics  
Public Schools: <http://nces.ed.gov/ccd/schoolsearch/>  
Private Schools: <http://nces.ed.gov/surveys/pss/privateschoolsearch/>

Colleges: <http://nces.ed.gov/collegenavigator>

Libraries: <http://nces.ed.gov/surveys/libraries/librarysearch/>

- United States Fire Administration  
<http://www.usfa.dhs.gov/applications/census/search.cfm>

As of this semi-annual reporting period, a total of 98.4% Nevada CAI were identified, addressed, and geocoded. As is evident in the datasets being conveyed, while we were able to document institutions and the related addresses, the connectivity data collected in most categories remains less than complete. From our work in Nevada, as well as other states, we recognize the great value of this data to future collaboration efforts within the state, and to the accomplishment of the purposes in the recently released National Broadband Plan. We plan to continue to bring best practices to the Nevada efforts, along with an investment of both human and technical resources required to reach these goals in advance of the submission of the semi-annual update of this data due in April 2011.

In acquiring both broadband availability and CAI data within the state of Nevada, Connected Nation made special effort to engage all federally recognized tribal lands in the area covered by the Nevada SBDD grant. According to the U.S. Department of the Interior — Bureau of Indian Affairs, there are 19 Native-American lands in this area:

1. Confederated Tribes of the Goshute Reservation (Nevada and Utah)
2. Duckwater Shoshone Tribe of the Duckwater Reservation
3. Ely Shoshone Tribe of Nevada
4. Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation (Nevada and Oregon)
5. Fort Mojave Indian Tribe (Arizona, California and Nevada)
6. Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony
7. Lovelock Paiute Tribe of the Lovelock Indian Colony
8. Moapa Band of Paiute Indians of the Moapa River Indian Reservation
9. Paiute-Shoshone Tribe of the Fallon Reservation and Colony
10. Pyramid Lake Paiute Tribe of the Pyramid Lake Reservation
11. Reno-Sparks Indian Colony
12. Shoshone-Paiute Tribes of the Duck Valley Reservation
13. Summit Lake Paiute Tribe of Nevada
14. Te-Moak Tribe of Western Shoshone Indians of Nevada (Four constituent bands: Battle Mountain Band; Elko Band; South Fork Band; Wells Band)
15. Walker River Paiute Tribe of the Walker River Reservation
16. Washoe Tribe (Nevada and California) (Carson Colony, Dresslerville Colony, Woodfords Community, Stewart Community and Washoe Ranches)
17. Winnemucca Indian Colony of Nevada
18. Yerington Paiute Tribe of the Yerington Colony & Campbell Ranch
19. Yomba Shoshone Tribe of the Yomba Reservation

Connected Nation has successfully contacted 18 of the 19 tribes as part of the SBDD program and is accounting for the resulting data in the creation of the artifacts for this submission.

The Connect Nevada program exists to improve data on the deployment and adoption of broadband services and to assist in the extension of broadband technology across all regions of the great state of Nevada, as well as the United States through contribution to the National Broadband Map. We look forward to the remaining work ahead.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Tom Ferree", written in a cursive style.

Thomas W. Ferree  
Chief Operating Officer  
Connected Nation, Inc.

## DATA ACQUISITION: NEVADA COMMUNITY ANCHOR INSTITUTIONS

In this second reporting period of the SBDD, Connect Nevada, working in coordination with the state of Nevada and the Nevada Broadband Task Force has established an ongoing mechanism for gathering data on the location and broadband connectivity of Community Anchor Institutions (CAI), in accordance with the data requirements of the SBDD NOFA Technical Appendix. Connect Nevada has focused efforts during this reporting period on conducting outreach and raising awareness of this important project.

Connect Nevada has continued to identify and process CAI data obtained through an ongoing statewide outreach campaign. Physical address information continues to be augmented through manual sourcing and geocoded by Connect Nevada through ESRI ArcGIS software.

Connect Nevada continues to utilize a customized online survey hosted through SurveyMonkey, with a landing page on the Connect Nevada website, that was developed during the first reporting period. This survey in combination with a customized data-gathering spreadsheet was distributed to a targeted list of CAI throughout the state. Connect Nevada will continue to use these data gathering tools for future targeted outreach efforts throughout the coming months leading up to the next reporting period. These materials are customized to fit the CAI categories as defined in the SBDD NOFA.

The survey can be accessed here:

[http://connectnv.org/mapping/Community\\_Anchor\\_Institution\\_Data\\_Collection.php](http://connectnv.org/mapping/Community_Anchor_Institution_Data_Collection.php)

Connect Nevada continues to conduct research as part of an ongoing process to identify existing, centralized sources for CAI connectivity data. In tandem with these efforts to identify existing data, Connect Nevada continues to identify CAI contacts among all CAI categories in an effort to distribute and promote the online survey and raise awareness of the importance of CAI broadband connectivity. This coordination has resulted in the identification of key contacts at the following statewide organizations within Nevada: the Department of Public Safety, Association of Hospitals, Department of Education, and the State Office for Emergency Management and Homeland Security. Each of these high level contacts has agreed to partner with Connect Nevada to both distribute the online survey to their contacts and promote the importance of the survey to CAI within their jurisdiction. Connect Nevada also continues to operate a CAI hotline to answer questions related to the survey tools and CAI data collection.

Connect Nevada has an ongoing mission to educate CAIs throughout the state on the importance of participating in the project. Participation by these institutions will raise awareness about the importance of broadband connectivity and the need to report the requested data for inclusion on the Connect Nevada interactive map.

The greatest challenge faced in both reporting periods continues to be the difficulty in securing CAI broadband connectivity data. Connect Nevada will continue its ongoing work with the Nevada Broadband Task Force, state of Nevada, and Nevada's key CAI contacts in an effort to raise awareness of this project. Future efforts will involve targeted planning with representatives from

each of the CAI categories, as well as a structured outreach to each category, supported by messaging and meetings showcasing the value of these data for planning and collaboration purposes.

## SBDD DATA TRANSFER MODEL METHODOLOGY

The submission of the broadband dataset for October 1, 2010, is contained within the SBDD Data Transfer Model as released on the Grantee Workspace on September 9, 2010. Connected Nation has reviewed all literature that relates to the release and use of this data transfer model and recognizes that it does not replace or dictate how data is stored, processed, or displayed for the state, as it is meant primarily as a means to transfer the broadband data from all states and territories and populate the National Broadband Map in a seamless fashion.

In addition to the narratives and methodologies contained herein, as well as the DataPackage.xls containing contact information, the data dictionary, and a provider summary table, the following feature classes are submitted within the SBDD Data Transfer Model for the state of Nevada.

### *Inventory of Deliverables, Connect Nevada: October 1, 2010*

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Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing

The provider data collected by Connected Nation on behalf of the state of Nevada have been formatted per the given specifications and uploaded into the appropriate feature classes of the SBDD Data Transfer Model. Wireline availability is contained within census blocks and road segments, wireless availability is contained as polygons of coverage areas, middle-mile connections and community anchor institutions are contained as point data, and the subscriber weighted nominal speed (if available) is contained within the overview feature class. All speed data is contained at the census block, road segment, or wireless polygon level of availability. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information as possible.

## NEVADA FIELD VALIDATION NARRATIVE

The Connected Nation team of Charlie Roodenburg and Layne Wagner conducted field validation activities such as (a) cross-referencing provider submitted data, (b) on-site validation visits or on-site meetings with providers, (c) conducting random and pre-selected spectrum analysis studies throughout the state, (d) locating broadcast towers and cross-referencing structural data against the Federal Communications Commission Antenna Structure Registration database, and (e) validating site information such as grade, coordinates and throughput speeds.

Additionally, Connected Nation's staff members cross-referenced numerous public documents in order to ensure that all known broadband providers were located and contacted. This included review of the Federal Communications Commission Form 477 data, searching membership logs from the trade associations (WISPA, WCAI, PCIA, etc.), the Cable Television Fact Book, Public Utility Commission records, Public Service Commission records, Chamber of Commerce, etc.

Nevada has more mountain ranges than any other state which, effectively, creates a unique opportunity for the use of fixed wireless services. In fact, 46.2% of the viable providers identified by Connected Nation are fixed wireless providers. Thus, Connected Nation commissioned Charlie Roodenburg (Technology Assessment Consultant) and Layne Wagner (Technology Engineering Analyst) to focus the majority of their efforts on this sector. While in Nevada, Charlie and Layne completed 20 validation tests against 9 unique broadband providers (Great Basin, High Speed Networks, Highlands Wireless, Hot Spot Broadband, Satview Broadband, Schat.net, Oasis Online, CC Communications, and Speedi WiFi). This translates into a 16.67% viable provider validation rate in Nevada.

The bulk of these on-site visits allowed Connected Nation to meet with several of Nevada's entrepreneurial broadband providers, to identify households subscribing to fixed wireless broadband services and to conduct signal testing using an AVCOM PSA37XP spectrum analyzer. Subsequent validation activity scheduled for Q4 2010 will include an analysis of backhaul and fiber facilities scattered throughout the state.

## ACCURACY AND VERIFICATION: METHODOLOGY - PROVIDER VALIDATION

Broadband providers maintain their service area data in many different formats, all in varying levels of complexity and granularity. In order to ensure that the data required by the NTIA is standardized across all providers and that it is as accurate as possible, Connected Nation translates and formats the data that providers are able to supply into a GIS shapefile and produces maps for the provider to review. The resulting map(s) and review process allow for providers to see their service area in a geographic format – for some providers, this is the first time they have seen maps of their broadband service area. Having the mapped service area allows providers to quickly identify any issues that appear in the data representation, whether the issue is in the data translation into a GIS format or from the original data collection and submission. Often data is provided from various sources and through the review and revision process, local engineers who operate the networks and work in the field are able to ensure that the tabular data that has been submitted is accurate and represents the real-world network extent. Any issues in how the service area is represented on the map(s) are remedied by Connected Nation, whether they are additions, removal of service, or any

other revisions. Revised maps of service area representations are sent to the provider for review and approval; Connected Nation will revise data and return maps as many times as necessary until the provider is in agreement that the map represents their service area as accurately as possible. Once the review process has been completed and final approval of the data is provided, the data is deemed ready for NTIA submission.

Once the data collection has been aggregated to a statewide level, static maps of statewide and county-level availability are produced and made publicly available. In addition, consumers can visit the interactive online tool, BroadbandStat, to create customized views of broadband service areas and analyze corresponding demographic information. Leveraging broadband service data on various platforms allows for public users, providers, and other stakeholders to review, scrutinize, and provide feedback on the represented data. This feedback becomes a validation method in itself as consumers submit inquiries to Connected Nation either affirming where service is not available or identifying areas where broadband service is shown on the map, but in actuality is not available. This allows for a follow-up to providers regarding revisions to the data as it is represented; it also allows for Connected Nation to identify locations where on-site visits may be necessary to complete field validation of available services. Public feedback on all forms of mapping products serves as a localized validation method for provider-supplied information and allows Connected Nation to resolve inaccuracies as they are identified to ensure that only the highest quality information is provided to stakeholders.

## **DATA VALIDATION: SURVEY RESEARCH**

Between June and July 2010, Connect Nevada conducted a statistically significant telephone survey of 800 Nevada businesses, to offer as a comparison against the provider-validated statewide broadband inventory. The survey provides an estimate of the percentage of all Nevada businesses and a subset percentage of *rural* Nevada businesses that report that they are unaware of available broadband service at their location. These figures are then compared against broadband availability estimates derived from provider-supplied data to provide a macro-level comparison to the provider-validated data. This test measures how state businesses' awareness of broadband availability compares to provider-validated availability information. Results are reported below.

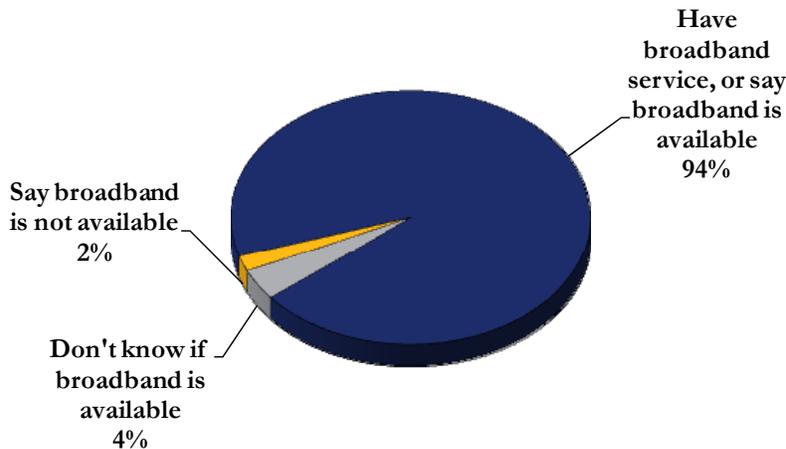
## **DATA VALIDATION: METHODOLOGY**

Connect Nevada conducted a random digit dial (RDD) survey of 800 businesses contacted between June 24 and July 21, 2010. Data were collected by telephone through live, computer-assisted interviews, with quotas set by business size and industry sector to ensure adequate representation of all businesses across the state. Weights were applied to correct for minor variations and ensure that the sample matched the U.S. Census estimates of the state's business establishments, as reported in their County Business Patterns Report. The statewide full sample (n=800) provides a margin of error of  $\pm 4.6\%$  at the 95% level of confidence. The full sample of rural businesses (n=131 businesses located in rural counties) provides a margin of error of  $\pm 10.9\%$  at the 95% level of confidence. These sample errors account for sample weighting, using the effective sample size. For the purposes of this survey, broadband is defined as "an Internet connection with speeds of 768 kilobits per second or higher in at least one direction."

**Results**

Statewide, 2% of businesses report that broadband service is not available at their location, 4% don't know if broadband is available, and 94% report with certainty that broadband is available (Figure 1).

**Figure 1.**  
Awareness of broadband availability among Nevada businesses



Taking into account the survey's margin of error, the results estimate that between 0% and 6.6% of Nevada businesses do not have broadband service available.

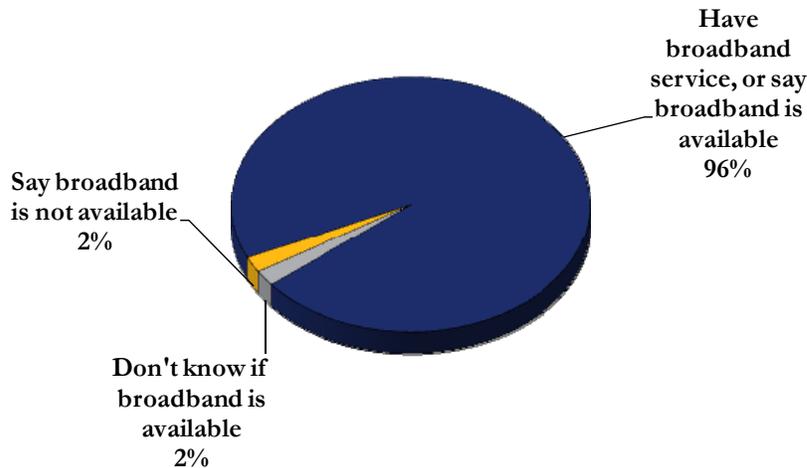
Estimates derived from provider-validated data indicate that approximately 1.29% of Nevada households do not have terrestrial fixed broadband service available, and approximately 0.44%<sup>1</sup> of Nevada households have neither mobile nor fixed broadband service available.<sup>2</sup>

Among rural businesses, 2% of respondents report that broadband service is not available to them, 2% do not know if broadband is available, and 96% report with certainty that broadband is available (Figure 2).

<sup>1</sup> In accordance with NTIA's definition of available broadband service as specified in the SBDD NOFA, this estimate includes both terrestrial fixed *and* mobile broadband service, if the service offers download speeds of at least 768 Kbps and upload speeds greater than 200 Kbps.

<sup>2</sup> Due to the nature of the SBDD data collection methodology as defined by the NTIA and based on both census block geographic units and street segment data, the estimates of broadband availability derived from provider-validated data may include an overstatement of the actual number of households with broadband availability. Under the census block-based data collection method, a provider will typically report broadband availability for an entire census block whether its network is present across the whole or only a subset of that census block. This potential overestimation at the census block level can be amplified as the data is aggregated across the entire state.

**Figure 2.**  
**Awareness of broadband availability among *rural* Nevada businesses**



Taking into account the survey’s margin of error, the results estimate that between 0% and 12.9% of rural Nevada businesses do not have broadband service available.

Results derived from provider-validated data indicate that approximately 8.98% of rural Nevada households do not have terrestrial fixed broadband service available, and approximately 3.28%<sup>3</sup> of rural Nevada households have neither mobile nor fixed broadband service available.<sup>4</sup>

## WIRELESS METHODOLOGY

### Broadband Service Availability in Provider’s Service Area Wireless Services Not Provided to a Specific Address

Data is solicited from the wireless provider to include, but is not limited to:

1. The name of the structure
2. Whether the transmitting device is operational or proposed
3. The maximum advertised downstream speed and the maximum advertised upstream speed
4. The typical downstream speed and the typical upstream speed (peak periods for both)
5. The frequency range of spectrum being used (as prescribed by NTIA)
6. The primary population center(s) being served (for geopolitical boundary reference)
7. Latitude in either Degrees, Minutes and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83)
8. Longitude in either Degrees, Minutes and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83)

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

9. The physical address of the transmit site (in the event latitude/longitude is unavailable from the provider this allows a quick reference point for geocoding)
10. Antenna pattern (e.g. omni-directional, 180°, 120°, 90°, etc.)
11. Azimuth of antenna (e.g. 360° with magnetic declination if known)
12. Approximate transmit radius (in feet, miles or kilometers)
13. Polarity of transmit antenna (Vertical or Horizontal)
14. Transmit antenna gain (in dBi)
15. Line loss (applicable only to providers using coax, heliax, waveguide or other forms of cabling – excludes power-over-Ethernet devices)
16. Mechanical and/or electrical beam tilt (if applicable)
17. Equipment manufacturer (allows easy cross-reference against manufacturers' specification sheet)
18. Power output of the transmitting device (if unknown FCC standards applied)
19. AMSL at base of tower site
20. Antenna centerline AGL (height of antenna above ground level measured at the centerline of the actual antenna)
21. Foliage factors (evergreens/deciduous and percent of ground cover)
22. Ground clutter (primarily used only in metropolitan areas – accounts for types and heights of buildings)

Propagation modeling is an empirical mathematical formulation for the characterization of radio wave propagation as a function of frequency, distance, and other conditions. Propagation software typically uses the Irregular Terrain Model (also known as Longley-Rice) of radio propagation for frequencies between 20 MHz and 20 GHz. This model is based on electromagnetic theory and statistical analyses of the combination of terrain features and radio measurements, then predicting the median attenuation of a radio signal as a function of distance and the variability of the signal in time and in space. For metropolitan areas, the software can typically be adjusted to use the Okumura-Hata, which accounts for predicting the behavior of cellular transmissions in areas where buildings are the primary obstructions.

The resulting product from either model depicts a graphical illustration of the theoretical propagation characteristics of a selected frequency range based on defined variables (receiver sensitivity of the home/mobile device, foliage factor, and digital elevation terrain input).

## **BROADBAND INQUIRIES METHODOLOGY**

Connected Nation collects consumer feedback in the form of broadband inquiries. These inquiries represent any type of communication received from the public regarding broadband service. Once broadband inquiries are received across the state, this information is overlaid with the broadband availability information which was collected through the SBDD program. This allows for a real-world comparison of the broadband landscape to the information received from broadband inquiries. Broadband inquiries are able to provide three types of information: 1) Residents who do not have broadband but want it. 2) Residents who have broadband but want a different provider. 3) Residents who do not have broadband, but the broadband inventory maps indicate that they do.

Through the collection of broadband inquiries, a visual demand for broadband is presented. This visualization allows Connected Nation the ability to validate broadband availability maps for accuracy. If residents within a region state that they are without broadband, but the broadband inventory maps show otherwise, this allows Connected Nation to approach the providers within that area in an effort to trim down their coverage to more accurately represent real-world availability on the ground. On the other hand, if there is a region in the state in which broadband is not available, broadband inquiries allow providers close to that region to see where they can successfully expand their broadband networks, leading to a high return on investment. In short, the higher number of inquiries leads to a higher level of certainty in regard to the broadband availability maps. Since the initial data collection and release of corresponding maps, feedback in the form of broadband inquiries has allowed Connected Nation to identify additional areas that are in need of field validation, which are scheduled as soon as possible. Additional information on field validation can be found in the Field Validation Narrative.

The broadband inquiry process has been implemented in several other Connected Nation state programs with successful results. Citizens in the State of Tennessee have submitted over 10,000 broadband inquiries since 2007, allowing the Connected Tennessee program to evaluate each inquiry for broadband demand and data verification. These inquiries are continuously examined against current broadband availability, updated every three months, to determine if previously unserved households have been expanded to and can now receive broadband access at their residence. This database of broadband inquiries has also allowed Connected Tennessee to aggregate demand in concentrated areas to show providers the exact locations where the population has made it clear that they would purchase broadband if it was made available to them. Providers in the state have responded to this process and have expanded to areas knowing that their investment will be worthwhile. Data verification methods have also proven successful, as Connected Tennessee has been able to show those inquiries that indicate the broadband service areas are misrepresented on the map to providers, who then verify where service cannot reach in regard to that residence(s). The broadband coverage in Tennessee has been altered to create a more accurate map based on the inquiries submitted by the public.

During this reporting period, the Connect Nevada project has received a total of 20 inquiries (21 grant inception to date). As more inquiries are submitted to Connect Nevada, a more thorough validation of the broadband landscape can be performed, while also allowing providers to see which areas have a high demand for broadband adoption.

## **BROADBANDSTAT METHODOLOGY**

BroadbandStat is an online, interactive mapping tool for viewing, analyzing, and validating broadband data. Developed through a partnership with ESRI, the market leader in geographic information system (GIS) software, BroadbandStat is a multi-functional, user-friendly way for local leaders, policymakers, consumers, and technology providers to devise a plan for the expansion and adoption of broadband.

First and foremost, BroadbandStat allows consumers to locate their residence and identify providers that offer broadband Internet service to that location. The interactive platform allows for users to

build and evaluate broadband expansion scenarios using a wealth of data, including education and population demographics, broadband availability, and research about the barriers to adoption.

The Connect Nevada project launched BroadbandStat on June 3, 2010, and has received a total of 574 visits to date.

## **SPEED TEST METHODOLOGY**

The 118 speed tests that are represented in the Connect Nevada Speed Test Report during this reporting period (174 grant inception to date) are the result of a partnership between Connected Nation and Ookla Net Metrics. Utilizing this relationship increases the level of confidence in the data being collected and provides for a far greater sample size than could be collected by a single testing site.

Ookla owns and operates Speedtest.net, as well as develops and deploys speed tests, such as the Connect Nevada speed test website, for partners around the world. This network of sites that is developed and run on their testing technology provides Ookla with a vast dataset that, due to the variability of geographic information collected across the varying speed test sites, is geocoded utilizing Geo-IP technology. This technology allows for tests to be geocoded to points of aggregation, typically larger nodes across provider networks. While there are hundreds of thousands of tests that have been conducted, the level of aggregation is only sufficient for county-level detail due to the test results being located at these larger nodes and not at an absolute location for each speed test.

In an effort to validate broadband data from the Connect Nevada project, speed test information is collected throughout the state. Speed tests provide speed information on the path taken through all networks (a provider's network as well as additional networks) a local machine must connect to in order to reach the host test. This collection of speed information is two tiered. First, it allows for a comprehensive dataset of speeds, while also providing Connect Nevada with the information on where broadband services are available. Second, unlike theoretical speed information which was received through the data collection process, the use of speed tests provide real world information on the speeds that currently exist within the state of Nevada.



## Broadband Provider Log

Complete	49
Non-Responsive/Refused	0
In Progress	9
Count of Datasets by Status	58
Total Unique Providers Represented	54

Provider Name	Platform	Status	NDA Execution Date	Notes
Arizona Nevada Tower Corporation	Fixed Wireless	Data Added to Statewide Inventory	3/8/2010	
AT&T Nevada	Mobile Wireless	Data Added to Statewide Inventory	12/16/2009	
AT&T Nevada	ILEC/CLEC	Data Added to Statewide Inventory	12/16/2009	
Beehive Telephone Co., Inc. NV	Fixed Wireless	Data Added to Statewide Inventory	4/5/2010	
CC Communications	ILEC/CLEC	Data Added to Statewide Inventory	6/11/2010	
CenturyLink	ILEC/CLEC	Data Added to Statewide Inventory	12/4/2009	
Cox Communications Las Vegas, Inc.	Cable	Data Added to Statewide Inventory	2/3/2010	
Frontier Communications Corporation	ILEC/CLEC	Data Added to Statewide Inventory	1/22/2010	
Great Basin Internet Services	Fixed Wireless	Data Added to Statewide Inventory	4/6/2010	
Highlands Wireless, Inc.	Fixed Wireless	Data Added to Statewide Inventory		
Moapa Valley Telephone Company	Fiber	Data Added to Statewide Inventory	2/22/2010	
Sprint Nextel Corporation	Mobile Wireless	Data Added to Statewide Inventory	1/14/2010	
T-Mobile USA, Inc.	Mobile Wireless	Data Added to Statewide Inventory	1/8/2010	
Verizon California, Inc.	Mobile Wireless	Data Added to Statewide Inventory	12/14/2009	
CenturyLink	Backhaul	Backhaul Provider Only Processing Complete	12/4/2009	
Nevada System of Higher Education	Backhaul	Backhaul Provider Only Processing Complete		
Sprint Nextel Corporation	Backhaul	Backhaul Provider Only Processing Complete	1/14/2010	
T-Mobile USA, Inc.	Backhaul	Backhaul Provider Only Processing Complete	1/8/2010	
360networks		No Update to Provide	1/19/2010	
A & J Hardy Enterprises, Inc		No Update to Provide	4/2/2010	
Baja Broadband LLC		No Update to Provide	2/22/2010	
CalNeva Broadband, LLC		No Update to Provide	4/8/2010	
Clearwire Corporation		No Update to Provide	3/3/2010	
Covad Communications		No Update to Provide	1/19/2010	
Filer Mutual Telephone Company		No Update to Provide	2/9/2010	
High Speed Networks-Mound House, LLC		No Update to Provide		
Hot Spot Broadband, Inc.		No Update to Provide		
Humboldt Telephone Company		No Update to Provide	2/25/2010	
Leap Wireless International, Inc.		No Update to Provide	4/6/2010	
Lincoln County Telephone System, Inc.		No Update to Provide	3/5/2010	
Mt. Wheeler Power, Inc.		No Update to Provide	4/5/2010	
Performance Computing Internet		No Update to Provide	3/19/2010	
Qwest Communications Company, LLC		No Update to Provide	1/4/2010	
Reliance Connects		No Update to Provide		
Rural Telephone Company		No Update to Provide	3/23/2010	
Satview Broadband LTD.		No Update to Provide	1/11/2010	
Schatnet Internet LLC		No Update to Provide		
Tele-NET Internet Services		No Update to Provide		
tw telecom of Nevada, LLC		No Update to Provide	4/27/2010	
United Cable Management, Inc.		No Update to Provide	4/13/2010	
Vegas Wifi Communications LLC		No Update to Provide	4/7/2010	
Wells Rural Electric Company		No Update to Provide	3/1/2010	
XO Communications, LLC		No Update to Provide	6/2/2010	
Yonder Media		No Update to Provide		
Charter Communications		No Update Provided - Use Initial Data	12/15/2009	
Cogent Communications, Inc.		No Update Provided - Use Initial Data		
ETAN Industries		No Update Provided - Use Initial Data		
KeyOn Communications, Inc.		No Update Provided - Use Initial Data	10/15/2009	
Oasis Online, Inc.		No Update Provided - Use Initial Data		
ACI, Inc.		Solicited Initial Data		
Air-Internet.com, Inc.		Solicited Initial Data		
Avant Wireless		Solicited Initial Data		
High Desert Internet Services		Solicited Initial Data		
Las Vegas.Net		Solicited Initial Data		
Pyramid Net		Solicited Initial Data		
DISH Network Corporation		Other	1/27/2010	[Sep-16-10 Jess Cary] Satellite data will not be submitted due to additional information being necessary to show where service is available in the state, rather than submitting the entire state boundary as serviceable area.
Hughes Network Systems, LLC		Other	2/5/2010	[Sep-16-10 Jess Cary] Satellite data will not be submitted due to additional information being necessary to show where service is available in the state, rather than submitting the entire state boundary as serviceable area.
WildBlue Communications, Inc.		Other	1/8/2010	[Sep-16-10 Jess Cary] Satellite data will not be submitted due to additional information being necessary to show where service is available in the state, rather than submitting the entire state boundary as serviceable area.