

OFFICIAL APRIL 2013 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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April 1, 2013

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April 1, 2013

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

Connected Nation and Connected Tennessee congratulate the National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission (FCC) on achieving the two-year anniversary of the National Broadband Map. Truly, now more than ever, the significance of complete and validated data through this effort is impacting lives in communities all across our great country. The Connected Tennessee program and its collective stakeholder community continue to be faithful and energized contributors, and we are proud to play such a part in forging the innovation economy of the twenty-first century.

The artifacts that comprise this submission should be found to be compliant with the April 1, 2013, 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: April 1, 2013***

NOFA Requirement  
Appendix A: 1(a)(i)

Data Transfer Model  
BB\_Service\_CensusBlock

Data Description  
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	n/a DataPackage.xlsx	Accuracy and Verification Report 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 should be found to be compliant with the additional program requirements instituted by the National Telecommunications and Information Administration since the time of the October 2012 SBI data submission for the Connected Tennessee program. Specifically, these new requirements are:

**SBI Data Transfer Model**

The submission of the broadband dataset for April 1, 2013, is contained within the SBI Data Transfer Model as released on the Grantee Workspace on December 14, 2012. 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**

On February 8, 2013, NTIA released new guidance regarding the processing of wireless data, for both fixed and mobile broadband providers. All wireless provider coverage records have been reviewed and are in compliance with this grantee guidance for this April 2013 submission period. Even providers that did not have an update for this submission cycle were reviewed and data reprocessed as necessary for those records that were not yet in compliance with the new guidance.

This submission continues to follow the speed technology guidance released by the Program Office on August 9, 2012, to review speed tier codes in correspondence with technology of transmission codes. In the October 2012 submission, descriptions were provided in the methodology paper that offered an explanation for any submitted technology of transmission and speed combinations that were outside of the expected value range. That practice continues in this submission as technology and speed combinations are reviewed and scrutinized; any questionable information supplied by providers is reviewed more in depth with the provider to ensure the information is accurately captured or a proper explanation is provided as to why the speed information should be submitted as supplied even if it falls outside the expected value range.

This submission also includes narratives describing the data and coverage estimation of non-participating providers. While Connected Tennessee continues 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 seventh 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 April 2013 semi-annual 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 97.67 percent of the Tennessee provider community, or 84 of 86 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, 38 supplied an update to their network or coverage area(s), while 26 have reported no change. The remaining 18 represent providers who previously supplied data but were non-responsive in the April 2013 update effort; therefore, their previous dataset is being put forward as part of this compilation. A complete roster by provider depicting participation status and contact history is contained herein. The 2 remaining providers that are not represented in the attached datasets have refused to participate in the voluntary program or were non-responsive to multiple contact attempts.

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 were made to account for 100 percent of the known Tennessee broadband provider community, pursuant to this semi-annual 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 conducts field validation efforts. To date, 61 (70.93 percent) 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)) 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.

As an indicator of stakeholder penetration, the Connected Tennessee website encountered 5,006 unique visits during this reporting period (49,297 total to date for the life of the grant awarded on December 20, 2009). Additionally, this pronounced Web activity netted 41 broadband inquiries over this same reporting period (1,569 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 are 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, which is scheduled as soon as possible.

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

Connected Tennessee continues to make significant inroads 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 uptick in CAI data collection was further supported by NTIA's outreach to grantees reiterating the importance of this outreach. We have continued to focus on a relationship-oriented approach with state-level agencies and organizations that generates more responses than general contact.

Outreach was conducted during this data update reporting period by Connected Tennessee 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 past success of the September 2012 Education Campaign, February 2013 was recognized as Public Safety Month where the public safety sector was the focus of CAI data collection, research, and public affairs outreach. Connected Tennessee has developed a number of new relationships with statewide associations, such as the Department of Safety & Homeland Security and the Tennessee Hospital Association, to promote the importance of broadband connectivity at anchor institutions and participation in this data collection process. The value of these relationships continues to impact the entire success of the Grant Program, and the CAI engagement is a logical extension of new and existing relationships. Connected Tennessee will continue to build upon these new relationships over the coming months and utilize its contacts throughout the state to collect data and raise awareness of this project.

From our work in Tennessee, as well as other states, we recognize the great value of this data to future collaboration efforts within the state as well as its value to the National Broadband Map. We plan to continue to bring best practices to the Connected Tennessee efforts, along with an investment of both human and technical resources required to reach our goal of increasing the data that is secured and reported as part of this process.

The Connected Tennessee 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 Tennessee, as well as the United States and its territories through contribution to the National Broadband Map. We look forward to the continuing work ahead and improving upon our data collection methods.

Respectfully submitted,



Corey Johns  
Executive Director  
Connected Tennessee

## TENNESSEE COMMUNITY ANCHOR INSTITUTIONS METHODOLOGY

In this seventh reporting period of the SBI, Connected Tennessee, working in close coordination with the state of Tennessee, 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 SBI NOFA Technical Appendix. Since the October 2012 data submission, the CAI outreach process method has been modified to improve data collection. Specifically, the outreach process is a more focused sector-specific and relationship-oriented approach that generates more responses than general contact.

Connected Tennessee 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 Connected Tennessee through Esri ArcGIS software.

Connected Tennessee continues 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 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 SBI NOFA.

The survey can be accessed at this link: <http://www.surveymonkey.com/s/RJK59FP>.

In addition to the survey, Connected Tennessee has developed a number of new relationships with statewide associations, such as the Department of Safety and Homeland Security and the Tennessee Hospital Association, to promote the importance of broadband connectivity at Community Anchor Institutions and participation in this data collection process. It is apparent that these relationships are beneficial to the entire success of the grant program, and the CAI engagement is a logical extension of new and existing relationships. Connected Tennessee will continue to build upon these new relationships over the coming months and utilize its contacts throughout the state to collect data and raise awareness of this project.

In addition to fostering and building relationships with state agencies, associations, and organizations, Connected Tennessee has also developed a sector-specific calendar that supports CAI outreach as well as research and communications efforts. This focused approach allows a corporate commitment to capturing CAI data in addition to developing meaningful sector-specific content. Since the October 2012 submission, the sector-specific approach included a month-long public safety campaign in February 2013. During this campaign, Connected Tennessee committed to improve relationships with key stakeholders, distribute survey requests to sector representatives, and provide sector-specific education through communications and webinar resources. Outreach to and survey of hospitals, local law enforcement, and fire stations helps build awareness and establishes a centralized database of key connectivity data for planning.

Connected Tennessee conducts 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 continues to identify 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 works 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 an ongoing mission to educate CAI 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 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). Connected Tennessee will continue to research key CAI organizations and agency contacts in an effort to raise awareness of this project among CAI. When applicable, the Department of Finance and Administration’s Office for Information Resources and the Department of Economic and Community Development will continue to be briefed on the current CAI data and provided information so it can assist with outreach and promotion within the state.

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

CAI Type	Total	Physical Address	Lat/Long	Technology of Transmission	Download Speed	Upload Speed
<b>K-12 Schools</b>	2330	2330	2327	1145	1145	1143
<b>Libraries</b>	315	315	315	223	223	223
<b>Healthcare</b>	923	923	918	220	219	219
<b>Public Safety</b>	763	763	757	148	126	126
<b>Higher Ed Institutions</b>	409	409	407	175	178	123
<b>Other Government</b>	1200	1200	1192	1121	1106	1106
<b>Other Non-Government</b>	224	224	219	132	129	129
<b>Total</b>	6164	6164	6135	3164	3126	3069

During the coming months, CAI data collection will be supported by regular reporting to the Connected Tennessee team. The CAI data is proving 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 April 1, 2013, is contained within the SBI Data Transfer Model and additional components as released on the Grantee Workspace on December 14, 2012. 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.

### *Inventory of Deliverables, Connected Tennessee: April 1, 2013*

<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.

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.

Connected Nation has continued outreach to satellite providers on their availability, technology, and speed information, but granular coverage is not yet available. Submitted within the wireless feature class are the satellite companies providing service to Tennessee as a polygon of the state boundary. Efforts will continue to collect, process, or otherwise create more granular satellite data based on availability analyses and guidance received from NTIA. Process development continues as well to be able to create more granular satellite coverage based on satellite equipment positioning and geographic inputs.

## 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 conducted on-site validation tests in Tennessee on the following providers: Ardmore Telephone Company Inc.; Athena Broadband (also d.b.a. HotShot Wireless); AT&T; Aurora Cable TV; Beasley Wireless; Ben Lomand Rural Telephone Cooperative Inc.; BreezeAir.Net; Bristol Tennessee Essential Services; Cable ONE; Cellular South Inc.; CenturyLink; Charter Communications; Clarksville Department of Electricity (d.b.a. CDE Lightband); Clearwire Corporation; Columbia Power & Water Systems; Comcast; CRU Enterprises; DeKalb Telephone Cooperative Inc.; ECSIS.Net; FiberNet; Frontier Communications Corporation; High Country Online; InfoEd Wireless; Infostructure Cable; Jackson Energy Authority; James Cable; Ken-Tenn Wireless LLC; Leap Wireless International Inc.; Level 3 Communications; Loretto Telephone Company Inc.; Mediacom Southeast LLC (d.b.a. Mediacom Communications Corporation; Rapid Communications LLC and Mediacom); Millington Telephone Company (also d.b.a. Big River); Monster Broadband (also d.b.a. DotSpot Wireless; Morristown Utilities; NetEase; North Central Telephone; Planet Connect Internet; QuickRelay Wireless Communications; Skyline Telephone Membership Cooperative; Softtek; Spirit Broadband; Sprint Nextel Corporation; Surfmore; TDS Telecom; TEC of Jackson Inc.; Tele-Page; Inc.; Tennessee Wireless (also d.b.a. Orb Wireless); Time Warner Cable (formerly New Wave Communications); T-Mobile USA Inc.; TNWeb; Trenton Cable TV Company; Twin Lakes Telephone; U.S. Cellular; Ultra High Speed Internet; UltraNet; United Telephone Company; Verizon Communications Inc.; West Kentucky Rural Telephone; Wide Open West (formerly d.b.a. Knology of Tennessee); Wisper LLC; and Zito Media.

In addition to the field verification tests that have been conducted, Connected Nation has also conducted work in the field to collect information for the non-participating provider Wisper LLC, which, by nature of the methodology required for this collection, is also included in the above list.

From program initiation through this reporting period, CN has completed in-the-field validation testing against 61 companies (out of a universe of 86 viable providers) totaling 70.93 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 published on the NTIA Grantee Workspace on December 14, 2012. 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 8, higher than expected value range for the technology.

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

**Residential Service Packages for Cable TV Subscribers**

PowerNet Basic	\$ 24.95
<i>Up to 3.0 Mbps download/384 kbps upload</i>	
PowerNet 5.0	\$ 29.95
<i>Up to 5.0 Mbps download/512 kbps upload</i>	
PowerNet 8.0	\$ 34.95
<i>Up to 8.0 Mbps download/896 kbps upload</i>	
PowerNet 12.0	\$ 42.50
<i>Up to 12.0 Mbps download/1.2 Mbps upload</i>	
PowerNet 18.0	\$ 52.95
<i>Up to 18.0 Mbps download/1.8 Mbps upload</i>	
PowerNet 50.0	\$ 60.00
<i>Up to 50.0 Mbps download/5.0 Mbps upload (Requires DOCSIS 3.0 modem.)</i>	

**Comcast Cable Communications, LLC**

Issue: Technology of transmission code 40 with maximum advertised download speed in tiers 6 and 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.

**Mediacom Southeast LLC**

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

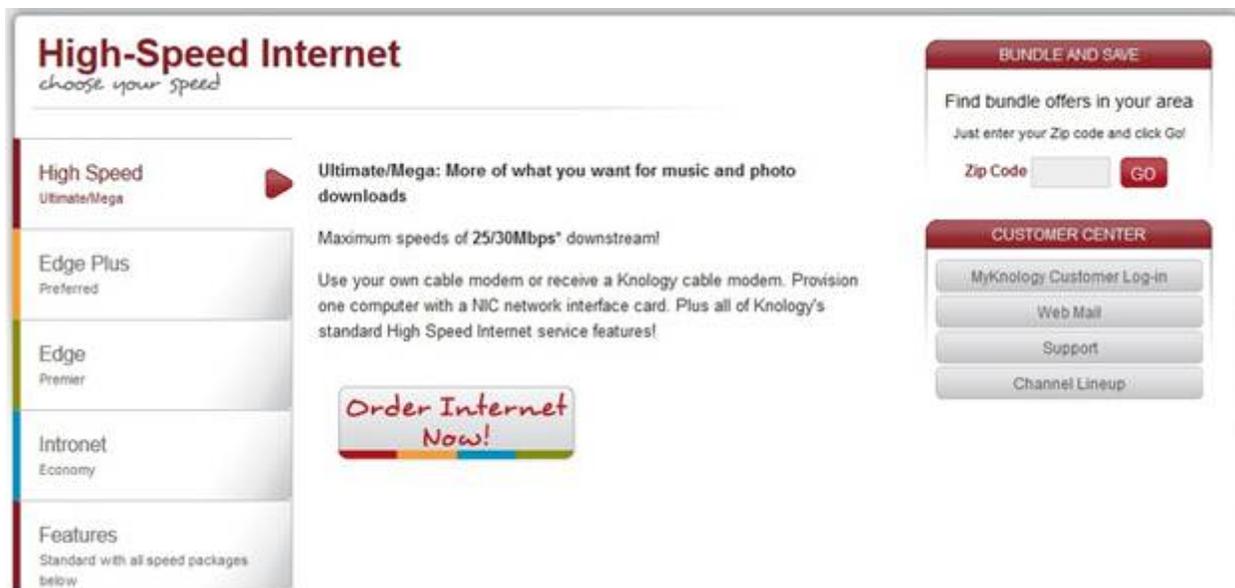
Resolution: Provider website advertises up to 50 Mbps service with DOCSIS 3.0 modem; screenshot below.

<p>3 Mbps</p>	<p><b>Launch*</b></p> <p>↓ Download speed: up to 3 Mbps          ↑ Upload speed: up to 512 KB          Monthly Usage Allowance: 150 GB*</p>	<p>No dial-up, no waiting, only an instant connection to the Internet. It's the fast and easy way to watch YouTube®, search for directions on Mapquest®, and Google® search, quickly. Just the speed you need to send emails or quickly download photos.</p>
<p>15 Mbps</p>	<p><b>Prime*</b></p> <p>↓ Download speed: up to 15 Mbps          ↑ Upload speed: up to 3 Mbps          Monthly Usage Allowance: 250 GB*</p>	<p>Prime offers a great speed at a great price for multi-users households. That means it is simple and easy for kids to play games, adults to pay bills or shop and other family members to surf their favorite sites - all at the same time.</p>
<p>30 Mbps</p>	<p><b>Prime Plus*</b></p> <p>↓ Download speed: up to 30 Mbps*          ↑ Upload speed: up to 2 Mbps          Monthly Usage Allowance: 350 GB*</p>	<p>Prime Plus is a super speedway for multiple tasks that require speed and more broadband capacity. It's the ideal speed for gamers who need to respond fast, and households with multiple users and multiple devices. Prime Plus 30 Mbps is available in Mediacom digital markets, and consists of download speeds of up to 20 Mbps in other areas.</p>
<p>50 Mbps</p>	<p><b>Ultra*</b></p> <p>↓ Download speed: up to 50 Mbps          ↑ Upload speed: up to 5 Mbps          Monthly Usage Allowance: 999 GB*</p>	<p>21st century speed that uses the new and faster DOCSIS - 3.0 modem! It's ideal for running multiple media streams, reducing lag time, and improving delivery of mega data.</p>
<p>105 Mbps</p>	<p><b>Ultra Plus*</b></p> <p>↓ Download speed: up to 105 Mbps          ↑ Upload speed: up to 10 Mbps          Monthly Usage Allowance: 999 GB*</p>	<p>Get on the Internet with super speeds that allow you and others in your home to simultaneously use the Internet to download full-length movies or watch streaming HD shows without lag time. Mediacom is the first to introduce this residential speed in our service areas.</p>

**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. Please note that while WOW! acquired Knology, the WOW! website still displays Knology-based web pages for this state's coverage.



## **DATA SUBMISSION AND COVERAGE ESTIMATION OF NON-PARTICIPATING PROVIDERS (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.). Appendix A presents full reports on the estimated broadband service territory for the providers in this state that have either been non-responsive or that have refused to participate in the SBI mapping initiative as of April 2013. These coverage estimation reports are for non-participating providers whose data has not been previously submitted to NTIA in past mapping cycles.

The section below provides a summary of the status of CN's outreach and findings on all non-participating provider coverage for the April 2013 SBI submission.

### **TNWeb**

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

**WISPER, LLC**

Coverage for this NPP is being submitted for the first time; please find a white paper on provider outreach and coverage estimation in Appendix A.

**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, 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 CN, 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; CN 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 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 becomes 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 allows for a follow-up to providers regarding revisions to the data as it is represented; it also allows for CN 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 CN to resolve inaccuracies as they are 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 are subjected to the same level of scrutiny. Occasionally, a provider may elect to voluntarily participate (thus eliminating the need for future data estimation activities in the field). However, more often than not, the NPP narrative is 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 3.58 percent of Tennessee households do not have terrestrial fixed broadband service available, and approximately 0.22 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 6.65 percent of rural Tennessee households do not have terrestrial fixed broadband service available, and approximately 0.41 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 **CO**mmission **RE**gistration **S**ystem.

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 collects 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 are 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 18,839 broadband inquiries since 2007, allowing the state programs to evaluate each inquiry for broadband demand and data verification. These inquiries are 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 41 inquiries (1,569 grant inception to date). As more inquiries are submitted to Connected Tennessee, 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.

## **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 1,132 visits this reporting period; to date the interactive mapping application has received 9,771 visits.

## **SPEED TEST METHODOLOGY**

The 2,381 speed tests that are represented in the Connected Tennessee Speed Test Report during this reporting period (16,817 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 April 2013 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, etc.

	Company Name	URL	Comments
1	21Globe, Inc.	<a href="http://www.21globe.com">www.21globe.com</a>	No longer in business, website inactive and references news and events from Cleveland, Ohio.
2	A 007 Access	<a href="http://www.a007.com">www.a007.com</a>	General reseller of Quest DSL and mobile wireless; DSL does not qualify as the max advertised speed is 768 kbps x 128 kbps.
3	Aaccess Network Communications	<a href="http://www.aaccess.net">www.aaccess.net</a>	URL no longer in service, not a broadband provider.
4	Access123.net	<a href="http://www.access123.net">www.access123.net</a>	URL no longer in service or associated with telecommunications business.
5	ACERX.NET	<a href="http://www.acerx.net">www.acerx.net</a>	General reseller but no contact information listed on website; requests for information were never returned.
6	Adelphia	n/a	No longer in business; assets liquidated.
7	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.
8	Airespring, Inc.	<a href="http://www.airespring.com">www.airespring.com</a>	General reseller of VOIP, long distance and data circuits (non-residential).
9	Airewaves Broadband, LLC	<a href="http://www.airewaves.com">www.airewaves.com</a>	URL no longer in service.
10	Airmail247.com	<a href="http://www.airmail247.com">www.airmail247.com</a>	Business mailing list search site; not a broadband provider.
11	America Internet & Communications	<a href="http://www.americainter.net">www.americainter.net</a>	Offers high-speed business DSL and wireless point-to-point wireless services to business accounts.
12	Antioch Wireless Broadband	<a href="http://www.antiochwirelessbroadband.com">www.antiochwirelessbroadband.com</a>	Resells DSL and cellular service in Antioch, IL only.
13	Arrowheadnet.com	<a href="http://www.arrowheadnet.com">www.arrowheadnet.com</a>	Domain registration and web hosting company.

14	Atris	<a href="http://www.atris.biz">www.atris.biz</a>	Offers VoIP, data, and softphone services to business accounts.
15	bargainisp.net	<a href="http://www.bargainisp.net">www.bargainisp.net</a>	Generic web directory site; company does not offer broadband.
16	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."
17	Broadband National	<a href="http://www.broadbandnational.com">www.broadbandnational.com</a>	Nonfacilities-based general reseller of DSL and satellite for 36 companies (e.g., ACC Business, HughesNet, et al.).
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	BullsEye Telecom, Inc.	<a href="http://www.bullseyetelecom.com">www.bullseyetelecom.com</a>	Integrated suite of telecommunications services for businesses and general reseller of backhaul.
22	Business Telecom, Inc. (DeltaComm)	<a href="http://www.earthlinkbusiness.com">www.earthlinkbusiness.com</a>	B2B services only. Reseller.
23	Camino-Net Internet Services	<a href="http://www.camino-net.com">www.camino-net.com</a>	No longer in business; was dial-up only.
24	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.
25	Cebridge Connections	<a href="http://suddenlink.net">suddenlink.net</a>	Acquired by SuddenLink.
26	Celito Communications	<a href="http://www.celito.net">www.celito.net</a>	Offers dial-up and wireless in North Carolina.
27	Cinergy Communications Company	n/a	Acquired by Windstream.

28	Clartouch.Com	<a href="http://www.clartouch.com">www.clartouch.com</a>	Inactive URL; out of business.
29	Cognisurf	<a href="http://www.cognisurf.com">www.cognisurf.com</a>	Offers dial-up only.
30	Deltaforce	<a href="http://www.deltaforce.net">www.deltaforce.net</a>	Dial-up and webhosting services only.
31	deluxehost.com	<a href="http://deluxe-host.com">deluxe-host.com</a>	Offers web hosting only.
32	DGUI	<a href="http://www.dgui.com">www.dgui.com</a>	No longer in business; domain name for sale.
33	Dial National	<a href="http://www.dialnational.com">www.dialnational.com</a>	Inactive URL; out of business.
34	Dialer.net	<a href="http://www.dialer.net">www.dialer.net</a>	Offers international dial-up services.
35	DIECA Communications, Inc.	n/a	Acquired by Covad; then acquired by MegaPath.
36	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.
37	Dresden Cable	n/a	Provider does not offer broadband; limited to CATV and satellite services only.
38	DSL @ Interlync	<a href="http://www.interlync.com">www.interlync.com</a>	General reseller of DSL, wireless, VoIP, dial-up, web hosting etc.
39	DTS-NET.COM	<a href="http://www.dts-net.com">www.dts-net.com</a>	Provider of wholesale and retail telecommunications services.
40	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.
41	Endless Sphere Technology	<a href="http://www.endless-sphere.com">www.endless-sphere.com</a>	Electric Vehicle Technology Forums.
42	EnterSource	<a href="http://www.entersource.co">http://www.entersource.co</a>	General Reseller of HughesNet, Athena Broadband, Charter, AT&T and DishNetwork.
43	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."

44	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.
45	Fast Dependable Access	<a href="http://www.fda.net">www.fda.net</a>	Not a broadband provider.
46	Gainesboro CATV	n/a	Does not offer broadband, CATV only.
47	Global Crossing Telecommunications, Inc.	<a href="http://www.globalcrossing.com">http://www.globalcrossing.com</a>	Acquired by another company.
48	Haywood Cablevision	<a href="http://www.cbvncol.com">www.cbvncol.com</a>	Out-of-state provider; offers service in the Carolina Mountain area.
49	Highertech.Net	<a href="http://www.highertech.net">www.highertech.net</a>	Appears to have been acquired by Chattanooga Net.
50	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.
51	iGiles.net (d.b.a. DotSpot Wireless)	<a href="http://www.dotspot.net">http://www.dotspot.net</a>	Acquired by Monster Broadband.
52	Imbris, Inc.	<a href="http://www.imbris.com">www.imbris.com</a>	Provides fixed wireless in Idaho only.
53	IMGISP.NET	<a href="http://www.imgisp.net">www.imgisp.net</a>	Search engine, generic web page.
54	Incredible Networks	n/a	Inactive URL; out of business.
55	Inercom Communications Inc.	<a href="http://www.inercom.com">www.inercom.com</a>	Inactive URL; out of business, url for sale.
56	Interactiveinfo.com Inc.	<a href="http://www.rocketbroadband.com">www.rocketbroadband.com</a>	Offers cable television services in NY only.
57	iRadical	n/a	Inactive URL; out of business.
58	ISPartner.net	n/a	Inactive URL; out of business.
59	Jenco Speed Web	<a href="http://www.jencospeed.net">www.jencospeed.net</a>	Offers wireless service in Ohio only.
60	Knology of Tennessee, Inc.	<a href="http://www.knology.com">http://www.knology.com</a>	Acquired by Wide Open West Finance, LLC (WOW).

61	LARIAT.NET	<a href="http://www.lariat.net">www.lariat.net</a>	Offers fixed wireless services in Wyoming only.
62	LCSisp.com	<a href="http://www.lcsisp.com">www.lcsisp.com</a>	Offers national dial-up services only.
63	Lightyear Network Solutions, LLC	<a href="http://www.lightyear.net">www.lightyear.net</a>	Nonfacilities-based general reseller.
64	LinkAmerica.Net	<a href="http://www.linkamerica.net">www.linkamerica.net</a>	Inactive URL; out of business.
65	MacWebTown.Net Works	<a href="http://www.macwebtown.net">www.macwebtown.net</a>	McIntosh web services and technical assistance.
66	MainBoard	<a href="http://www.mainboard.cc">www.mainboard.cc</a>	General reseller in Virginia.
67	Maine Cable and Wireless	<a href="http://www.maineableandwireless.com">www.maineableandwireless.com</a>	Inactive URL; out of business.
68	Marcin Company	n/a	Inactive URL; out of business.
69	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.
70	Millenicom Inc.	<a href="http://www.millenicom.com">www.millenicom.com</a>	General reseller of dial-up and mobile broadband (Sprint network).
71	MYWEBSTAR	<a href="http://www.mywebstar.com">www.mywebstar.com</a>	Inactive URL.
72	Nanomega.Com	<a href="http://www.nanomega.com">www.nanomega.com</a>	Inactive URL; out of business.
73	NetAccess, Inc.	<a href="http://www.nas.net">www.nas.net</a>	Offers wireless B2B services only.
74	NetFire	n/a	No longer in business.
75	NetSpeed Online	<a href="http://www.netspeed-online.net">www.netspeed-online.net</a>	Inactive URL; out of business.
76	NetStar Communications	n/a	Offers virtual ISP services and web hosting.

77	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.
78	NewWave Communications	<a href="http://www.newwavecom.com/">http://www.newwavecom.com/</a>	Acquired by another company.
79	Northwest ISP	<a href="http://www.northwestisp.com">www.northwestisp.com</a>	Inactive URL; out of business.
80	NTCH, Inc.	<a href="http://www.cleartalkwireless.net">www.cleartalkwireless.net</a>	Acquired by Cleartalk Wireless.
81	NuVox, Inc.	<a href="http://www.windstream.com">www.windstream.com</a>	Acquired by Windstream.
82	OnWav, Inc.	<a href="http://www.onwav.com/">www.onwav.com/</a>	Acquired by Twin Lakes Telephone Cooperative.
83	OrbWireless.net	<a href="http://www.orbwireless.net">http://www.orbwireless.net</a>	Acquired by Tennessee Wireless.
84	Overarch Broadband	n/a	Offers services in Idaho only.
85	Pacific Internet Exchange	<a href="http://www.pie.us">www.pie.us</a>	Inactive URL; company appears to have gone out of business.
86	PAETEC Communications, Inc.	<a href="http://www.paetec.com/">http://www.paetec.com/</a>	Acquired by another company.
87	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.
88	Planet Online	<a href="http://www.planetonline.net">www.planetonline.net</a>	Offers website hosting services.
89	Point2Point	<a href="http://www.p2p-innovations.com">www.p2p-innovations.com</a>	Out of business.
90	PremoWeb	<a href="http://www.premoweb.com">www.premoweb.com</a>	Offers national dial-up services only.
91	Qwest Communications Company, LLC	<a href="http://www.centurylink.com">www.centurylink.com</a>	Acquired by CenturyLink.
92	Rapid Communications, LLC	n/a	Acquired by Mediacom; subsequently acquired by Comcast.
93	Renaissance Networks	<a href="http://www.renaissancenetworks.com">www.renaissancenetworks.com</a>	Offers IT support to small businesses in New Mexico.

94	Rural Tennessee Wireless Broadband (RTWB)	<a href="http://www.rtwb.net/">http://www.rtwb.net/</a>	No longer in business.
95	Scott County Telephone Cooperative	<a href="http://www.sctc.org">www.sctc.org</a>	CLEC offering business class services only.
96	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.
97	SI Wireless	<a href="http://www.siwirelessco.com">www.siwirelessco.com</a>	Resells Sprint 3G services.
98	Simply Dialup A Metrogeek Company	<a href="http://www.simplydialup.com">www.simplydialup.com</a>	Offers dial-up only.
99	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.
100	Smartresort Co, LLC	<a href="http://www.baldwincountyinternet.com">www.baldwincountyinternet.com</a>	General reseller of local ISP services.
101	Solavei, LLC (Solavei)	<a href="http://www.solavei.com/">http://www.solavei.com/</a>	Reseller of mobile services on T-Mobile network.
102	Solutions IT Consulting, LLC	<a href="http://www.solutionsitc.com">www.solutionsitc.com</a>	Technology consulting firm.
103	Sparkplug Chicago, Inc.	<a href="http://www.airband.com">www.airband.com</a>	Offers point-to-point wireless and business solutions in Illinois.
104	Spring City Cable	n/a	Out-of-state provider; offers services in Utah only.
105	Surferz.Net	<a href="http://www.surferz.net">www.surferz.net</a>	Offers dial-up in upstate NY only.
106	T1 Shopper	<a href="http://www.t1shopper.com">www.t1shopper.com</a>	Search engine for general reseller.
107	Talk America Inc.	<a href="http://www.cavtel.com">www.cavtel.com</a>	Acquired by Cavalier Business Communications.
108	Telovations, Inc.	<a href="http://www.telovations.com">www.telovations.com</a>	IT and IP solutions consultant.
109	The Nexus Group, Inc.	<a href="http://www.nxs.net">www.nxs.net</a>	General reseller of AT&T DSL.

110	Total Access Networks, Inc.	<a href="http://www.totalaccess.net">www.totalaccess.net</a>	Inactive URL.
111	TSISP.NET	<a href="http://www.tsisp.net">www.tsisp.net</a>	Inactive URL; out of business.
112	Two Rivers Media	n/a	Inactive URL; acquired by MediaCom.
113	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.
114	UNUM Telecommunications, Inc.	<a href="http://www.utinet.net">www.utinet.net</a>	Inactive URL; out of business.
115	VOLstate, Inc.	<a href="http://www.volstate.net">www.volstate.net</a>	Offers Internet solutions and technical support to business accounts.
116	Waypoint Wireless	n/a	Consulting firm.
117	WilTel Communications, LLC.	<a href="http://www.level3.com">www.level3.com</a>	Acquired by Level 3.
118	Wireless Roanoke, Inc.	<a href="http://www.wirelessroanoke.com">www.wirelessroanoke.com</a>	Inactive URL; out of business.
119	wisbin	<a href="http://www.wisbin.com">www.wisbin.com</a>	Wisconsin broadband provider.
120	WorldCom Broadband	n/a	Acquired by Verizon.
121	Worldspice.net	<a href="http://www.worldspice.net">www.worldspice.net</a>	Offers web hosting and connectivity to business accounts.
122	www.AmericanAngel.us	<a href="http://www.americanangel.us">www.americanangel.us</a>	Inactive URL; out of business.
123	Xpansion Network	n/a	No longer in business.
124	XTN	<a href="http://www.xtn.net">www.xtn.net</a>	URL redirects to Jones Media.
125	YEYZOO.NET	<a href="http://www.yeyzoo.net">www.yeyzoo.net</a>	Inactive URL; out of business.

---

126	YLISP (Your Local ISP)	<a href="http://www.itsyournet.com">www.itsyournet.com</a>	Resells DSL and dial-up.
127	YourT1Wifi.com	<a href="http://yourt1wifi.com">yourt1wifi.com</a>	Offers wireless service in Idaho only.
128	ZOOM Internet Services, LLC	n/a	Michigan-based dial-up provider and web hosting company.

**APPENDIX A: ESTIMATION OF NON-PARTICIPATING PROVIDER**

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**WISPER, LLC**

## WISPER, LLC

As part of its ongoing broadband mapping efforts, Connected Nation (CN) has developed a series of processes with the goal of submitting mapping data to NTIA for every known and qualifying last-mile broadband provider, regardless of whether the provider has chosen to support and participate in the State Broadband Initiative (SBI) mapping program.

The following narrative provides detail regarding the recent data collection activities related to Wisper, LLC, (WISPER) a wireless Internet service provider (WISP), located in Alamo, Tennessee, with a service area around Crockett County. The narrative will include information regarding how and where CN obtained publicly available data and the on-the-ground due diligence, verification, and validation techniques that support the underlying data.

### **Background**

CN staff members have continued trying to obtain the participation of the provider with 36 instances of communication via telephone, e-mail, and office visits since October 1, 2010, through February 13, 2013. Only one communication was answered wherein the provider returned a non-disclosure agreement (NDA) on February 22, 2011, (initially furnished October 4, 2010, and delivered in-person a second time by CN staff on January 26, 2011). After returning a final, fully executed NDA to the provider, telephone and e-mail outreach has yielded no response or indication of participatory status throughout subsequent data submission cycles.

A CN staff member visited the WISPER office on April 23, 2012, to discuss the broadband mapping project in person with WISPER staff and was not afforded the privilege of meeting with a “decision maker.” While conducting data collection and verification of the provider’s footprint, CN staff members stopped by WISPER offices again on February 20, 2013, and were informed that WISPER staff was unavailable and unable to arrange an appointment.

### **The Issue**

WISPER, by its lack of responsiveness since February 22, 2011, has predicated its unwillingness to participate in the Connected Tennessee broadband mapping initiative.

### **Identification of Provider’s Service Plans, Service Area, Legal Name, d.b.a., FRN, and Licensing**

CN began amassing a file based on desktop research of information and, as time progressed, expounded upon information that could be obtained through the public domain. CN began by reviewing the provider’s website ([www.gowisper.com](http://www.gowisper.com)) to identify residential service plans (**Exhibit A**) offered on the provider’s wireless network, wherein the provider’s service area was excluded from their website. A search for a Federal Registration Number (FRN) on the FCC **CO**mmission **RE**gistration **S**ystem (CORES) yielded an FRN of 0021091053 (**Exhibit B**) with contact information relative to the owner of the company.

## Exhibit A: Service Plans

**WISPER**

Home Packages Q+A Contact

### Broadband Internet Residential Package

Up to 5 Free email accounts  
Fastest, most reliable Internet speeds available from any wireless provider.  
High speed Internet access throughout our coverage area, for you and your family.  
Internet Receiver  
Installation Fee: \$195.00

starting at  
**\$39<sup>99</sup>/mo**

[Find Out More](#)

### Broadband Internet Business Package

Up to 5 Free Email accounts with options to expand to fit your needs.  
High speed internet access for your business and employees throughout our coverage area.  
Website hosting and design options available.  
Internet Receiver  
Installation Fee: \$195.00

starting at  
**\$39<sup>99</sup>/mo**

[Find Out More](#)

#### About WISPER

WISPER stands for Wireless Internet Service Provider. Especially Rural. Our focus is to provide reliable high speed broadband internet service at the best price. Our staff is committed to offering friendly outstanding service and is ready to

#### Questions + Answers

**Q:** How do I know if service is available to me?  
**A:** To find out if your location is in our coverage area, please fill out the [contact](#) form and select "Service Availability" from the drop down menu. A site test may be conducted

#### Contact Us

Most information can be found in the [Q+A here](#).  
If you cannot find the information you are looking for or need further assistance, please feel free to contact us.

## Exhibit B: Federal Registration Number

Registration Detail	
<b>FRN:</b>	0021091053
<b>Registration Date:</b>	08/16/2011 10:58:00 AM
<b>Last Updated:</b>	02/21/2012 03:43:00 PM
<b>Business Name:</b>	WISPER, LLC.
<b>Business Type:</b>	Private Sector , Limited Liability Corporation
<b>Contact Organization:</b>	WISPER, LLC.
<b>Contact Position:</b>	Owner
<b>Contact Name:</b>	Mr Matt Abernathy
<b>Contact Address:</b>	1398 N Cavalier Dr Alamo, TN 38001 United States
<b>Contact Email:</b>	mabernathy@gowisper.com
<b>ContactPhone:</b>	(731) 668-3042
<b>ContactFax:</b>	

In order to corroborate field validation of transmit sites and wireless access points, the provider FRN was referenced against the FCC Universal Licensing System (ULS) to identify any authorizations (or leases as the case may be) that the provider may hold which could possibly enhance locating active transmit sites and wireless access points for the service area. During this process, CN Staff identified: (a) an authorization for Station WQPK327 with 0 registered transmit/receive sites; a 3650-3700 MHz license (**Exhibit C**) and (b) two active lease agreements for Educational Broadband Service (EBS) stations centered over Jackson, Tennessee and a second co-channel station to the northwest of Jackson, Tennessee (Station call signs WLX621 and WLX817 respectively (**Exhibit D**)).

The coverage estimation contained herein is predicated entirely on WISPER’s use of unlicensed frequencies. The recent lease agreements for Station’s WLX621 and WLX730 indicate that WISPER and the EBS licensee *intend* to use the licensed spectrum in the near future for the deployment of fixed wireless broadband services (perhaps in addition to the coverage already provided using unlicensed spectrum). CN will continue to monitor the FCC’s database to determine if expansion occurs prior to the next mapping cycle in October 2013.

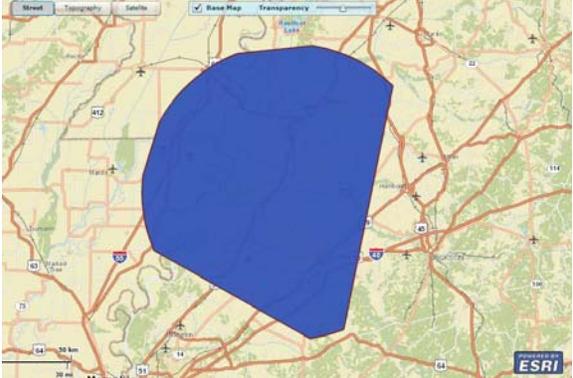
While reviewing the aforementioned lease agreements, CN staff discovered that Lessee/Lessor(s) have filed proposed coverage plans with the FCC for the use of this EBS spectrum.

**Exhibit C: FCC ULS Search; License – Station WQPK327**

MAIN		ADMIN		LOCATIONS	
Call Sign	WQPK327	Radio Service	NN - 3650-3700 MHz		
Status	Active	Auth Type	Regular		
<b>Dates</b>					
Grant	06/12/2012	Expiration	06/12/2022		
Effective	06/12/2012	Cancellation			
<b>Area of Operation: N</b>					
Operating Nationwide including Hawaii, Alaska, and US Territories.					
<b>Frequency Bands</b>					
003650.00000000-003700.00000000					
<b>Licensee</b>					
FRN	0021091053 <a href="#">(View Ownership Filing)</a>	Type	Limited Liability Company		
<b>Licensee</b>					
WISPER, LLC 1398 N Cavalier Drive Alamo, TN 38001 ATTN Mitt Abernathy		P: (731)688-3042 F: (731)664-9750 E: mabernathy@gowisper.com			

## Exhibit D: EBS License Spectrum Leasing Arrangement and Geographic Service Area for Station WLX621

	<b>Federal Communications Commission</b> Wireless Telecommunications Bureau													
Spectrum Leasing Arrangement														
ATTN: THOMAS P. FARRELL EDUCATIONAL BROADBAND CORP. 8602 FRONTGATE LN. INDIANAPOLIS, IN 46256	Date: 07/20/2012 Reference Number: 5413066													
This approval allows the Lessee to lease spectrum from the Licensee pursuant to the provisions and requirements of Subpart X of Part 1 of the Commission's Rules, 47 C.F.R. Part 1, and as described in the associated spectrum leasing application or notification.														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Type of Lease Arrangement</th> <th>Lease Term</th> <th>Lease Identifier</th> </tr> </thead> <tbody> <tr> <td>De Facto Transfer Lease</td> <td>Long Term</td> <td>L000009365</td> </tr> </tbody> </table>	Type of Lease Arrangement	Lease Term	Lease Identifier	De Facto Transfer Lease	Long Term	L000009365	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Lease Grant/Accepted Date</th> <th>Lease Commencement Date</th> <th>Lease Expiration Date</th> </tr> </thead> <tbody> <tr> <td>03/21/2012</td> <td>03/21/2012</td> <td>07/31/2022</td> </tr> </tbody> </table>	Lease Grant/Accepted Date	Lease Commencement Date	Lease Expiration Date	03/21/2012	03/21/2012	07/31/2022	
Type of Lease Arrangement	Lease Term	Lease Identifier												
De Facto Transfer Lease	Long Term	L000009365												
Lease Grant/Accepted Date	Lease Commencement Date	Lease Expiration Date												
03/21/2012	03/21/2012	07/31/2022												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Call Sign</th> <th>Radio Service</th> </tr> </thead> <tbody> <tr> <td>WLX621</td> <td>ED - Educational Broadband Service</td> </tr> </tbody> </table>	Call Sign	Radio Service	WLX621	ED - Educational Broadband Service										
Call Sign	Radio Service													
WLX621	ED - Educational Broadband Service													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Lessee Information</th> </tr> </thead> <tbody> <tr> <td>                             0021091053                              WESPER, LLC                              Attn: GEORGE M. ABERNATHY                              1398 N CAVALIER DRIVE                              ALAMO, TN 38001                         </td> </tr> </tbody> </table>			Lessee Information	0021091053 WESPER, LLC Attn: GEORGE M. ABERNATHY 1398 N CAVALIER DRIVE ALAMO, TN 38001										
Lessee Information														
0021091053 WESPER, LLC Attn: GEORGE M. ABERNATHY 1398 N CAVALIER DRIVE ALAMO, TN 38001														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Licensee Information</th> </tr> </thead> <tbody> <tr> <td>                             0018536633                              EDUCATIONAL BROADBAND CORP.                              Attn: THOMAS F. FARRELL                              8602 FRONTGATE LN.                              INDIANAPOLIS, IN 46256                         </td> </tr> </tbody> </table>			Licensee Information	0018536633 EDUCATIONAL BROADBAND CORP. Attn: THOMAS F. FARRELL 8602 FRONTGATE LN. INDIANAPOLIS, IN 46256										
Licensee Information														
0018536633 EDUCATIONAL BROADBAND CORP. Attn: THOMAS F. FARRELL 8602 FRONTGATE LN. INDIANAPOLIS, IN 46256														
Page 1 of 2		FCC 812 April 2009												



## EBS License Spectrum Leasing Arrangement and Geographic Service Area for Station WLX817



**Federal Communications Commission**  
Wireless Telecommunications Bureau

Spectrum Leasing Arrangement

ATTN: THOMAS P. FARRELL  
EDUCATIONAL BROADBAND CORP.  
8602 FRONTGATE LN.  
INDIANAPOLIS, IN 46256

Date: 03/21/2012  
Reference Number: 5337084

This approval allows the Lessee to lease spectrum from the Licensee pursuant to the provisions and requirements of Subpart X of Part 1 of the Commission's Rules, 47 C.F.R. Part 1, and as described in the associated spectrum leasing application or notification.

Type of Lease Arrangement	Lease Term	Lease Identifier
De Facto Transfer Lease	Long Term	L000009364

Lease Grant/Accepted Date	Lease Commencement Date	Lease Expiration Date
03/21/2012	03/21/2012	02/25/2013

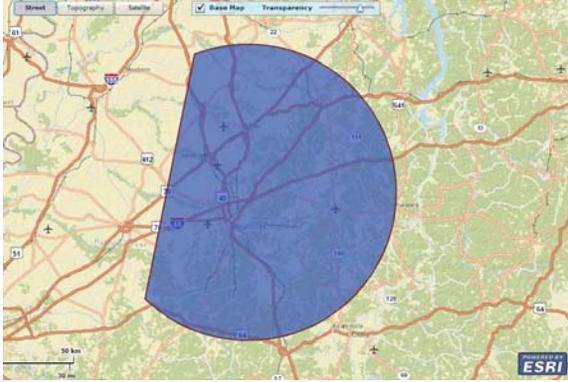
Call Sign	Radio Service
WLX817	ED - Educational Broadband Service

**Lessee Information**

0021091053  
WISPER, LLC  
Attn: GEORGE M. ABERNATHY  
1398 N CAVALIER DRIVE  
ALAMO, TN 38001

**Licensee Information**

0015570633  
EDUCATIONAL BROADBAND CORP.  
Attn: THOMAS P. FARRELL  
8602 FRONTGATE LN.  
INDIANAPOLIS, IN 46256



Page 1 of 2

FCC 812  
April 2009

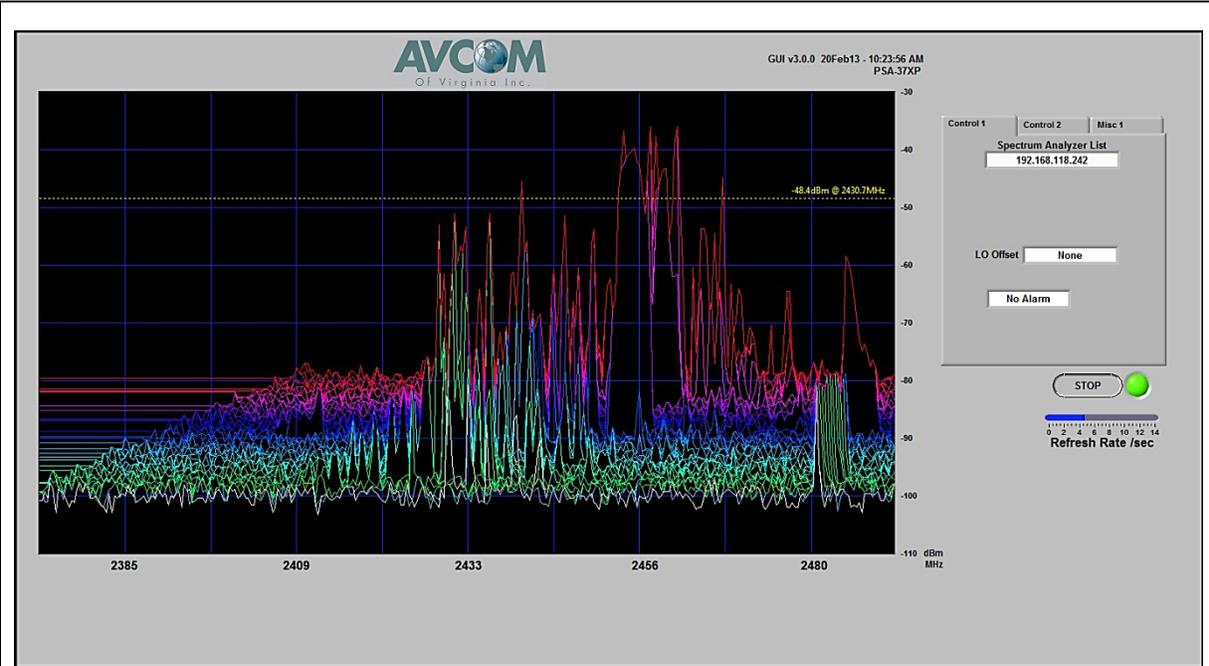
### Preliminary Identification of Provider's Coverage Area

Connected Nation was unable to extract a service area map from the provider's website and began a series of searches on the public domain and conducted on-the-ground research to estimate the WISPER, LLC service area. Due to scarcity of information available pertaining to the provider's coverage, exact coverage area was largely undetermined until visual confirmations and on-site testing were conducted within the greater Alamo, Tennessee area.

### Testing Techniques

Utilizing the information garnered from the FCC ULS database and the FCC Lease search database, Connected Nation determined that it was best to use the WISPER, LLC office as a central starting point for its on-the-ground due diligence. Using the known office location, (35.80886, -89.15583) CN engineers began by logging all visual confirmations of wireless transmit and customer premise equipment to determine which of these were, indeed, a part of WISPER, LLC's footprint. Each test point included a spectrum sweep and analysis using an Avcom PSA-37XP spectrum analyzer with RF detection from 1 MHz to 6 GHz and an array of antennas tuned specifically for the 900 MHz, 2.4 GHz, 3.65 GHz, and 5 GHz frequency bands (**Exhibit E**). Each validation point was then similarly scrutinized for frequency of operation. A screen image of the operating frequency (or frequencies) was captured; general notes were recorded for each location—approximate antenna height, frequency of operation, antenna type (omnidirectional or sectored) and photographs were taken of the access points. (**Exhibit F, Exhibit G**).

## Exhibit E: Actual Spectrum Analyzer Screenshot Sample



**Exhibit F: Supporting Field Validation Points for WISPER**



CPE



Fire Department Transmit Site



Transmit Tower at Gibson Electric



CPE



Crockett High School



“Good News” Transmit Tower

### Exhibit G: Recorded Data for WISPER

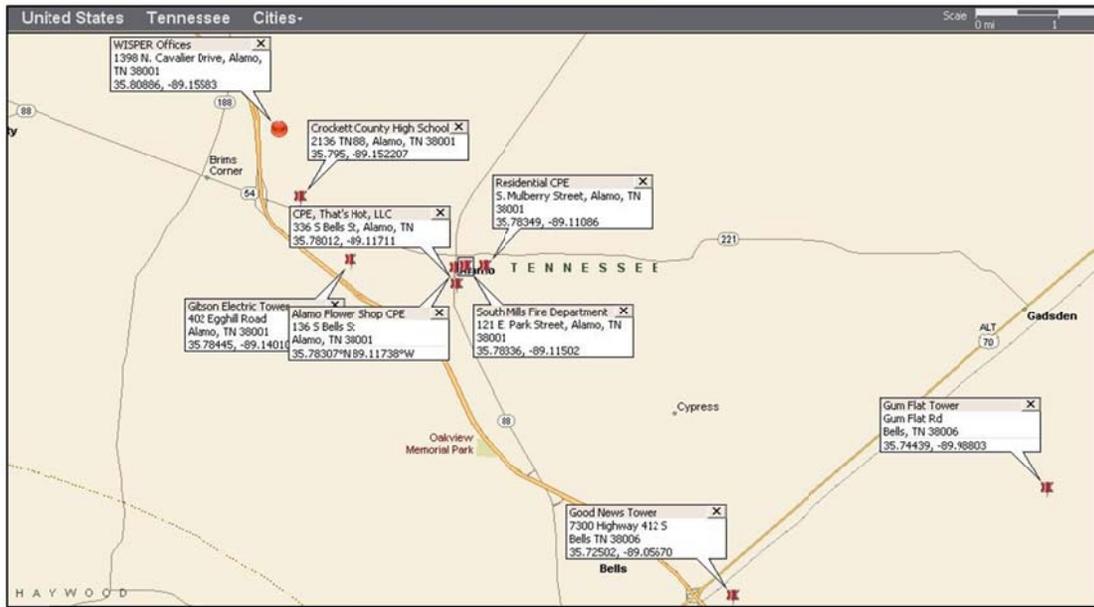
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Site #	Date	Provider	FNN Validat on	Test City	Test State	Test County	Physical Address	Location Description	Engineer	Coordinates		Platform Type		Visual Confirmation		Equipment
										(N) Lat	(W) Long	Type	Presence Confirmed	Type	Images	
1	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	1088 N. Cavalier Drive, Alamo, TN 38001	Provider HQ	CN Staff	35.88886	81.85583	Fixed Wireless	Yes	Sales Office	Yes	Aucom PSA-375P
2	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	77-88 S. Mulberry Street, Alamo, TN 38001	Residential CPE	CN Staff	35.78349	88.10066	Fixed Wireless	Yes	Wall Mounted Equip	Yes	Aucom PSA-375P
3	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	136 Alamo, TN 38001	Flower Shop CPE	CN Staff	35.78307	88.11738	Fixed Wireless	Yes	Wall Mounted Equip	Yes	Aucom PSA-375P
4	2/20/13	WISPER, LLC	Yes	Bells	TN	Crockett	7300 Highway 412 S, Bells, TN 38006	GN Tower	CN Staff	35.72502	88.05671	Fixed Wireless	Yes	Wireless Cell Site	Yes	Aucom PSA-375P
5	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	402 Egghill Road, Alamo, TN 38001	Gibson Electric Tower	CN Staff	35.78445	88.14079	Fixed Wireless	Yes	Wireless Cell Site	Yes	Aucom PSA-375P
6	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	121E Park Street, Alamo, TN 38001	SM Fire Dept.	CN Staff	35.78336	88.15502	Fixed Wireless	Yes	Other	Yes	Aucom PSA-375P
7	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	238 S Bells St, Alamo, TN	Thatshot, LLC CPE	CN Staff	35.78002	88.11719	Fixed Wireless	Yes	Wall Mounted Equip	Yes	Aucom PSA-375P
8	2/20/13	WISPER, LLC	Yes	Alamo	TN	Crockett	2136 TN 88, Alamo, TN 38001	Crockett High School	CN Staff	#REF!	88.15224	Fixed Wireless	Yes	Wall Mounted Equip	Yes	Aucom PSA-375P
9	2/20/13	WISPER, LLC	Yes	Bells	TN	Crockett	Gum Flat Road and PineHills Intersection, Bells, TN	Gum Flat Tower	CN Staff	35.74459	88.88883	Fixed Wireless	Yes	Other		Aucom PSA-375P

### Results and Submission for April 2013

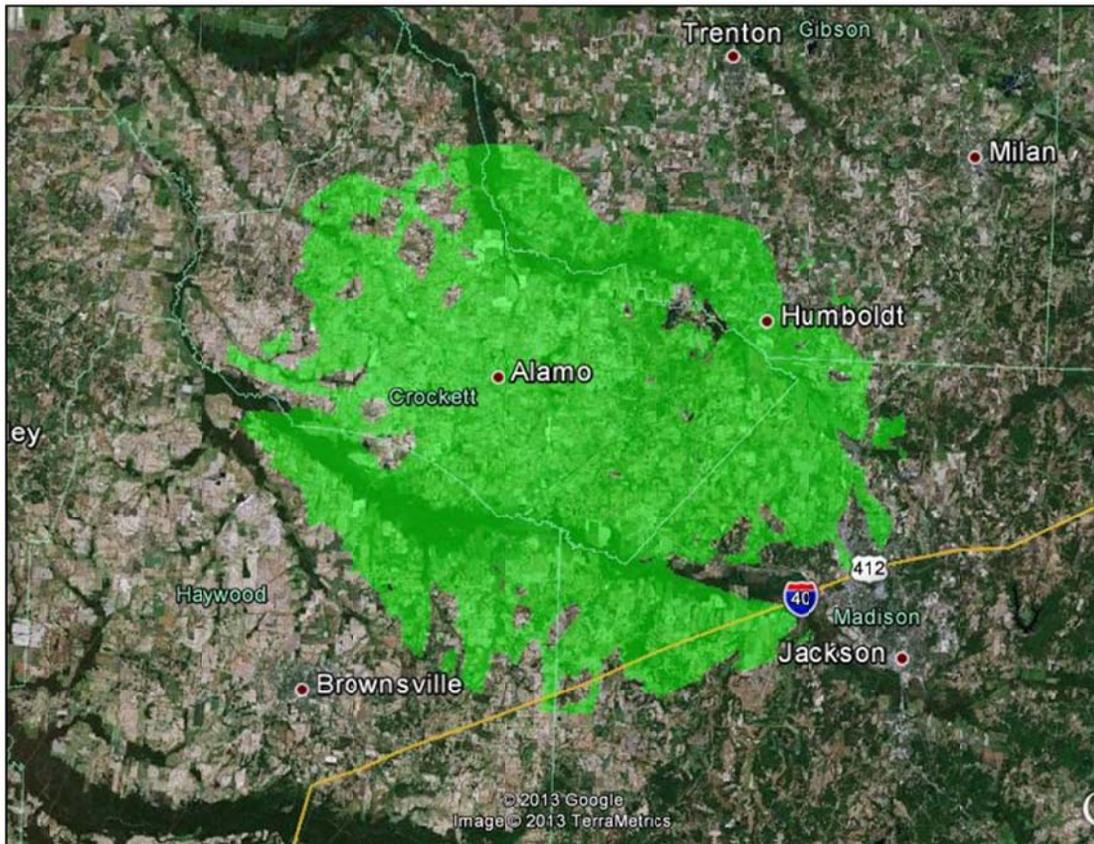
Of the nine locations visited during the validation point route, four access points were identified and relative information was logged into the WISPER, LLC field validation map (**Exhibit H**). The field data, combined with the publicly available data, were transferred to the Connected Nation provider information file. A composite propagation study was completed based on the field data (**Exhibit I**). Both documents were forwarded to WISPER, LLC who was advised that the coverage estimation (along with this document) would be submitted to Connected Tennessee and to the NTIA for the April 2013 broadband mapping project for processing unless the provider notified CN of any discrepancies within a 48-hour period. The provider responded within the 48 hour period and did not dispute the accuracy of the estimated coverage (as presented herein) but stated “We have coverage in Crockett, Haywood, Madison, Lauderdale, Fayette, Hardeman, Chester, McNairy, Henderson, Carroll, Weakley, Henry, Obion, Gibson, Tipton, and Dyer.. We have 128 towers in these counties...our footprint is a lot larger.” The provider, however, did not submit any additional detail, coverage maps or datasheets (at this time).

CN will continue attempts to secure participatory status and involvement from the provider directly and corroborate the additional information mentioned herein for inclusion in future NTIA mapping submission cycles.

### Exhibit H: Field Validation Map Points



### Exhibit I: WISPER, LLC Composite Coverage



**APPENDIX B: BROADBAND PROVIDER LOG**

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## Broadband Provider Log

Complete	109
Non-Responsive/Refused	3
In Progress	3
Reseller Providing Data	0
Count of Datasets by Status	115
Total Unique Providers Represented	86

Provider Name	Platform	Status	NDA Execution Date	Notes
Ardmore Telephone Company Inc	DSL	Data Added to Statewide Inventory	2/16/2010	[FEB-12-13 Frank Aryee] Correction: The different service area speed levels were revised and realigned.
AT&T Inc.	DSL	Data Added to Statewide Inventory	12/16/2009	[MAR-01-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
AT&T Inc.	Mobile Wireless	Data Added to Statewide Inventory	12/16/2009	[FEB-18-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Athena Broadband	Fixed Wireless	Data Added to Statewide Inventory		[MAR-14-13 Frank Aryee] Change: Athena Broadband split away from EnterSource; submitted entirely new dataset with expanded coverage, and higher speeds of tier 7 download in certain areas.
Cable ONE Inc.	Cable	Data Added to Statewide Inventory	12/7/2009	[MAR-12-13 Frank Aryee] Change: Provider expanded coverage to additional areas in Dyer and Crockett Counties. Some coverage were also removed from both counties.
Capshaw Enterprises, LLC	Fixed Wireless	Data Added to Statewide Inventory	10/20/2011	[MAR-12-13 Frank Aryee] Change: Provider activated new towers.
Cellular South Licenses, LLC	Mobile Wireless	Data Added to Statewide Inventory	4/12/2010	[FEB-19-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
CenturyLink	DSL	Data Added to Statewide Inventory	12/4/2009	[FEB-19-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Charter Communications, Inc.	Cable	Data Added to Statewide Inventory	12/15/2009	[FEB-05-13 Frank Aryee] Changes and/or Corrections: possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Frontier Communications Corporation	DSL	Data Added to Statewide Inventory	1/22/2010	[MAR-12-13 Frank Aryee] Change: Provider activated new DSLAMs.
Info-Ed Inc	Fixed Wireless	Data Added to Statewide Inventory	2/9/2010	[MAR-12-13 Frank Aryee] Change: Provider activated four new towers.
James Cable LLC	Cable	Data Added to Statewide Inventory	1/11/2010	[JAN-17-13 Frank Aryee] Change: Provider expanded service to other areas. DBA name is now Mediastream.
JTM Broadband	Fixed Wireless	Data Added to Statewide Inventory		[FEB-13-13 Frank Aryee] Change: Provider activated four new towers. Download speeds were also upgraded to speed tier 5.
Ken-Tenn Wireless, L.L.C.	Fixed Wireless	Data Added to Statewide Inventory	1/25/2010	[MAR-12-13 Frank Aryee] Change: Provider activated four new towers.
Leap Wireless International, Inc.	Mobile Wireless	Data Added to Statewide Inventory	4/6/2010	[FEB-08-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Mediacom Southeast LLC	Cable	Data Added to Statewide Inventory	1/12/2010	[MAR-12-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
MegaPath Corporation	DSL	Data Added to Statewide Inventory	2/15/2010	[MAR-12-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Millington CATV, Inc.	Cable	Data Added to Statewide Inventory	10/19/2009	[JAN-29-13 Frank Aryee] Change: Provider expanded service to additional areas in Tipton County.
Millington CATV, Inc.	DSL	Data Added to Statewide Inventory	10/19/2009	[JAN-29-13 Frank Aryee] Change: Provider removed some coverage in Fayette and Haywood Counties and expanded service to additional areas in Tipton County.
North Central Communications	DSL	Data Added to Statewide Inventory	2/5/2010	[MAR-08-13 Frank Aryee] Change: Provider expanded DSL coverage to include areas covered by its Fiber network. Download speeds has also been upgraded to tier 7.
North Central Communications	Fiber	Data Added to Statewide Inventory	2/5/2010	[MAR-12-13 Frank Aryee] Change: Provider activated new fiber service.

Skycasters	Satellite	Data Added to Statewide Inventory	10/16/2012	[MAR-14-13 Frank Aryee] Correction: Initial submission of provider's coverage, but they were in service previously.
Sprint Nextel Corporation	Mobile Wireless	Data Added to Statewide Inventory	1/14/2010	[FEB-13-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
T-Mobile USA, Inc.	Mobile Wireless	Data Added to Statewide Inventory	1/8/2010	[FEB-15-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
TDS Telecommunications Corporation	DSL	Data Added to Statewide Inventory	1/27/2010	[MAR-01-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
TDS Telecommunications Corporation	Fiber	Data Added to Statewide Inventory	1/27/2010	[MAR-01-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
TEC of Jackson, Inc	Fiber	Data Added to Statewide Inventory	7/29/2010	[MAR-12-13 Frank Aryee] Change: Provider activated new fiber service.
TEC of Jackson, Inc	Fiber	Data Added to Statewide Inventory	7/29/2010	[MAR-12-13 Frank Aryee] Change: Provider activated new fiber service.
TEC of Jackson, Inc	DSL	Data Added to Statewide Inventory	7/29/2010	[MAR-05-13 Sarah Finne] Change: Network expansion (provider installed an additional remote terminal). Also, coverage was recreated to account for multiple speed tiers.
TEC of Jackson, Inc	DSL	Data Added to Statewide Inventory	7/29/2010	[MAR-04-13 Sarah Finne] Change: Provider upgraded infrastructure and can now offer tier 7 download speeds in select areas. Also, dataset has been reprocessed, therefore a small change in coverage is present (a few tiny areas removed).
Time Warner Cable Inc.	Cable	Data Added to Statewide Inventory	12/21/2009	[MAR-12-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Twin Lakes Telephone Cooperative Corporation	DSL	Data Added to Statewide Inventory	1/14/2010	[MAR-08-13 Frank Aryee] Change: Some areas were removed from the existing coverage. Also, Provider upgraded infrastructure and can now offer tier 7 download speeds.
Twin Lakes Telephone Cooperative Corporation	Fiber	Data Added to Statewide Inventory	1/14/2010	[MAR-12-13 Frank Aryee] Change: Provider activated new fiber service.
Twin Lakes Telephone Cooperative Corporation	Fixed Wireless	Data Added to Statewide Inventory	1/14/2010	[MAR-12-13 Frank Aryee] Change: Provider activated two new towers and discontinue use of previous tower.
Ultrahigh-Speed Internet	Fixed Wireless	Data Added to Statewide Inventory	2/23/2010	[MAR-11-13 Frank Aryee] Change: Additional tower was added with a higher speed at tier 6 download.
United States Cellular Corporation	Mobile Wireless	Data Added to Statewide Inventory	2/15/2011	[JAN-29-13 Frank Aryee] Changes and/or Corrections: possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Verizon Communications, Inc.	Mobile Wireless	Data Added to Statewide Inventory	12/14/2009	[FEB-11-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
West Kentucky and Tennessee Telecommunications Cooperative Inc	DSL	Data Added to Statewide Inventory	2/8/2013	[MAR-12-13 Frank Aryee] Change: Provider added coverage and also upgraded infrastructure and can now offer tier 6 download speeds.
West Kentucky and Tennessee Telecommunications Cooperative Inc	Fiber	Data Added to Statewide Inventory	2/8/2013	[MAR-12-13 Frank Aryee] Change: Provider removed coverage in Gibson County and expanded service in Henry County.
Ardmore Telephone Company Inc	Backhaul	Backhaul Provider Only Processing Complete	2/16/2010	
Athena Broadband	Backhaul	Backhaul Provider Only Processing Complete		
Conterra Ultra Broadband, LLC	Backhaul	Backhaul Provider Only Processing Complete		
Level 3 Communications, LLC	Backhaul	Backhaul Provider Only Processing Complete	12/14/2009	
MegaPath Corporation	Backhaul	Backhaul Provider Only Processing Complete	2/15/2010	
T-Mobile USA, Inc.	Backhaul	Backhaul Provider Only Processing Complete	1/8/2010	
Bristol Tennessee Essential Services	Fiber	Speed Only Update; Data Processing Complete	9/1/2010	[FEB-18-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 11 download and upload speeds.
Celina Cable Communications, Inc.	Cable	Speed Only Update; Data Processing Complete	1/15/2010	[FEB-06-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 7 download speeds.
Hughes Network Systems, LLC	Satellite	Speed Only Update; Data Processing Complete	2/5/2010	[MAR-08-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 7 download speeds.
Morristown Utilities Commission	Fiber	Speed Only Update; Data Processing Complete	3/25/2010	[JAN-16-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 10 download speeds.
Tennessee Wireless, LLC	Fixed Wireless	Speed Only Update; Data Processing Complete		[MAR-14-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 7 download speeds. Provider also acquired OrbWireless.net; that service area has been added to the Tennessee Wireless coverage.

Tullahoma Utilities Board	Fiber	Speed Only Update; Data Processing Complete		[FEB-08-13 Frank Aryee] Change: Provider upgraded infrastructure and can now offer tier 10 upload speeds.
TNWEB, LLC	Fixed Wireless	No Update-Estimated Coverage Submitted for Non-Participating Provider		
Wisper, LLC	Fixed Wireless	Estimated Coverage Submitted for Non-Participating Provider	2/22/2011	[MAR-13-13 Frank Aryee] Correction: Provider has not participated to date; coverage submitted was estimated by CN.
Comcast Cable Communications, LLC	Cable	Approval for Update Not Received – Data Still Submitted	12/7/2009	[MAR-01-13 Frank Aryee] Changes and/or Corrections: Possible service expansion or corrections to previous dataset; entirely new dataset provided for April 2013 submission.
Access Cable Television, Inc.	Cable	No Update to Provide		
AT&T Inc.	Backhaul	No Update to Provide	12/16/2009	
Aurora Cable TV	Cable	No Update to Provide	3/12/2010	
Beasley Wireless	Fixed Wireless	No Update to Provide	1/19/2010	
BreezeAir.net	Fixed Wireless	No Update to Provide	8/17/2010	
CenturyLink	Backhaul	No Update to Provide	12/4/2009	
Clearwire Corporation	Mobile Wireless	No Update to Provide	3/3/2010	
Columbia Power & Water Systems	Cable	No Update to Provide		
DeKalb Telephone Cooperative, Inc.	DSL	No Update to Provide	2/24/2010	
DeKalb Telephone Cooperative, Inc.	Fiber	No Update to Provide	2/24/2010	
DeltaCom, Inc.	Backhaul	No Update to Provide	2/16/2010	
ECSIS.NET	Fixed Wireless	No Update to Provide	10/29/2009	
Electric Power Board for the City of Chattanooga	Fiber	No Update to Provide		
ETC Communications, LLC	Cable	No Update to Provide	10/14/2009	
High Country Online LLC	Fixed Wireless	No Update to Provide	3/4/2010	
Highland Telephone Cooperative, Inc.	DSL	No Update to Provide	3/14/2010	
Loretto Telephone Company, Inc.	DSL	No Update to Provide	3/16/2010	
NetEase	Fixed Wireless	No Update to Provide	2/3/2010	
Planet Connect Internet	Fixed Wireless	No Update to Provide		
Pulaski Electric System	Fiber	No Update to Provide	12/30/2009	
QuickRelay Wireless Communications	Fixed Wireless	No Update to Provide		
Skyline Telephone Membership Corporation	Backhaul	No Update to Provide	2/2/2010	
Skyline Telephone Membership Corporation	Fiber	No Update to Provide	2/2/2010	
Spacenet, Inc.	Satellite	No Update to Provide		
Sprint Nextel Corporation	Backhaul	No Update to Provide	1/14/2010	
Surfmore.Net, Inc.	Fixed Wireless	No Update to Provide	1/25/2010	
TDS Telecommunications Corporation	Backhaul	No Update to Provide	1/27/2010	
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010	
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010	
TEC of Jackson, Inc	Backhaul	No Update to Provide	7/29/2010	
TEC of Jackson, Inc	DSL	No Update to Provide	7/29/2010	
tw telecom of tennessee, llc	Backhaul	No Update to Provide	3/31/2010	
ViaSat, Inc.	Satellite	No Update to Provide	1/8/2010	
WideOpenWest Finance, LLC	Cable	No Update to Provide		[MAR-14-13 Frank Aryee] Change: WideOpenWest (WOW) acquired the Knology service area in Tennessee, so data is now being submitted under the WOW name and FRN.
XO Communications, LLC	Backhaul	No Update to Provide	2/12/2010	
Zito Midwest, LLC	Cable	No Update to Provide	2/17/2011	
Ben Lomand Rural Telephone Coop., Inc.	DSL	No Update Provided – Use Last Submission Data	10/21/2009	
Ben Lomand Rural Telephone Coop., Inc.	Fiber	No Update Provided – Use Last Submission Data	10/21/2009	
Bledsoe Telephone Cooperative Inc	DSL	No Update Provided – Use Last Submission Data	1/20/2010	
Clarksville Department of Electricity	Fiber	No Update Provided – Use Last Submission Data		
CRU Enterprises, Inc.	Fixed Wireless	No Update Provided – Use Last Submission Data	2/4/2010	
Fayetteville Public Utilities	Cable	No Update Provided – Use Last Submission Data		
InfoStructure Inc.	Cable	No Update Provided – Use Last Submission Data	10/2/2009	
Iris Networks	Backhaul	No Update Provided – Use Last Submission Data	1/5/2010	
Jackson Energy Authority	Fiber	No Update Provided – Use Last Submission Data	3/17/2010	
Monster Broadband, Inc.	Fixed Wireless	No Update Provided – Use Last Submission Data	11/6/2009	[MAR-25-13 Ashley Hitt] Change: Provider acquired iGiles.net; that service area has been added to the Monster Broadband coverage.
Pickwick Cablevision, Inc.	Cable	No Update Provided – Use Last Submission Data		
Softek, Inc.	Fixed Wireless	No Update Provided – Use Last Submission Data	1/14/2010	[MAR-18-13 Frank Aryee] Provider now declines to participate in the mapping program, so previous dataset is being submitted.
Spirit Broadband	Cable	No Update Provided – Use Last Submission Data	3/29/2010	
TELE-PAGE Inc.	Fixed Wireless	No Update Provided – Use Last Submission Data	1/26/2010	
Trenton TV Cable Company	Cable	No Update Provided – Use Last Submission Data		
United Telephone Company, Inc.	Fiber	No Update Provided – Use Last Submission Data	2/25/2010	

United Telephone Company, Inc.	DSL	No Update Provided – Use Last Submission Data	2/25/2010	
Wave2Wave Communications Inc.	Backhaul	No Update Provided – Use Last Submission Data	4/28/2010	
Windstream Communications	Backhaul	No Update Provided – Use Last Submission Data		
Zayo Group, LLC	Backhaul	No Update Provided – Use Last Submission Data		
Aurora Cable TV	Fixed Wireless	Solicited Initial Data	3/12/2010	
Windstream Communications	Backhaul	Solicited Initial Data		
Highland Telephone Cooperative, Inc.	Fiber	Other	3/14/2010	[MAR-14-13 Frank Arye] Provider indicated that the project is underway and is scheduled to be completed by Q3 2014, with anticipated speeds up to 20 mbps.
Birch Communications, Inc.	Backhaul	Refused to Participate		[JAN-31-13 Erin Flournoy] Connected Tennessee engineering representative received this message via e-mail from provider stating their company declines to participate.
Birch Communications, Inc.	DSL	Refused to Participate		[JAN-31-13 Erin Flournoy] Connected Tennessee engineering representative received this message via e-mail from provider stating their company declines to participate.
Trinity Communications LLC	Cable	Non-Responsive to Multiple Attempts		In addition to multiple contact attempts made during previous mapping submission periods, 5 contact attempts were made this period.