

**OFFICIAL OCTOBER 2014 FINAL UPDATE SUBMISSION TO  
THE NATIONAL TELECOMMUNICATIONS AND  
INFORMATION ADMINISTRATION UNDER THE  
STATE BROADBAND INITIATIVE GRANT PROGRAM  
FOR THE STATE OF TENNESSEE**

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October 1, 2014

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October 1, 2014

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

Dear Ms. Neville:

As the State Broadband Designated Entity, in partnership with the Department of Finance and Administration's Office for Information Resources and the Department of Economic and Community Development and other agencies, please accept this final submission from Connected Nation on behalf of Connected Tennessee, the State of Tennessee State Broadband Initiative (SBI) Grant Program.

It has been an honor and privilege for our organization to have participated in this historical effort over the last five years. Because of this extraordinary program and the support of the NTIA, communities across the country, and across the State of Tennessee, have enjoyed unprecedented access to data and resources with which to engage, assess, and plan for a more connected future.

Indeed, a sturdy foundation has been set, yet there is still much to do to capture the full potential contemplated by this initial investment. Because of investments in broadband and related technologies, the future of institutions in education, healthcare, and economic development is brighter today than in any other time in our country's history; it is returns in these areas that will be the final measure of this program's impact on America. We look forward to the work ahead.

Connected Tennessee would like to recognize the faithful and energized contributions of the many state stakeholders, particularly the broadband providers, in making this and all of the program's previous submissions possible. Truly, the significance of complete and validated data through their participation has added to the many successes our program has enjoyed.

The items that comprise this submission are compliant with the October 1, 2014, 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, Connected Tennessee: October 1, 2014***

<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.xlsx	Worksheets of Contact Information, Record Count, and Provider Summary Table
n/a	n/a	List of Changes and Corrections to the Dataset
n/a	n/a	Non-Participating Provider (NPP) Narratives
n/a	n/a	Broadband Provider Roster and Participation Status

In addition, this data update submission is compliant with the additional program requirements instituted by the National Telecommunications and Information Administration since the time of the April 2014 SBI data submission for the Connected Tennessee program. Specifically, these new requirements are:

**SBI Data Transfer Model**

The submission of the broadband dataset for October 1, 2014, is contained within the SBI Data Transfer Model as provided to SBI Grantees on May 29, 2014. All efforts have been made to comply with formatting, domain, and metadata requirements to include as much information on each provider as possible.

## **Additional Submission Guidance**

In collecting broadband service area datasets for inclusion on the National Broadband Map, this October 2014 submission includes business/commercial broadband service areas in addition to the residential datasets that have been collected for the SBI program. Following guidance from the program office, the end user category appropriately delineates the differences in residential service areas, business service areas, and combination residential/business service areas. Further, all contacted providers were asked if they provide broadband services to business customers within their existing coverage areas and, if so, this information was noted.

This final submission also includes information regarding the data and coverage estimation of non-participating providers. While Connected Tennessee continued outreach to all providers prior to each submission period, the need to submit broadband service data for all providers regardless of their participation is evident as the SBI program continues into this final round of data submissions. The submission of this estimated broadband service area for providers that have not supplied data to Connected Tennessee is essential in being able to portray a more accurate depiction of the current broadband landscape.

This October 2014 final data update under the SBI Grant Program continues to demonstrate our dedication to implementing the joint purposes of the Recovery Act and the Broadband Data Improvement Act (BDIA) by gathering comprehensive and accurate state-level broadband mapping data, developing state-level broadband maps, aiding in the development and maintenance of the National Broadband Map, and undertaking statewide initiatives for broadband planning.

### ***Broadband Service Availability — Provider Outreach and Verification***

This data update submission under the SBI program includes datasets for 98.82 percent of the Tennessee provider community, or 84 of 85 total providers. There are 82 participating providers and 2 additional non-participating providers whose estimated coverage areas have been submitted. Of the 82 participating providers, 23 supplied an update to their network or coverage area(s), while 40 have reported no change. The remaining 19 represent providers who previously supplied data but were non-responsive in the October 2014 update effort; therefore, their previous dataset is being put forward as part of this compilation. The 1 provider not represented in the attached datasets was non-responsive to multiple contact attempts. A complete roster by provider depicting participation status and contact history is contained herein.

This submission also includes business/commercial providers; of the 90 residential datasets represented in this submission, including providers that offer multiple technology types, 53 are broadband datasets that do not distinguish between serving primarily residential or primarily non-residential users (end user category 5). There are 7 business-only broadband datasets (end user category 2) also included in this submission.

As the aforementioned roster and attached methodology documentation will attest, it is the collective opinion of the Connected Tennessee principals that all commercially reasonable efforts

have been made to account for 100 percent of the known Tennessee broadband provider community, pursuant to this final data update submission.

Connected Tennessee has also continued to perform broadband verification activities through several means. In addition to confirmation of service area(s) by each provider, Connected Tennessee has conducted field validation efforts. As of this final submission, 79 (92.49 percent) viable providers have been validated through field verification activities. Additional details on verification activities are contained within the Field Validation Methodology.

The Connected Tennessee website ([www.connectedtennessee.org](http://www.connectedtennessee.org)) has served a prominent role in the outreach and data collection effort. This program asset has provided 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.

As an indicator of stakeholder penetration, the Connected Tennessee website encountered 5,945 unique visits during this final reporting period (64,831 total to date for the life of the grant awarded on December 20, 2009). Additionally, this pronounced Web activity netted 48 broadband inquiries over this same reporting period (1,777 grant inception to date). The website also provides access to the My ConnectView™ interactive mapping application, which allows consumers and broadband providers to confirm or dispute the coverage represented on the broadband inventory map. These consumer-initiated actions have been facilitated through the Connected Tennessee website and the Connected Tennessee interactive mapping tool (My ConnectView™) that offer the stakeholders the vehicles to provide information regarding availability in their respective service area, either in affirmation or contest of the reported data represented in the Connected Tennessee mapping artifacts. Since the initial data collection and release of corresponding maps, feedback in the form of broadband inquiries has allowed Connected Tennessee to identify additional areas that are in need of field validation.

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

Connected Tennessee has been committed to gathering data regarding the location and broadband connectivity of Community Anchor Institutions in accordance with the data requirements of the SBI NOFA Technical Appendix. Multiple agencies and leaders have continued to support CAI data collection, reiterating the importance of a relationship-oriented approach with state-level agencies and organizations that generates more responses than local outreach.

In conjunction with the Department of Finance and Administration's Office for Information Resources and the Department of Economic and Community Development and other agencies, Connected Tennessee conducted final outreach during this data update reporting period to continue identification of existing, centralized sources for CAI connectivity data. Additionally, outreach was coordinated to distribute the CAI survey to institutions throughout the state through multiple methods, including a customized online survey available on the Connected Tennessee website. Building on existing relationships with statewide associations has reinforced the importance of broadband connectivity at anchor institutions and encouraged participation in this data collection process. The value of these relationships has impacted the entire success of the Grant Program, and the CAI engagement has been a logical extension of new and existing relationships.

The Connected Tennessee program exists to improve lives through the deployment and adoption of broadband services and to assist in the extension of broadband technology across all regions of the great State of Tennessee, as well as the United States and its territories. Through the SBI program and our contribution to the National Broadband Map, communities have been given meaningful data that has helped them plan and take informed action resulting in improved technology access, adoption, and use in unserved and underserved areas.

Respectfully submitted,



Corey Johns  
Executive Director  
Connected Tennessee

## TENNESSEE COMMUNITY ANCHOR INSTITUTIONS METHODOLOGY

Connected Tennessee has been committed to working with Tennessee to gather data on the location and broadband connectivity of Community Anchor Institutions (CAI), in accordance with the data requirements of the SBI NOFA Technical Appendix. This commitment continued based on NTIA's encouragement to improve data numbers specifically in the K-12 school and library sectors to support the ConnectED White House Initiative, launched in June 2013. The commitment has continued for the October 2014 submission. In addition to collecting new data, physical address information continues to be augmented through manual sourcing and geocoded by Connected Tennessee through Esri ArcGIS software.

Connected Tennessee has continued to utilize a customized online survey hosted through SurveyMonkey, with a landing page on the Connected Tennessee website that was developed during the first reporting period. This survey, in combination with a customized data-gathering spreadsheet, was distributed on a regular basis to a targeted list of CAI throughout the state as well as organizations and agencies that work closely with the CAI. The distributions were completed with the support of the state client.

Connected Tennessee realizes the value of key relationships, new and old, to promote the importance of broadband connectivity at Community Anchor Institutions and participation in this data collection process. It is apparent that these relationships have been beneficial to the entire success of the grant program, and the CAI engagement has been a logical extension of new and existing relationships.

Connected Tennessee has conducted significant 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, Connected Tennessee identified key CAI contacts in an effort to distribute and promote the online survey and raise awareness of the importance of CAI broadband connectivity. Also, when possible, Connected Tennessee has worked with the Department of Finance and Administration's Office for Information Resources and the Department of Economic and Community Development to identify existing relationships that can support CAI outreach.

Connected Tennessee has had an ongoing mission to educate CAI throughout the state on the importance of participating in the project and the value this data affords for federal decision makers. Participation by these institutions has raised awareness about the importance of broadband connectivity and the need to report the requested data for inclusion on the National Broadband Map.

The greatest challenge with collecting CAI data continues to be educating the CAI about the Connected Tennessee project as well as self-awareness of their own broadband connectivity (specifically upload and download speeds).



A CAI summary of all processed and submitted data is provided below:

CAI Type	Total	Lat/Long	Technology of Transmission	Download Speed	Upload Speed
<b>K-12 Schools</b>	2,290	2,284	1,121	1,119	1,117
<b>Libraries</b>	319	312	280	282	282
<b>Healthcare</b>	883	883	214	213	213
<b>Public Safety</b>	756	754	142	121	121
<b>Higher Ed Institutions</b>	398	397	176	177	126
<b>Other Government</b>	1,287	1,257	1,112	1,090	1,089
<b>Other Non-Government</b>	164	163	126	124	124
<b>Total</b>	6,097	6,050	3,171	3,126	3,072

Tennessee had a slight improvement in library connectivity information based on data obtained from the Digital Inclusion Survey (<http://digitalinclusion.pnmi.com/>).

The CAI data has proven to be an invaluable resource to all components of the Connected Tennessee effort. The data identifies potential local champions, sector trends, and opportunities for improvement as well as opportunities to educate CAI not familiar with their current connectivity.

## **SBI DATA SUBMISSION METHODOLOGY**

The submission of the broadband dataset for October 1, 2014, is contained within the SBI Data Transfer Model and additional components as provided to SBI Grantees on May 29, 2014.

Connected Nation (CN) 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.

Connected Nation has complied with the following guidance documents published by NTIA:

- Technical Mapping Guide, as released on the Grantee Workspace on March 24, 2011, was followed to ensure the completeness and validity of the submission through completion steps and checklists, completing the DataPackage spreadsheet, uploading broadband datasets into the Data Transfer Model, and checking the dataset using the SBDD\_CheckSubmission receipt process.
- Naming Conventions and Category of End User, as released on the Grantee Workspace on March 26, 2012, was followed to ensure the consistency of individual file and zip package naming.
- Wireless Data Processing Guidance, as sent to SBI grantees on February 8, 2013, was followed to ensure that all fixed and mobile wireless provider coverage records are submitted to NTIA as separate, closed polygons whenever there is a variation in any of the required fields.

In addition to the methodologies contained herein, the Changes and Corrections documentation, 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 SBI Data Transfer Model for the state of Tennessee.

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Appendix A: 4	BB_Service_CAInstitutions	Community Anchor Institutions-Listing.

The provider data collected by CN on behalf of the state of Tennessee have been formatted per the given specifications and uploaded into the appropriate feature classes of the SBI Data Transfer Model. Wireline availability is contained within census blocks and road segments, wireless availability is contained as polygons of coverage areas, and middle-mile connections and Community Anchor Institutions are contained as point data. 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.

In collecting broadband service area datasets for inclusion on the National Broadband Map, this October 2014 submission includes business/commercial broadband service areas in addition to the residential datasets that have been collected for the SBI program. Following guidance from the program office, the end user category appropriately delineates the differences in residential service area, business service areas, and combination residential/business service areas.

Connected Nation has continued outreach to satellite providers on their availability, technology, and speed information, but granular coverage, based on complex geoprocessing models that require specific satellite details, is not currently available. Submitted within the wireless feature class are the satellite companies providing service to Tennessee as a polygon of the state boundary.

## DATASETS FOR IN-KIND MATCH

Connected Tennessee received an in-kind match contribution to assist with SBI mapping goals which has been beneficial to the program in the following ways:

- **Street Centerline and Address Point Datasets:** The State of Tennessee has provided GIS datasets on street centerlines and address points for use in the TN SBI project. The street centerline and address point datasets benefit the TN SBI project in compiling and processing broadband datasets, field validation work, and analyzing local citizen feedback. The street and address datasets managed by the State of Tennessee are higher accuracy and more up-to-date than other datasets that are free and publicly available.
- **Metro Nashville Aerial Imagery Dataset:** Metro Nashville has provided a dataset with 2012 aerial imagery for use in the TN SBI project. The Metro Nashville 2012 aerial imagery is useful to the TN SBI project by providing more recent, high resolution imagery than what is currently publicly available; this information assists in field validation and analysis of local citizen feedback.
- **University of Tennessee Dataset:** The University of Tennessee Municipal Technical Advisory Service has provided access to database reports from a dataset containing contact information for elected and appointed municipal officials. These reports will provide useful Community Anchor Institution information necessary to the TN SBI project.

## TENNESSEE FIELD VALIDATION METHODOLOGY

CN focused a portion of its time on specific validation processes such as:

- conducting random spectrum analysis studies throughout the state using an Avcom PSA-37-XP spectrum analyzer;
- conducting mobile speed tests throughout the state using an iPhone, Android (or other smart phone) as well as provider-specific aircards (Sprint 3G/4G, Clearwire et al);
- identifying pre-selected, provider-submitted wireless transmit tower sites and cross-referencing data about that tower against the Federal Communications Commission (FCC) databases such as Antenna Structure Registration and/or the Universal Licensing System;
- cross-referencing Federal Registration Number data against available FCC Form 477 data as well as the FCC **CO**mmission **RE**gistration **S**ystem (CORES);
- validating provider submitted data (for example: latitude/longitude) using a handheld Garmin eTrex Summit GPS unit or GPS enabled software such as Microsoft *Streets & Trips*;
- locating physical wire-line attributes (such as Central Offices, Remote Terminals, CATV plant, etc.) and comparing them against provider submitted data; and
- conducting on-net and off-net speed tests using the FCC portal at <http://www.broadband.gov/qualitytest/about/> or using the Ookla Net Metrics enabled speed test utility located on each of CN's program specific websites.

Additionally, CN cross-referenced numerous public documents in order to ensure that all known broadband providers were located and contacted. This included searching membership logs from

trade associations (WISPA, WCAI, PCIA, etc.), the Cable Television Fact Book, Public Utility Commission records, Public Service Commission records, Chamber of Commerce, etc.

To date, Connected Nation's staff has conducted on-site validation tests in Tennessee on the following viable providers: Access Cable Television, Inc.; Ardmore Telephone Company Inc; AT&T Inc.; Athena Broadband, G.P. ; Aurora Cable TV; Beasley Wireless; Ben Lomand Rural Telephone Coop., Inc.; Bledsoe Telephone Cooperative Inc; BreezeAir.net; Bristol Tennessee Essential Services; Cable ONE Inc.; Capshaw Enterprises, LLC; Celina Cable Communications, Inc.; Cellular South Licenses, LLC; CenturyLink; Charter Communications, Inc.; Clarksville Department of Electricity; Columbia Power & Water Systems; Comcast Cable Communications, LLC; Conterra Ultra Broadband, LLC; Cricket License Company, LLC; CRU Enterprises, Inc.; DeKalb Telephone Cooperative, Inc.; DeltaCom, Inc.; ECSIS.NET; Electric Power Board for the City of Chattanooga; Fayetteville Public Utilities; Frontier Communications Corporation; High Country Online LLC; Highland Telephone Cooperative, Inc.; Hughes Network Systems, LLC; Info-Ed Inc; InfoStructure Inc.; Iris Networks; Jackson Energy Authority; JTM Broadband, LLC; Ken-Tenn Wireless, L.L.C.; Level 3 Communications, LLC; Loretto Telephone Company, Inc.; Mediacom Southeast LLC; MegaPath Corporation; Millington CATV, Inc.; Monster Broadband, Inc.; Morristown Utilities Commission; NetEase; North Central Telephone Cooperative, Inc.; Pickwick Cablevision, Inc.; Planet Connect Internet; Pulaski Electric System; QuickRelay Wireless Communications; Skyline Telephone Membership Corporation; Softek, Inc.; Spirit Broadband; Sprint Nextel Corporation; TDS Telecommunications Corporation; TEC of Jackson, Inc; TELE-PAGE Inc.; Tennessee Wireless, LLC; Time Warner Cable Inc.; T-Mobile USA, Inc.; TNWEB, LLC; Trenton TV Cable Company; Trinity Communications LLC; Tullahoma Utilities Board; tw telecom of tennessee, llc; Twin Lakes Telephone Cooperative Corporation; Ultranet High-Speed Internet; United States Cellular Corporation; United Telephone Company, Inc.; Verizon Communications, Inc.; ViaSat, Inc.; Vyve Broadband J. LLC; West Kentucky and Tennessee Telecommunications Cooperative Inc; WideOpenWest Finance, LLC; Windstream Communications; Wisper, LLC; XO Communications, LLC; Zayo Group, LLC; and Zito Midwest, LLC.

Additionally Connected Nation had previously validated eight providers which are now considered non-viable, due to mergers and acquisitions or because they are no longer in business: Clearwire Corporation; EnterSource; James Cable LLC; NewWave Communications; OnWav, Inc.; OrbWireless.net; Rural Tennessee Wireless Broadband (RTWB); and Utopian Wireless Corporation.

From program initiation through this reporting period, CN has completed in-the-field validation testing against 79 viable companies (out of a universe of 85 viable providers) totaling 92.49 percent within the state of Tennessee. This percentage also considers the non-participating provider record submitted to NTIA as may be contained herein (see "Data Submission and Coverage Estimation of Non-Participating Provider" below).

CN has also continued to review provider datasets for accurate speed information, platform listings, and other intricacies that may fall outside of the standard SBI Data Transfer Model parameters, as included with the submission materials provided to grantees on May 29, 2014. Any providers whose submitted coverage and attributes are anticipated to come into question have been further reviewed and confirmed; details on a case-by-case basis are presented below.

**Columbia Power & Water Systems**

Issue: Technology of transmission code 41 with maximum advertised download speed in tier 9, higher than expected value range for the technology.

Resolution: Provider website advertises 50 Mbps service, which requires DOCSIS 3.0 modem, however, most of the system is still on DOCSIS 2.0; screenshot below.

**PowerNet 50.0**

*50.0 Mbps download, 5.0 Mbps upload\*\*  
(modem rental included)*

**Comcast Cable Communications, LLC**

Issue: Technology of transmission code 40 with maximum advertised download speed in tier 7, lower than expected value range for the technology.

Resolution: Confirmed use of DOCSIS 3.0 with speed tier 7. Speeds are kept lower currently to be backwards compatible.

**WideOpenWest Finance, LLC**

Issue: Technology of transmission code 40 with maximum advertised download speed in tier 8, lower than expected value range for the technology.

Resolution: Provider website advertises 25 Mbps service; screenshot below.

**25/30 Mbps**

The optimal choice for multi-user households, frequent gaming, regular video streaming and file sharing. (5 Mbps upload)

**DATA SUBMISSION AND COVERAGE ESTIMATION OF NON-PARTICIPATING PROVIDER (NPP)**

As part of its ongoing broadband mapping efforts, CN has developed a series of processes with the goal of submitting coverage estimation mapping data to NTIA for every known and qualifying last-mile broadband provider, regardless of platform type (cable modem, DSL, fixed wireless, etc.).

The section below provides a summary of the status of CN's outreach and findings on all non-participating provider coverage for the October 2014 SBI submission.

**Trinity Cable, LLC**

The coverage estimation for this provider was not updated from the prior submission in April 2014. The full white paper containing the most recent coverage estimation for this provider can be found within the October 2013 submission to NTIA.

**TNWeb**

The coverage estimation for this provider was not updated from the prior submission in April 2014. The full white paper containing the most recent coverage estimation for this provider can be found within the October 2012 submission to NTIA.

**PROVIDER VALIDATION METHODOLOGY**

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, CN 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, the SBI grant program gave them the opportunity to see maps of their broadband service area for the first time. 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 was provided from various sources and through the review and revision process, local engineers who operate the networks and work in the field were 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) were remedied by CN, whether they were additions, removal of service, or any other revisions. Revised maps of service area representations were sent to the provider for review and approval; CN revised data and returned maps as many times as necessary until the provider was in agreement that the map represents their service area as accurately as possible. Once the review process was completed and final approval of the data was provided, the data was deemed ready for NTIA submission. However, if approval was not received from a provider in time for the submission, but CN believed the new/updated service area to be accurate, then the coverage was submitted to NTIA without final provider approval with a note regarding the situation made in the provider log.

Once the data collection has been aggregated at 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, My ConnectView, 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 has been a validation method in itself, as consumers submit inquiries to CN 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 has allowed for a follow-up to providers regarding revisions to the data as it is represented; it also allowed CN to identify locations where on-site visits may have been necessary to complete field validation of available services. Public feedback on all forms of mapping products served as a localized validation method for provider-supplied information and allowed CN to resolve inaccuracies as they were identified to ensure that only the highest quality information is provided to stakeholders.



Additionally, non-participating provider narratives that were submitted in previous mapping cycles were subjected to the same level of scrutiny. Occasionally, a provider may have elected to voluntarily participate (thus eliminating the need for data estimation activities in the field). However, more often than not, the NPP narrative has been updated with a combination of data gleaned from the provider's website, data obtained through FCC research, and/or data collected/verified in the field by a CN staff engineer.

Estimates derived from provider-validated data indicate that approximately 3.51 percent of Tennessee households do not have terrestrial fixed broadband service available, and approximately 0.13 percent of Tennessee households have neither mobile nor fixed broadband service available.

Within rural areas of the state, results derived from provider-validated data indicate that approximately 6.03 percent of rural Tennessee households do not have terrestrial fixed broadband service available, and approximately 0.24 percent of rural Tennessee households have neither mobile nor fixed broadband service available. Please note that the availability estimates presented are based on Census 2010 household information.

The estimates above, in accordance with NTIA's definition of available broadband service as specified in the SBI NOFA, include broadband service with download speeds of at least 768 Kbps and upload speeds greater than 200 Kbps.

In addition, due to the nature of the SBI 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.

## **WIRELESS METHODOLOGY**

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

Data solicited from a fixed wireless provider to create propagation models include, but are not limited to:

1. The name of the structure.
2. Whether the transmitting device is operational or proposed.
3. The maximum advertised downstream speed, the maximum advertised upstream speed.
4. The typical downstream speed, the typical upstream speed (peak periods for both).
5. The frequency range of spectrum being used (as prescribed by NTIA). This may include (but is not limited to) spectrum authorizations identified within the Federal Communications Commission (FCC) Universal Licensing System (ULS) database or

- located on the FCC's Spectrum Dashboard. This research often proves to be exceptionally effective when estimating the coverage area of an NPP.
6. The primary population center(s) being served (for geopolitical boundary reference).
  7. 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).
  8. Latitude in either Degrees, Minutes, and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83).
  9. Longitude in either Degrees, Minutes and Seconds and/or in Decimal Degrees (typically received as NAD 27 or NAD 83).
  10. Antenna pattern (e.g. omnidirectional, 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 manufacturer's specification sheet).
  18. Power output of the transmitting device (if unknown, FCC standards or manufacturer specifications are 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 in rural areas to account for foliage and in metropolitan areas to account for types and heights of buildings if known).
  23. Average gain of receive antenna.
  24. Receive antenna is estimated at height above average terrain (HAAT) of 6.2 meters/20 feet.
  25. Federal Registration Numbers (if applicable) which may allow opportunities to cross-reference and/or obtain additional data from the FCC's ULS and the **COMmission REgistration System**.

Propagation modeling combines scientific data and empirical mathematical formulation for the characterization of radio wave propagation as a function of frequency, distance, and other conditions. Propagation software(s) typically use 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 model, 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).

After converting propagation models into a geospatial format, additional processing is completed to remove the small pixels representing service present in the resulting dataset. These areas are initially created based on the parameters entered in the software from the provider equipment information, the underlying data parameters of elevation, hill shade, etc., and the limitations of the software itself to display a broadband service area as accurately as possible. Generally, these random pixel striations appear as a result of signal levels reaching the highest elevated points within the prescribed radius. Typically, while this pixilation anomaly shows legitimate areas where signals can be received, these highly elevated points may have exceedingly sparse populations or are entirely void of population. As a result, and congruent to the *Wireless Technology Methodologies and Business Logic* white paper submitted to NTIA on January 20, 2011, all independent pixels representing service that are less than 0.125 square miles in area have been removed from the geospatial representation of each wireless provider.

## **BROADBAND INQUIRIES METHODOLOGY**

CN has collected consumer feedback in the form of broadband inquiries (BBIs). These inquiries represent any type of communication received from the public regarding broadband service. Once BBIs are received across the state, this information is overlaid with the broadband availability information which was collected through the SBI program. This allows for a real-world comparison of the broadband landscape to the information received from broadband inquiries. Consumers submitting these inbound comments and/or inquiries are able to provide information regarding five categories: 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; 4) residents who have broadband but want a faster connection speed; and 5) residents who have broadband but want a less expensive service option.

BBIs are submitted frequently by consumers via the Connected Tennessee website. Inquiries often seek help to identify local broadband provider options, or to learn when a specific provider may be able to provide service to that consumer. Consumer comments also provide information which may help modify maps with actual service area information. The primary objectives of CN regarding these inquiries has been 1) to improve the accuracy of the state maps with submitted consumer information and follow-up field research; 2) to provide broadband options to consumers through cooperation with mapped providers and by facilitating new broadband service options; and 3) to map and analyze information from consumers about areas of unmet broadband demand and alternatives to currently mapped services. A prime example of the second option is the utilization of the Rural Utility Service satellite eligibility tool. By simply entering the consumer's address, the CN engineer can quickly determine if the consumer meets the initial qualification status for BIP satellite subsidies.

New BBIs are assigned to either the GIS department or the Engineering & Technical Services (ETS) team depending on the category entered by the consumer on the website submission form. The GIS or ETS team members respond to each inquiry according to the information entered by the consumer. Many BBIs can be resolved through desktop research; however, if a BBI requires research in the field, the assigned ETS team member conducts such research when performing field validations in the area of the inquiry, or at another such time as is practical and appropriate. GIS and ETS team members respond to and conclude BBIs via telephone contact and/or e-mail communication.

The broadband inquiry process has been implemented in each of the CN state programs with successful results. Altogether CN has received over 19,388 broadband inquiries since 2007, allowing the state programs to evaluate each inquiry for broadband demand and data verification. These inquiries have been continuously examined against current broadband availability, updated every six months, to determine if previously unserved households have been expanded to and can now receive broadband at their residence. This database of broadband inquiries has also allowed the CN state programs 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 states 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 the state programs have 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 these states has been altered to create a more accurate map based on the inquiries submitted by the public.

During this reporting period, the Connected Tennessee project has received a total of 48 inquiries (1,777 grant inception to date).

## **MY CONNECTVIEW METHODOLOGY**

My ConnectView is an interactive online mapping tool for viewing, analyzing, and validating broadband data. Developed using Esri's ArcGIS for Server and Adobe's Flex Framework and hosted and maintained by Connected Nation, My ConnectView 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, My ConnectView 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 several coverage analysis layers, speed analyses, Community Anchor Institutions, and tools to search and export household demographic information, as well as extract data in GIS, spreadsheet, and/or PDF formats.

My ConnectView also features more interactive data layers and additional tools than ever before to allow the consumer to explore the broadband data. My ConnectView provides consumers with the ability to print, e-mail, and provide feedback on the broadband data displayed on the interactive map. Through the collection of this feedback, a visual demand for broadband is presented. This visualization allows the CN state programs the ability to validate the broadband availability for accuracy. If residents within a region state they are without broadband, but the interactive map shows otherwise, this allows CN 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.

The Connected Tennessee project launched My ConnectView on April 2, 2012, and has received 1,589 visits this reporting period; to date the interactive mapping application has received 13,567 visits.

## **SPEED TEST METHODOLOGY**

The 1,439 speed tests that are represented in the Connected Tennessee Speed Test Report during this reporting period (22,332 grant inception to date) are the result of a partnership between CN 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 Connected Tennessee speed test website, for partners around the world. This network of sites that is developed and run on its 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 Connected Tennessee 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. The benefit of this collection of speed information is two-tiered. First, it allows for a comprehensive dataset of speeds, while also providing Connected Tennessee with the information on where broadband services are available. Second, unlike theoretical speed information which may be 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 Tennessee.

## PROVIDERS DEEMED NON-VIABLE

The following list of companies represents the remainder of the broadband provider universe that was originally identified as complete for outreach to begin for the State Broadband Initiative. These providers are not included in the Data Package for the October 2014 submission because they have been deemed non-eligible under the parameters and guidance of the SBI grant program. This list of companies includes, but is not limited to: providers offering service but below the current definition of broadband, those that have gone out of business, technology consulting firms, infrastructure or network construction companies, non-facilities based general resellers that have not provided sufficient mapping information, etc.

	Company Name	URL	Comments
1	21Globe, Inc.	<a href="http://www.21globe.com">www.21globe.com</a>	Does not offer broadband services; not a broadband provider. Possibly no longer in business, web URL is media reference site for news and events from Ohio.
2	A 007 Access	<a href="http://www.a007.com">www.a007.com</a>	General reseller of Quest DSL and mobile wireless; outreach, desktop and website research confirms non-viable.
3	Aaccess Network Communications	<a href="http://www.aaccess.net">www.aaccess.net</a>	New York hardware reseller offering network security and business IT net design. Not a broadband provider.
4	ACERX.NET	<a href="http://www.acerx.net">www.acerx.net</a>	Nonfacilities-based reseller of national and regional broadband companies with cable, DSL, and mobile wireless applications.
5	Adelphia	n/a	No longer in business; assets liquidated.
6	Aeneas Communications, LLC	<a href="http://www.aeneas.com">www.aeneas.com</a>	Facilities-based CLEC that resells dial-up, DSL, and VoIP to consumers and business accounts.
7	Airespring, Inc.	<a href="http://www.airespring.com">www.airespring.com</a>	General reseller of VOIP, long distance and data circuits (non residential).
8	Airewaves Broadband, LLC	<a href="http://www.airewaves.com">www.airewaves.com</a>	Airewaves website is an audio-based web service and domain is listed as for sale.

9	Airmail247.com	<a href="http://www.airmail247.com">www.airmail247.com</a>	Business mailing list search site; not a broadband provider.
10	Antioch Wireless Broadband	<a href="http://www.antiochwirelessbroadband.com">www.antiochwirelessbroadband.com</a>	Resells DSL and cellular service in Antioch, IL only.
11	Arrowheadnet.com	<a href="http://www.arrowheadnet.com">www.arrowheadnet.com</a>	Domain registration and web hosting company.
12	Atris	<a href="http://www.atris.biz">www.atris.biz</a>	Offers VoIP, data, and softphone services to business accounts.
13	bargainisp.net	<a href="http://www.bargainisp.net">www.bargainisp.net</a>	Generic web directory site, forum for third-party broadband advertising; company does not offer broadband.
14	BeaDun Communications	<a href="http://www.beasleywireless.net">www.beasleywireless.net</a>	Subsidiary of Beasley Wireless; services offered to business accounts fall below NTIA's definition of "broadband."
15	Birch Communications	<a href="http://www.birch.com">www.birch.com</a>	Reselling broadband services and providing small/medium B2B in 40 states with facilities-based wholesale telecommunications to Competitive Local Exchange Carriers (CLECs), Internet Service Providers (ISPs), VoIP Providers, and Resellers.
16	BullsEye Telecom, Inc.	<a href="http://www.bullseyetelecom.com">http://www.bullseyetelecom.com</a>	A reseller of DSL services purchased from incumbents.
17	Broadband National	<a href="http://www.broadbandnational.com">www.broadbandnational.com</a>	Nonfacilities-based reseller of national and regional broadband companies offering residential/business cable and DSL services.
18	Broadcore, Inc.	<a href="http://www.broadcore.com">www.broadcore.com</a>	Provides business solutions such as VOIP and network integration services.
19	Broadview Networks Holdings, Inc.	<a href="http://www.broadviewnet.com">www.broadviewnet.com</a>	Wholesale reseller of partners' communication products and services; company is nonfacilities-based.
20	Broadwing Communications	<a href="http://www.level3.com">www.level3.com</a>	Acquired by Level 3.
21	Business Telecom, Inc. (DeltaComm)	<a href="http://www.earthlinkbusiness.com">www.earthlinkbusiness.com</a>	B2B services only. Reseller.

22	Camino-Net Internet Services	<a href="http://www.camino-net.com">www.camino-net.com</a>	Website is redirected to <a href="http://www.mytechproservices.com">http://www.mytechproservices.com</a> / offering ancillary (not broadband) services.
23	CCIS.net	<a href="http://www.ccis.net">www.ccis.net</a>	Now owned by Beacon Technologies; offers dial-up and is general reseller of DSL in Pennsylvania.
24	Cebridge Connections	<a href="http://suddenlink.net">suddenlink.net</a>	Acquired by SuddenLink.
25	Celito Communications	<a href="http://www.celito.net">www.celito.net</a>	Offers dial-up and wireless in North Carolina.
26	Cinergy Communications Company	n/a	Acquired by Windstream.
27	Clartouch.Com	<a href="http://www.clartouch.com">www.clartouch.com</a>	Inactive URL; out of business.
28	Clearwire Corporation	<a href="http://www.clearwire.com">http://www.clearwire.com</a>	Acquired by Sprint.
29	Cognisurf	<a href="http://www.cognisurf.com">www.cognisurf.com</a>	Offers dial-up only.
30	Crystal Clear Technologies	<a href="http://www.crystalcleartechologies.net/index.html">http://www.crystalcleartechologies.net/index.html</a>	Reseller of VOIP, FTTH, Neighborhood Hotspots and commercial fiber in one residential housing development.
31	DataWave Wireless Solutions	<a href="http://www.dwstn.com">http://www.dwstn.com</a>	No longer in business; domain name for sale.
32	Deltaforce	<a href="http://www.deltaforce.net">www.deltaforce.net</a>	Dial-up and webhosting services only.
33	deluxehost.com	<a href="http://deluxe-host.com">deluxe-host.com</a>	Company delivers web hosting services.
34	DGUI	<a href="http://www.dgui.com">www.dgui.com</a>	No longer in business; domain name for sale.
35	Dial National	<a href="http://www.dialnational.com">www.dialnational.com</a>	Inactive URL; out of business.
36	Dialer.net	<a href="http://www.dialer.net">www.dialer.net</a>	England-based, international pay-as-you-go mobile wireless and hot spot reseller.
37	DIECA Communications, Inc.	n/a	Acquired by Covad; then acquired by MegaPath.
38	Dixie-Net, Incorporated	<a href="http://www.dixie-net.com/wireless">www.dixie-net.com/wireless</a>	Offers fixed wireless and DSL in Mississippi only.



39	Dresden Cable	n/a	Provider does not offer broadband; limited to CATV and satellite services only.
40	DSL @ Interlync	<a href="http://www.interlync.com">www.interlync.com</a>	General reseller of DSL, wireless, VoIP, dial-up, web hosting etc.
41	DTS-NET.COM	<a href="http://www.dts-net.com/">http://www.dts-net.com/</a>	General reseller of DSL.
42	Eagle One Wireless	<a href="http://www.e1w.com">www.e1w.com</a>	Offers direct connect wireless internet services to businesses in northeast Mississippi, south central Tennessee, and northwest Alabama.
43	Endless Sphere Technology	<a href="http://www.endless-sphere.com">www.endless-sphere.com</a>	Electric Vehicle Technology Forums.
44	EnterSource	<a href="http://www.entersource.co">http://www.entersource.co</a>	General Reseller of HughesNet, Athena Broadband, Charter, AT&T and DishNetwork.
45	Enventis Telecom Inc.	<a href="http://www.enventis.com">www.enventis.com</a>	Doing business as Hickory Tech; general reseller in Iowa and Minnesota area; local agent claimed they do not offer broadband services.
46	ETI - Connecting Your World	<a href="http://www.cyberenet.net">www.cyberenet.net</a>	General reseller of DSL services from infrastructure owned by Verizon, AT&T, and Covad.
47	Fast Dependable Access	<a href="http://www.fda.net">www.fda.net</a>	Not a broadband provider.
48	Gainesboro CATV	n/a	Does not offer broadband, CATV only.
49	Global Crossing Telecommunications, Inc.	<a href="http://www.globalcrossing.com">http://www.globalcrossing.com</a>	Acquired by another company.
50	Haywood Cablevision	<a href="http://www.cbvnol.com">www.cbvnol.com</a>	Out-of-state provider; offers service in the Carolina Mountain area.
51	Highertech.Net	<a href="http://www.highertech.net">www.highertech.net</a>	Appears to have been acquired by Chattanooga Net.
52	Hubwest Protected Networks LLC	<a href="http://www.hubwest.com">www.hubwest.com</a>	Dial-up and web hosting only recently merged with Southwest Cyberport.

53	iGiles.net (d/b/a DotSpot Wireless)	<a href="http://www.dotspot.net">http://www.dotspot.net</a>	Acquired by Monster Broadband.
54	IMGISP.NET	<a href="http://www.imgisp.net">www.imgisp.net</a>	Search engine, generic web solutions and ad forum.
55	Incredible Networks	n/a	Incredible Networks is an independent network engineering services business based in Adelaide Australia.
56	Inercom Communications Inc.	<a href="http://www.inercom.com">www.inercom.com</a>	Inactive URL; out of business, url for sale.
57	Interactiveinfo.com Inc.	<a href="http://www.rocketbroadband.com">www.rocketbroadband.com</a>	Offers cable television services in NY only.
58	iRadical	n/a	Could not locate any information on company.
59	ISPartner.net	n/a	Could not locate any information on company.
60	James Cable, LLC	<a href="http://www.communicomm.com/">http://www.communicomm.com/</a>	Acquired by Vyve Broadband, LLC.
61	Jenco Speed Web	<a href="http://www.jencospeed.net">www.jencospeed.net</a>	Offers wireless service in Ohio only.
62	Knology of Tennessee, Inc.	<a href="http://www.knology.com">http://www.knology.com</a>	Acquired by Wide Open West Finance, LLC (WOW).
63	LARIAT.NET	<a href="http://www.lariat.net">www.lariat.net</a>	Offers fixed wireless services in Wyoming only.
64	LCSisp.com	<a href="http://www.lcsisp.com">www.lcsisp.com</a>	Website no longer in service.
65	Lightyear Network Solutions, LLC	<a href="http://www.lightyear.net">www.lightyear.net</a>	Acquired by Birch Communications.
66	LinkAmerica.Net	<a href="http://www.linkamerica.net">www.linkamerica.net</a>	Inactive URL; out of business.
67	MacWebTown.Net Works	<a href="http://www.macwebtown.net">www.macwebtown.net</a>	McIntosh web services and technical assistance.
68	MainBoard	<a href="http://www.mainboard.cc">www.mainboard.cc</a>	Website no longer in service.
69	Maine Cable and Wireless	<a href="http://www.maineableandwireless.com">www.maineableandwireless.com</a>	Could not locate any information on company. Redirects to a "coming soon" website for Maine Culinary Workshop.
70	Marcin Company	n/a	No longer in business; phone and website are both inactive.



71	Metropolitan Telecommunications Holding Company	<a href="http://www.mettel.net">www.mettel.net</a>	MetTel provides facilities-based and resold services (certified CLEC in some states). The company provides a variety of voice, including wireless, and data services to commercial customers.
72	Millenicom Inc.	<a href="http://www.millenicom.com">www.millenicom.com</a>	Reseller of 3G and 4G mobile wireless services.
73	MYWEBSTAR	<a href="http://www.mywebstar.com">www.mywebstar.com</a>	Inactive URL.
74	Nanomega.Com	<a href="http://www.nanomega.com">www.nanomega.com</a>	Website is listed on Go-Daddy as for sale.
75	NetAccess, Inc.	<a href="http://www.nas.net">www.nas.net</a>	Canadian based ISP; does not offer service in U.S.
76	NetFire	n/a	No longer in business.
77	NetSpeed Online	<a href="http://www.netspeed-online.net">www.netspeed-online.net</a>	Website no longer in service.
78	NetStar Communications	n/a	Offers virtual ISP services and web hosting.
79	New Edge Network, Inc.	<a href="http://www.newedgenetworks.com">www.newedgenetworks.com</a>	Company has no residential service and re-sells backhaul; acquired by Earthlink.
80	NewWave Communications	<a href="http://www.newwavecom.com/">http://www.newwavecom.com/</a>	Acquired by another company.
81	Northwest ISP	<a href="http://www.northwestisp.com">www.northwestisp.com</a>	Inactive URL; out of business.
82	NTCH, Inc.	<a href="http://www.cleartalkwireless.net">www.cleartalkwireless.net</a>	Acquired by Cleartalk Wireless.
83	NuVox, Inc.	<a href="http://www.windstream.com">www.windstream.com</a>	Acquired by Windstream.
84	OnWav, Inc.	<a href="http://www.onwav.com/">www.onwav.com/</a>	Acquired by Twin Lakes Telephone Cooperative.
85	OrbWireless.net	<a href="http://www.orbwireless.net">http://www.orbwireless.net</a>	Acquired by Tennessee Wireless.
86	Overarch Broadband	n/a	Offers services in Idaho only.
87	Pacific Internet Exchange	<a href="http://www.pie.us">www.pie.us</a>	Website is for sale.
88	PAETEC Communications, Inc.	<a href="http://www.paetec.com/">http://www.paetec.com/</a>	Acquired by another company.
89	Paknet Limited	<a href="http://www.ptcl.com.pk">www.ptcl.com.pk</a>	Subsidiary of Pakistan Telephone Company; no services offered in the U.S.

90	Planet Online	<a href="http://www.planetonline.net">www.planetonline.net</a>	Offers website hosting services.
91	Point2Point	<a href="http://www.p2p-innovations.com">www.p2p-innovations.com</a>	Out of business.
92	PremoWeb	<a href="http://www.premoweb.com">www.premoweb.com</a>	Website no longer in service.
93	Qwest Communications Company, LLC	<a href="http://www.centurylink.com">www.centurylink.com</a>	Provider acquired by CenturyLink.
94	Rapid Communications, LLC	n/a	Acquired by Mediacom; subsequently acquired by Comcast.
95	Renaissance Networks	<a href="http://www.renaissancenetworks.com">www.renaissancenetworks.com</a>	Offers IT support to small businesses in New Mexico.
96	Rural Tennessee Wireless Broadband (RTWB)	<a href="http://www.rtwb.net/">http://www.rtwb.net/</a>	No longer in business.
97	Scott County Telephone Cooperative	<a href="http://www.sctc.org">www.sctc.org</a>	CLEC offering business class services only.
98	Shentel Converged Services, Inc.	<a href="http://www.shentel.com">www.shentel.com</a>	Shentel Converged Services is classified as a Private Cable Operator and offers service to MDU housing facilities.
99	Simply Dialup A Metrogeek Company	<a href="http://www.simplydialup.com">www.simplydialup.com</a>	Dial-up services and general reseller of DSL, satellite and cable modem.
100	Sling Broadband	<a href="http://www.slingbroadband.com">www.slingbroadband.com</a>	Out-of-state provider; offers DSL and wireless services to business accounts in Florida.
101	Smartresort Co, LLC	<a href="http://www.baldwincountyinternet.com">www.baldwincountyinternet.com</a>	General reseller of local ISP services.
102	Solavei, LLC (Solavei)	<a href="http://www.solavei.com/">http://www.solavei.com/</a>	Reseller exclusive to T-Mobile network.
103	Solutions IT Consulting, LLC	<a href="http://www.solutionsitc.com">www.solutionsitc.com</a>	Technology consulting firm.
104	Sparkplug Chicago, Inc.	<a href="http://www.airband.com">www.airband.com</a>	Offers point-to-point wireless and business solutions in Illinois.
105	Spring City Cable	n/a	Out-of-state provider; offers services in Utah only.

106	Surferz.Net	<a href="http://www.surferz.net">www.surferz.net</a>	Website manager and developer.
107	Surfmore.Net	<a href="http://www.surfmore.net">www.surfmore.net</a>	Acquired by Athena Broadband.
108	T1 Shopper	<a href="http://www.t1shopper.com">www.t1shopper.com</a>	Search engine for general reseller.
109	Talk America Inc.	<a href="http://www.cavtel.com">www.cavtel.com</a>	Acquired by Cavalier Business Communications.
110	Telovations, Inc.	<a href="http://www.telovations.com">www.telovations.com</a>	IT and IP solutions consultant.
111	The Nexus Group, Inc.	<a href="http://www.nxs.net">www.nxs.net</a>	General reseller of AT&T DSL.
112	Total Access Networks, Inc.	<a href="http://www.totalaccess.net">www.totalaccess.net</a>	Website no longer in service.
113	TSISP.NET	<a href="http://www.tsisp.net">www.tsisp.net</a>	Website no longer in service.
114	Two Rivers Media	n/a	Inactive URL; acquired by MediaCom.
115	University Corporation for Advanced Internet Development	<a href="http://www2.ntia.doc.gov/grantee/university-corporation-for-advanced-internet-development">www2.ntia.doc.gov/grantee/university-corporation-for-advanced-internet-development</a>	Currently ineligible under the parameters and guidance of the SBI grant program.
116	UNUM Telecommunications, Inc.	<a href="http://www.utinet.net">www.utinet.net</a>	Inactive URL; out of business.
117	VOLstate, Inc.	<a href="http://www.volstate.net">www.volstate.net</a>	Reseller of DSL, offers internet solutions and technical support to business accounts.
118	Waypoint Wireless	n/a	Consulting firm.
119	WilTel Communications, LLC.	<a href="http://www.level3.com">www.level3.com</a>	Acquired by Level 3.
120	Wireless Roanoke, Inc.	<a href="http://www.wirelessroanoke.com">www.wirelessroanoke.com</a>	Inactive URL; out of business.
121	wisbin	<a href="http://www.wisbin.com">www.wisbin.com</a>	Reseller of DSL Internet service in Wisconsin.
122	WorldCom Broadband	n/a	Acquired by Verizon.
123	Worldspice.net	<a href="http://www.worldspice.net">www.worldspice.net</a>	Offers web hosting and connectivity to business accounts.
124	www.AmericanAngel.us	<a href="http://www.americanangel.us">www.americanangel.us</a>	Website no longer in service.
125	Xpansion Network	n/a	No longer in business.
126	XTN	<a href="http://www.xtn.net">www.xtn.net</a>	URL redirects to Jones Media.

127	YEEZOO.NET	<a href="http://www.yeyzoo.net">www.yeyzoo.net</a>	Appears to no longer be in business.
128	YLISP (Your Local ISP)	<a href="http://www.itsyournet.com">www.itsyournet.com</a>	Redirects to <a href="https://www.securepaynet.net">https://www.securepaynet.net</a> - website indicates for sale.
129	YourT1Wifi.com	<a href="http://yourt1wifi.com">yourt1wifi.com</a>	Offers wireless service in Idaho only.
130	ZOOM Internet Services, LLC	n/a	Michigan-based dial-up provider and web hosting company.

## APPENDIX A: BROADBAND PROVIDER LOG

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## Broadband Provider Log

Complete	116
Non-Responsive/Refused	3
In Progress	1
Reseller Providing Data	0
Count of Datasets by Status	120
Total Unique Providers Represented	87

Provider Name	Platform	Status	NDA Execution Date	Notes	End User Category
AT&T Inc.	Mobile Wireless	Data Added to Statewide Inventory	12/16/2009	[AUG-07-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
AT&T Inc.	DSL	Data Added to Statewide Inventory	12/16/2009	[AUG-06-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	1 Residential Only
Athena Broadband, G.P.	Fixed Wireless	Data Added to Statewide Inventory		[SEP-02-14 Frank Aryee] Change: Provider acquired SurfmoreNet and added to their fixed wireless coverage in Giles County.	5 Both Residential/Business
CenturyLink	DSL	Data Added to Statewide Inventory	12/4/2009	[SEP-02-14 Frank Aryee] Change/Correction: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission. Significant decrease in greater than 2 square mile census block and road segment coverage.	5 Both Residential/Business
Cogent Communications, Inc.	Fiber	Data Added to Statewide Inventory		[SEP-02-14 Frank Aryee] Correction: This is the initial fiber submission for this provider who was previously in service.	2 Business Only
Comcast Cable Communications, LLC	Cable	Data Added to Statewide Inventory	12/7/2009	[AUG-18-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
Cricket License Company, LLC	Mobile Wireless	Data Added to Statewide Inventory	4/6/2010	[AUG-08-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
DeKalb Telephone Cooperative, Inc.	DSL	Data Added to Statewide Inventory	2/24/2010	[JUL-29-14 Frank Aryee] Correction: Provider removed coverage from Dekalb, Rutherford, Smith, and Wilson Counties.	1 Residential Only
ETC Communications, LLC	Cable	Data Added to Statewide Inventory	10/14/2009	[JUL-29-14 Frank Aryee] Change: Provider expanded coverage on Kimsey Dairy Road, on the east side of Polk County.	5 Both Residential/Business
Frontier Communications Corporation	DSL	Data Added to Statewide Inventory	1/22/2010	[AUG-05-14 Frank Aryee] Change: Provider upgraded infrastructure with additional COs and RTs increasing speeds in some areas. Very minor coverage expansion.	5 Both Residential/Business
Highland Telephone Cooperative, Inc.	DSL	Data Added to Statewide Inventory	3/14/2010	[SEP-02-14 Frank Aryee] Change: Provider converted DSL coverage in Campbell and Scott Counties to fiber. Coverage within the city of Wartburg was also converted to fiber.	5 Both Residential/Business
Highland Telephone Cooperative, Inc.	Fiber	Data Added to Statewide Inventory	3/14/2010	[SEP-02-14 Frank Aryee] Change: Provider activated new fiber service in Campbell, Morgan, and Scott Counties.	5 Both Residential/Business
Level 3 Communications, LLC	Fiber	Data Added to Statewide Inventory	12/14/2009	[AUG-20-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	2 Business Only
Mediacom Southeast LLC	Cable	Data Added to Statewide Inventory	1/12/2010	[JUL-29-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	1 Residential Only

Monster Broadband, Inc.	Fixed Wireless	Data Added to Statewide Inventory	11/6/2009	[SEP-02-14 Frank Aryee] Change: Provider added to their fixed wireless coverage.	5 Both Residential/Business
Sprint Nextel Corporation	Mobile Wireless	Data Added to Statewide Inventory	1/14/2010	[AUG-13-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
T-Mobile USA, Inc.	Mobile Wireless	Data Added to Statewide Inventory	1/8/2010	[AUG-14-14 Frank Aryee] Change/Correction: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
TDS Telecommunications Corporation	DSL	Data Added to Statewide Inventory	1/27/2010	[AUG-15-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
TDS Telecommunications Corporation	Fiber	Data Added to Statewide Inventory	1/27/2010	[AUG-15-14 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
Tennessee Wireless, LLC	Fixed Wireless	Data Added to Statewide Inventory		[SEP-02-14 Frank Aryee] Change: Provider added coverage in Hickman county and removed coverage in Benton and Decatur counties. Provider also upgraded speeds to tier 5 in most areas.	5 Both Residential/Business
tw telecom of tennessee, llc	DSL	Data Added to Statewide Inventory	3/31/2010	[AUG-14-14 Frank Aryee] Change/Correction: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	2 Business Only
tw telecom of tennessee, llc	Fiber	Data Added to Statewide Inventory	3/31/2010	[AUG-14-14 Frank Aryee] Change/Correction: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	2 Business Only
Twin Lakes Telephone Cooperative Corporation	DSL	Data Added to Statewide Inventory	1/14/2010	[AUG-29-14 Frank Aryee] Change: Provider added coverage to different areas within Pickett County.	1 Residential Only
Twin Lakes Telephone Cooperative Corporation	Fiber	Data Added to Statewide Inventory	1/14/2010	[AUG-27-14 Frank Aryee] Change: Provider expanded coverage to the west and east of Pickett and Clay Counties, respectively.	1 Residential Only
Ultrahigh-Speed Internet	Fixed Wireless	Data Added to Statewide Inventory	2/23/2010	[SEP-03-14 Frank Aryee] Change: Provider added to their fixed wireless coverage.	1 Residential Only
United Telephone Company, Inc.	Fiber	Data Added to Statewide Inventory	2/25/2010	[AUG-27-14 Frank Aryee] Change: Provider added coverage in Davidson, Williamson, and Marshall Counties.	1 Residential Only
Verizon Communications, Inc.	Mobile Wireless	Data Added to Statewide Inventory	12/14/2009	[AUG-14-14 Frank Aryee] Change/Correction: Possible service expansion or corrections to previous dataset; entirely new dataset provided for October 2014 submission.	5 Both Residential/Business
West Kentucky and Tennessee Telecommunications Cooperative Inc	Fiber	Data Added to Statewide Inventory	2/8/2013	[AUG-27-14 Frank Aryee] Change: Provider expanded coverage to the northwest and northeast of Henry County. Provider also upgraded infrastructure and can now offer tier 10 download and tier 9 upload speeds.	5 Both Residential/Business
Ardmore Telephone Company Inc	DSL	Speed Only Update; Data Processing Complete	2/16/2010	[SEP-11-14 Frank Aryee] Change: Provider upgraded infrastructure and now able to offer tier 6 download speeds to additional areas.	5 Both Residential/Business
Cable ONE Inc.	Cable	Speed Only Update; Data Processing Complete	12/7/2009	[AUG-18-14 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 5 upload speeds.	5 Both Residential/Business
TEC of Jackson, Inc	DSL	Speed Only Update; Data Processing Complete	7/29/2010	[JUL-31-14 Frank Aryee] Change: Provider upgraded two existing terminals and now offer a higher download speeds of tier 6. Provider also made correction to coverage boundary.	5 Both Residential/Business
TNWEB, LLC	Fixed Wireless	No Update-Estimated Coverage Submitted for Non-Participating Provider			1 Residential Only
Trinity Communications LLC	Cable	No Update-Estimated Coverage Submitted for Non-Participating Provider			1 Residential Only
Access Cable Television, Inc.	Cable	No Update to Provide			5 Both Residential/Business
Ardmore Telephone Company Inc	Backhaul	No Update to Provide	2/16/2010		N/A Backhaul
AT&T Inc.	Backhaul	No Update to Provide	12/16/2009		N/A Backhaul
Athena Broadband, G.P.	Backhaul	No Update to Provide			N/A Backhaul
Beasley Wireless	Fixed Wireless	No Update to Provide	1/19/2010		1 Residential Only

Ben Lomand Rural Telephone Coop., Inc.	DSL	No Update to Provide	10/21/2009		5 Both Residential/Business
Ben Lomand Rural Telephone Coop., Inc.	Fiber	No Update to Provide	10/21/2009		5 Both Residential/Business
BreezeAir.net	Fixed Wireless	No Update to Provide	8/17/2010		1 Residential Only
Cellular South Licenses, LLC	Mobile Wireless	No Update to Provide	4/12/2010		5 Both Residential/Business
CenturyLink	Backhaul	No Update to Provide	12/4/2009		N/A Backhaul
Charter Communications, Inc.	Cable	No Update to Provide	12/15/2009		5 Both Residential/Business
Columbia Power & Water Systems	Cable	No Update to Provide			5 Both Residential/Business
Conterra Ultra Broadband, LLC	Backhaul	No Update to Provide			N/A Backhaul
CRU Enterprises, Inc.	Fixed Wireless	No Update to Provide	2/4/2010		1 Residential Only
DeKalb Telephone Cooperative, Inc.	Fiber	No Update to Provide	2/24/2010		1 Residential Only
DeltaCom, Inc.	Backhaul	No Update to Provide	2/16/2010		N/A Backhaul
Electric Power Board for the City of Chattanooga	Fiber	No Update to Provide			5 Both Residential/Business
High Country Online LLC	Fixed Wireless	No Update to Provide	3/4/2010		5 Both Residential/Business
Hughes Network Systems, LLC	Satellite	No Update to Provide	2/5/2010		1 Residential Only
Info-Ed Inc	Fixed Wireless	No Update to Provide	2/9/2010		1 Residential Only
InfoStructure Inc.	Cable	No Update to Provide	10/2/2009		1 Residential Only
Jackson Energy Authority	Fiber	No Update to Provide	3/17/2010		5 Both Residential/Business
JTM Broadband, LLC	Fixed Wireless	No Update to Provide			5 Both Residential/Business
Level 3 Communications, LLC	Backhaul	No Update to Provide	12/14/2009		N/A Backhaul
Loretto Telephone Company, Inc.	DSL	No Update to Provide	3/16/2010		5 Both Residential/Business
MegaPath Corporation	Backhaul	No Update to Provide	2/15/2010		N/A Backhaul
MegaPath Corporation	DSL	No Update to Provide	2/15/2010		2 Business Only
Morristown Utilities Commission	Fiber	No Update to Provide	3/25/2010		5 Both Residential/Business
North Central Telephone Cooperative, Inc.	DSL	No Update to Provide	2/5/2010		5 Both Residential/Business
North Central Telephone Cooperative, Inc.	Fiber	No Update to Provide	2/5/2010		5 Both Residential/Business
Planet Connect Internet	Fixed Wireless	No Update to Provide			1 Residential Only
Pulaski Electric System	Fiber	No Update to Provide	12/30/2009		1 Residential Only
Pulaski Electric System	Fiber	No Update to Provide	12/30/2009		2 Business Only
QuickRelay Wireless Communications	Fixed Wireless	No Update to Provide			1 Residential Only
Skycasters	Satellite	No Update to Provide	10/16/2012		1 Residential Only
Skyline Telephone Membership Corporation	Backhaul	No Update to Provide	2/2/2010		N/A Backhaul
Skyline Telephone Membership Corporation	Fiber	No Update to Provide	2/2/2010		5 Both Residential/Business
Softek, Inc.	Fixed Wireless	No Update to Provide	1/14/2010		1 Residential Only
Spacenet, Inc.	Satellite	No Update to Provide			1 Residential Only
Spirit Broadband	Cable	No Update to Provide	3/29/2010		1 Residential Only
Sprint Nextel Corporation	Backhaul	No Update to Provide	1/14/2010		N/A Backhaul
T-Mobile USA, Inc.	Backhaul	No Update to Provide	1/8/2010		N/A Backhaul
TDS Telecommunications Corporation	Backhaul	No Update to Provide	1/27/2010		N/A Backhaul
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010		N/A Backhaul
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010		N/A Backhaul
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010		N/A Backhaul
TEC of Jackson, Inc	DSL	No Update to Provide	7/29/2010		5 Both Residential/Business
TEC of Jackson, Inc	DSL	No Update to Provide	7/29/2010		5 Both Residential/Business
TEC of Jackson, Inc	Fiber	No Update to Provide	7/29/2010		5 Both Residential/Business
TEC of Jackson, Inc	Fiber	No Update to Provide	7/29/2010		5 Both Residential/Business
TELE-PAGE Inc.	Fixed Wireless	No Update to Provide	1/26/2010		5 Both Residential/Business
Time Warner Cable Inc.	Cable	No Update to Provide	12/21/2009		5 Both Residential/Business
Tulahoma Utilities Board	Fiber	No Update to Provide			5 Both Residential/Business
tw telecom of tennessee, llc	Backhaul	No Update to Provide	3/31/2010		N/A Backhaul
Twin Lakes Telephone Cooperative Corporation	Fixed Wireless	No Update to Provide	1/14/2010		1 Residential Only
United States Cellular Corporation	Mobile Wireless	No Update to Provide	2/15/2011		5 Both Residential/Business
United Telephone Company, Inc.	DSL	No Update to Provide	2/25/2010		1 Residential Only
ViaSat, Inc.	Satellite	No Update to Provide	1/8/2010		1 Residential Only
West Kentucky and Tennessee Telecommunications Cooperative Inc	DSL	No Update to Provide	2/8/2013		5 Both Residential/Business
Windstream Communications	Backhaul	No Update to Provide			N/A Backhaul
XO Communications, LLC	Backhaul	No Update to Provide	2/12/2010		N/A Backhaul
Zayo Group, LLC	Backhaul	No Update to Provide			N/A Backhaul
Zito Midwest, LLC	Cable	No Update to Provide	2/17/2011		1 Residential Only
Aurora Cable TV	Cable	No Update Provided – Use Last Submission Data	3/12/2010		1 Residential Only
Bledsoe Telephone Cooperative Inc	DSL	No Update Provided – Use Last Submission Data	1/20/2010		1 Residential Only
Blue Ray Networks	Cable	No Update Provided – Use Last Submission Data			5 Both Residential/Business
Bristol Tennessee Essential Services	Fiber	No Update Provided – Use Last Submission Data	9/1/2010		5 Both Residential/Business
Capshaw Enterprises, LLC	Fixed Wireless	No Update Provided – Use Last Submission Data	10/20/2011		5 Both Residential/Business
Celina Cable Communications, Inc.	Cable	No Update Provided – Use Last Submission Data	1/15/2010		5 Both Residential/Business
Clarksville Department of Electricity	Fiber	No Update Provided – Use Last Submission Data			5 Both Residential/Business
ECSIS.NET	Fixed Wireless	No Update Provided – Use Last Submission Data	10/29/2009		5 Both Residential/Business



Fayetteville Public Utilities	Cable	No Update Provided – Use Last Submission Data			1 Residential Only
Iris Networks	Backhaul	No Update Provided – Use Last Submission Data	1/5/2010		N/A Backhaul
Ken-Tenn Wireless, L.L.C.	Fixed Wireless	No Update Provided – Use Last Submission Data	1/25/2010		5 Both Residential/Business
Millington CATV, Inc.	DSL	No Update Provided – Use Last Submission Data	10/19/2009		1 Residential Only
Millington CATV, Inc.	Cable	No Update Provided – Use Last Submission Data	10/19/2009		1 Residential Only
NetEase	Fixed Wireless	No Update Provided – Use Last Submission Data	2/3/2010		1 Residential Only
Pickwick Cablevision, Inc.	Cable	No Update Provided – Use Last Submission Data			1 Residential Only
Trenton TV Cable Company	Cable	No Update Provided – Use Last Submission Data			1 Residential Only
Vyve Broadband J. LLC	Cable	No Update Provided – Use Last Submission Data	3/11/2014		1 Residential Only
Wave2Wave Communications Inc.	Backhaul	No Update Provided – Use Last Submission Data	4/28/2010		N/A Backhaul
WideOpenWest Finance, LLC	Cable	No Update Provided – Use Last Submission Data			1 Residential Only
Wisper, LLC	Fixed Wireless	No Update Provided – Use Last Submission Data	2/22/2011		5 Both Residential/Business
Windstream Communications	Backhaul	Solicited Initial Data			N/A Backhaul
America Internet & Communications	Fixed Wireless	Non-Responsive to Multiple Attempts	2/15/2010	[SEP-23-14 Wes Kerr] Since October of 2012 contact has been attempted to determine the viability of this provider and what type of service it offers. Desktop research continued to yield insufficient data to support field discovery work and the production of a dataset for this provider.	2 Business Only
Sunset Digital Communications, Inc.	Backhaul	Non-Responsive to Multiple Attempts			N/A Backhaul
Sunset Digital Communications, Inc.	Fiber	Non-Responsive to Multiple Attempts		[SEP-23-14 Wes Kerr] Multiple attempts by Connected Tennessee staff were made obtain its data, beginning in October 2013. The provider committed to provide the data multiple times throughout the past year, and even as late as early September 2014 had indicated to Connected Tennessee field staff that it would participate. However, no data has been received to date.	5 Both Residential/Business