



**BROADMAP**<sup>SM</sup>  
Beyond The Boundaries

# Mississippi Broadband Mapping Project: Product Release White Paper

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Product Specification: Fall 2012 NTIA Data Model  
Product/Process: NTIA—October 1, 2012 Data Deliverable  
Dataset Submission QC: NTIA—SBDD\_CheckSubmission.py



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## OVERVIEW

This white paper highlights the **Submission Summary** for this deliverable, as well as describes the **Data Gathering**, **Data Integration**, **Data Validation and Verification** and **Quality Control** processes used to create the Broadband Mapping Project's October 1<sup>st</sup>, 2012 data submission. To support varying levels of technical and program knowledge, both a **high-level summary** and a **detailed process review** are supplied.

## SUBMISSION SUMMARY

### PROVIDER DETAILS

#### PROVIDER PARTICIPATION

- Provider Participation Statistics Summary

Summary	Count
Total Providers Researched/Contacted (Includes Resellers)	222
Total Valid Broadband Providers	57
Non-Responsive Providers	2
Non-Cooperative Providers	1
Number of Providers – Represented in Data Submission	54
Number of Providers - Supplied Updates for this Submission	42
Number of Providers - Confirmed No Updates	12

- New Providers Since Last Data Submission

- Buford Media Group/Alliance
- Cable TV of Belzoni
- Mediacom
- Ripley Video Cable
- Suddenlink Communications
- Tristate Internet
- Vance Wireless

- Existing Providers – Confirmed No Updates

- Cable One
- Delta Link Inc
- EarthLink Business
- Georgetown Telephone Company Inc.
- HughesNet
- Level 3 Communications, LLC



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- StarBand Communications
- ViaSat, Inc.
- Xfone USA, Inc.
  
- Existing Providers – No Response/No Updates
  - Bailey Cable TV
  - Network Telephone corp.
  - New Edge Network, Inc. (EarthLink)
  
- Providers Included (listed by DBA name)

AT&T Mississippi
Bailey Cable TV
Bruce Telephone Company, Inc.
C Spire Wireless
Cable One
Cable TV Of Belzoni, Inc
CenturyLink
Charter Communications Inc.
Comcast
Covad Communications Company
Cricket Communications, Inc.
Decatur Telephone Co. Inc.
Delta Link Inc
Delta Telephone Co. Inc.
Dixie-Net
EarthLink Business
Firenet1.com
Franklin Telephone Co. Inc.
Frontier Communications of Mississippi, LLC
Fulton Telephone Company, Inc
Georgetown Telephone Company Inc.
GulfPines Communications
HughesNet
InLine
Lakeside Telephone Company Inc.
Level 3 Communications, LLC
Mediacom LLC

Megagate Broadband
MetroCast Communications of Mississippi, LLC
Mound Bayou Telephone and Communications, Inc
NetWireless Solutions LLC
Network Telephone corp.
Noxapater Telephone Company
Ripley Video Cable Co., Inc.
Skycasters
Sledge Telephone Co. Inc.
Smithville Telephone Company, Incorporated
Southern Light LLC
Sprint
StarBand Communications
Suddenlink Communications
TDS Telecom
TEC of Jackson, Inc
Telepak Networks, Inc.
T-Mobile
Tri State Internet, LLC
tw telecom of mississippi llc
Vance Wireless
Verizon Wireless
ViaSat, Inc.
Vicksburg Video, Inc.
Windstream Mississippi LLC
Xfone USA, Inc.
Zayo Group LLC

- Non-Responsive/Non-Cooperative Providers
  - New Edge Network, Inc. (EarthLink)
  
- Providers researched and identified as non-broadband providers can be viewed within the table at the end of this document.





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## **COVERAGE AREA CHANGES**

- Coverage Footprint Reductions/Map Refinement –
  - Covad Communications Company (TT-30)
  - New Edge Networks (TT-30)
    - This coverage was removed as they have been acquired by EarthLink and we're trying to get coverage information from them now.
- DBA Name Change –
  - WildBlue Communications, Inc. has been changed to ViaSat, Inc.
  - Trust Communication has been acquired by Bailey Cable TV.
- Coverage Footprint Expansion –
  - BellSouth/AT&T Mississippi (TT-10)
  - BellSouth/AT&T Mississippi (Introduction of TT-50)
  - AT&T Mobility LLC (TT-80)
  - CenturyLink (TT-10)
  - Charter Communications Inc. (TT-41)
  - Comcast (TT-40)
  - Cricket (TT-80)
  - Delta Telephone Co. Inc. (TT-50)
  - InLine (TT-50)
  - Southern Light LLC (TT-50)
  - TEC (TT\_10)
  - Windstream Mississippi LLC (TT-10)
  - Zayo Group LLC (TT-50)

## **DATA CORRECTIONS**

No data corrections were required for this data submission



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## COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS

### OVERALL STATISTICS

Community Anchor Institution - Categories	Overall Count	CAIID Counts	Broadband Subscriber (1 or 2)	Trans Tech	Advertised Speed Down	Advertised Speed Up
Category 1 - School K through 12	697	277	502	502	502	55
Category 2 - Library	278	234	197	197	197	37
Category 3 - Medical/Healthcare	437	0	243	243	243	136
Category 4 - Public Safety	869	0	136	136	136	93
Category 5 - Universities/Colleges	40	40	0	0	0	0
Category 6 - Other: Government	409	0	335	335	335	142
Category 7 - Other: Non-Government	0	0	0	0	0	0
<b>Total</b>	<b>2730</b>	<b>551</b>	<b>1413</b>	<b>1413</b>	<b>1413</b>	<b>463</b>

### CAI CHANGES

- No significant changes for the CAI layer this round.
- The CAI inventory was reviewed again against the database mentioned below for the following categories: Category 1: K-12 Schools, Category 2: Libraries and Category 5: Colleges  
These databases are as follows:
  - For K-12 institutions (CAI type 1) please add the NCES ID CCD ID value found here:  
<http://nces.ed.gov/ccd/bat/>
  - For Higher Education (CAI type 5) please add the NCES IPEDS ID value found here:  
<http://nces.ed.gov/ipeds/datacenter/>
  - For Libraries (CAI type 2) please. Combine (do not add) "FSCSKey" and "FSCs\_SEQ" from the "puout08av2000" file and place them here:  
<http://harvester.census.gov/imls/data/pls/index.asp> (FYI the LIBID is your state's unique ID for libraries)



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## **SUBMISSION RECEIPT**

### **SUBMISSION RECEIPT RESULTS**

- Attached are the results from the NTIA data submission receipt quality script.



MS\_2012\_9\_21.txt

- Error Report  
All items flagged within the submission receipt were confirmed with the provider. We called each provider that was identified in the warnings due to Technology/Speed matches, and validated again that they were accurate. Some warnings identified were within the NTIA data model as well.

All warnings were commented within the accompanying ReadMe file.

## **HIGH-LEVEL SUMMARY**

### **DATA GATHERING**

#### **BROADBAND SERVICE AREAS, MIDDLE MILE AGGREGATION POINTS AND BROADBAND SERVICE OVERVIEW**

The collection of Broadband Service Areas, Middle Mile Aggregation Points and Broadband Service Overview information is handled through the following Provider Outreach Process:

- Build and maintain an inventory of Broadband providers through currently known providers and research.
- The inventory and everyday interaction with providers is tracked using the Provider Catalog (PCat). Below are some examples of the web application, which has a shared access between our team and mapping partner (BroadMap).



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Company Information		Edit	Clone	History	AAD
Provider Name	acmetech (All)	Source Name	acmetech		
Company Address		Source Description			
Company PO Box		Layer Name	TBD		
Company House Number	12345	Source Usage Type	Tracking		
Company Street Name	Acme Avenue	Source Provider Type	BroadMap		
Company City Name	Portland	Source Content Type			
Company Suite		Source Restrictions	<input type="checkbox"/>		
Company Postal Boundary		Source Restriction Description			
Company State		TT Types	--None--		
Company Website	http://www.acmebroadband.com		Asymmetric xDSL		
Source ID	4999		Symmetric xDSL		
Child Source	<input type="checkbox"/>		Other Copper Wireline		
Parent URL			Cable Modem-DOCSIS 3.0		
Parent Source ID	0		Cable Modem-Other		
User Name			Optical Carrier/Fiber to the End User		
Password			Satellite		
Form 477 Interest	<input type="checkbox"/>	Addr Level Data Provided	<input type="checkbox"/>		
Provider Portal Trained	<input checked="" type="checkbox"/>	Preferred Contact Method			

Contacts							New
Type	Name	Preferred	Phone 1	Phone 2	Email	Position	
P	Sourcing						

FRN Info		
Provider Name	DBA	FRN Number

Confidence				New
TT Type	Confidence	Last Modified	Comment	
Status Tracking				
Non Facilities Based Provider	<input type="checkbox"/>			
Business Only Provider	<input type="checkbox"/>			
Reseller	<input type="checkbox"/>			
NDA Review - Internal	<input type="checkbox"/>			
NDA Review - External	<input type="checkbox"/>			
Non Responsive Provider	<input type="checkbox"/>			
Non Cooperative Provider	<input type="checkbox"/>			
Source Closed	<input type="checkbox"/>			

Service Provider Details	
BroadMapper	--None--
Initial State Outreach Date	
Provider Origin	
BroadMap Status	Unassigned
Initial Contact Vehicle	
Member Association	
Initial State Outreach	<input type="checkbox"/>
NDA Status	--None--
NDA Not Required	<input type="checkbox"/>
NDA Requested	<input type="checkbox"/>
NDA Exchanged	<input type="checkbox"/>
NDA Exchange Date	
NDA Signed	<input type="checkbox"/>
NDA Signed Date	
Date Loaded	
Source Closed Date	

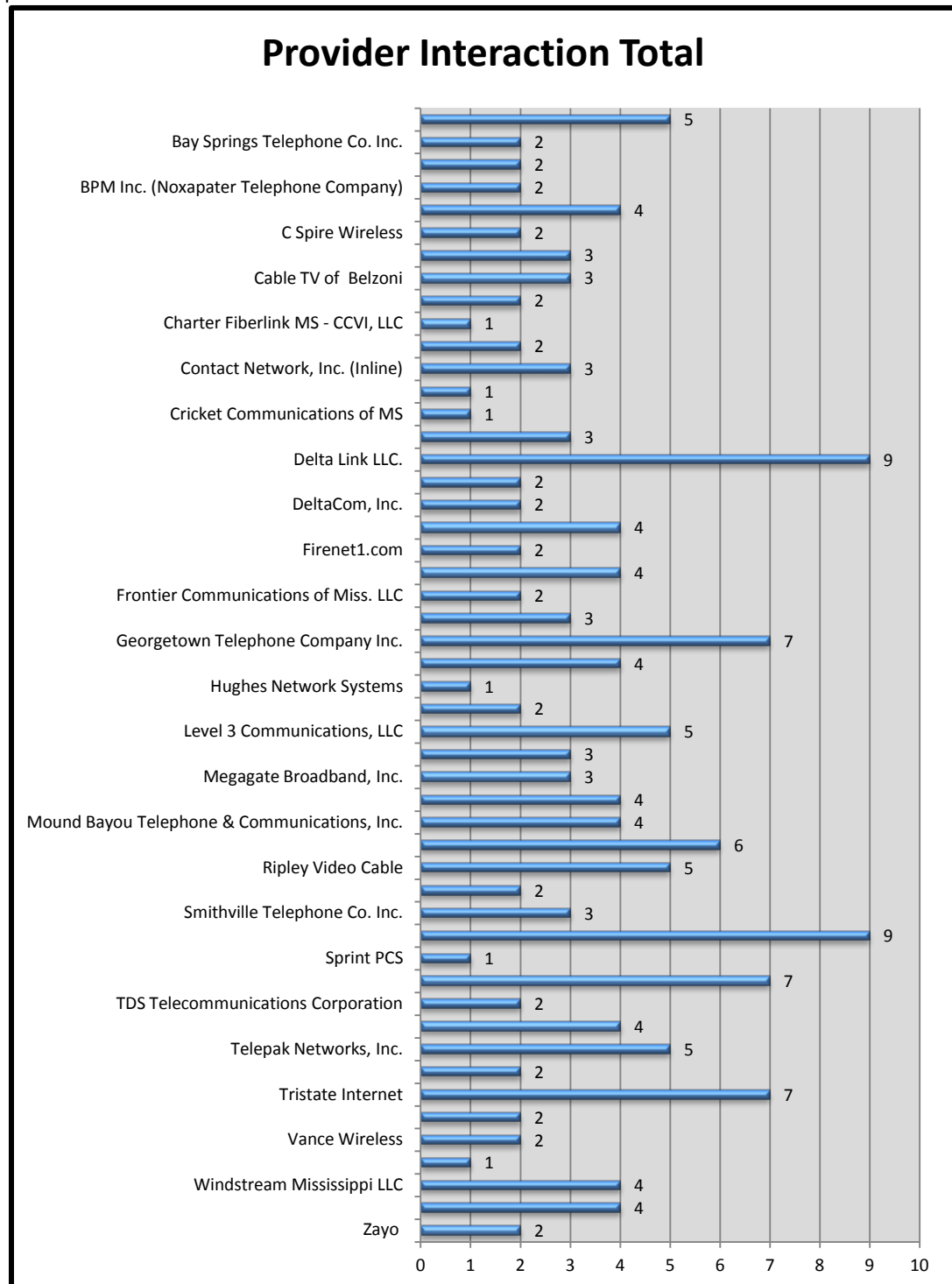
BDIA Delivery 0412		Edit
Status	--None--	
Outreach Date		
Initial Response		
Meeting Date		
No Update Date		
Waiting For Data Date		
Data Received Date		
Data Accepted Date		
Source Ingested		
Provider Data Reviewed	<input type="checkbox"/>	
Provider Data Reviewed Date		
FootPrint		
MiddleMile		
Subscriber		
Provider Login	<input type="checkbox"/>	
Provider Login Date		
Source Ingested Date		

Additional Data	
Notes	
Next Steps	
Inactive	<input type="checkbox"/>
Owner	briordan
Created By	briordan 2011-06-13 12:06:35
Last Modified By	krousseau 2012-03-16 13:41:58



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- In order to encourage participation throughout the life of the program, we feel it's important to foster relationships with the providers and encourage a collaborative team effort between all parties for each data submission. The chart below represents the interaction count with each, by provider name.





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- Update provider material that describes the data requirements and logistics for data transfer.
- Update Non-Disclosure Agreement (NDA) for use in the project, where applicable.
- Maintain multiple protocols for the provider to submit data, including Secure File Transfer Protocol (SFTP) technology when desired.
- Conduct one-on-one informational discussions with each provider to communicate the following:
  - Requirements of this project;
  - Broadband data required to support the product data model;
  - Submission protocols available;
  - Capability to validate how the supplied data is aggregated.
- Download/receive provider data.
- Establish a repeatable process with provider. Maintain provider communication, transaction and data handling records throughout the project (dates contacted, data received, etc.).

### **COMMUNITY ANCHOR INSTITUTION (CAI)**

The collection of CAI information is handled through the following CAI Collection Process:

- Collect and maintain inventory of CAIs through currently known CAIs, data mining, and research.
- Maintain web-based CAI portal for institutions to add or confirm attribution, location and enter broadband-specific information.
- Upload web-based data to Core Database for standardization.
- Perform internal cleansing, such as removing duplicate records, identifying gaps in broadband attribution and verifying category.
- Geocode CAI locations.
- Translate Core Database data to deliverable-ready format.
- Continue engagement with non-responsive institutions.

### **DATA INTEGRATION PROCESS**

The data integration and processing mechanisms currently used allows for multiple types of inputs and result in a standardized output that meets the NTIA deliverable requirements. This flexible process supports data model changes and project-requested enhancements.

- Receive inputs from providers via submission protocols; upload into Sourcing Database and catalog with provider information.
- Review provider-supplied data for completeness and for potential discrepancies that require resolution prior to processing and flag as necessary.
- Categorize input into data-type category (addresses, block lists, paper maps, etc.).
- Standardize input based on data type within Staging Database.
- Create Compact Polygons (CP)—(internal methodology for generating area-based feature for coverage in Staging Database).
- Apply broadband attribution to CP; apply metadata to CP.
- Perform quality analysis of the CP against the source supplied to identify any completeness or accuracy issues.
- Request additional information from the provider if elements of coverage are missing or contain discrepancies. This is a second manual quality check to ensure data is complete.
  - Process coverage area to build the required NTIA data model layers.



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With the deployment of the Provider Portal this round, the data collection and later validation process was streamlined allowing both activities to occur within a secure web application. The majority of the providers used this methodology as it supplies them with more visibility into how their data is being represented and gives them knowledge and ownership of their coverage representation. Below are some bullet points and supporting screen shots on how the portal is used.

- Each provider is assigned credentials with a strong password to ensure security measures are taken into consideration

Login

Username

Password

Login

- Collection and confirmation our contact, as well as the company's DBA Name and FRN accuracy

Contact and Provider Information

Please enter contact information and change provider information if incorrect:

Contact name: \* Kristin Rousseau

Contact E-mail: \* kris.rousseau@broadmap.com

Contact Phone: \* 603-448-4475

Doing Business As (DBA) Name: \* lacmetech

FCC Registration Number (FRN): \* 22222222

Please note the following:

- Contact info will only be stored when a record is saved
- Provider info will be applied to all service areas

- Capability to review and request changes to the coverage footprint

Broadband Provider Portal

Log Out  
Web Application Support  
Provider Support

Service Area Legend

- Service Area
- Selected Service Area
- Provider Added Area
- Provider Removed Area
- Provider Replaced Area

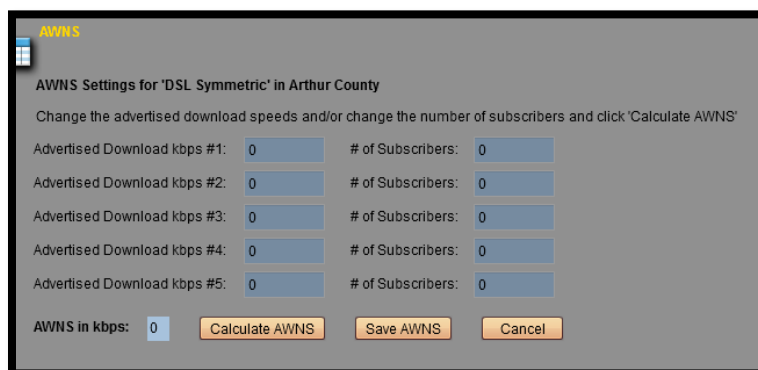
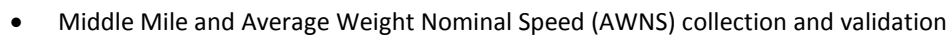
50 km  
30 mi

Select All Zoom to Selected Clear Selection Valid Add Remove Replace Delete Save Edits

Print	Service Area	Transmission Technology	Spectrum	Max Adv Download Speed	Max Adv Upload Speed	Typical Download Speed	Typical Upload Speed	PL
	Arthur	DSL Asymmetric	not applicable	>= 3 mbps and < 6 mbps	>= 1.5 mbps and < 3 mbps	>= 3 mbps and < 6 mbps	> 200 kbps and < 768 kbps	Broad

- The provider can Add/Remove portions, or all, of the footprint requesting that their footprint be increased or refined.





- File upload functionality to support providers that would prefer a shapefile, spreadsheet, PDF, KMZ/KML file be used to reflect changes for the data round







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Welcome ite\_cnmi

1 Choose a file to upload:    (50MB max)

\*Uploading a new file with the same name as an existing file will overwrite the existing file

Uploaded Files

2 Please click here to auto-notify BroadMap of your uploads, thanks.

- Once the provider has review completed changes to their coverage, middle mile and AWNS, then can validate them all by signing off that everything is accurate.

## **DATA VALIDATION AND VERIFICATION**

Following the creation of the product, process steps within Data Validation and Verification occur. To ensure the data collected and processed is as accurate and comprehensive as possible, provider validation and internal verification activities are employed. After the initial mapping of providers' coverage areas and serviceability claims, additional reviews are performed using the methods described in the subsections below in order of action (**Broadband Provider Validation, Third-Party Data Verification, Public Verification, and Confidence Values**).

### **BROADBAND PROVIDER VALIDATION—PROVIDER PORTAL APPLICATION**

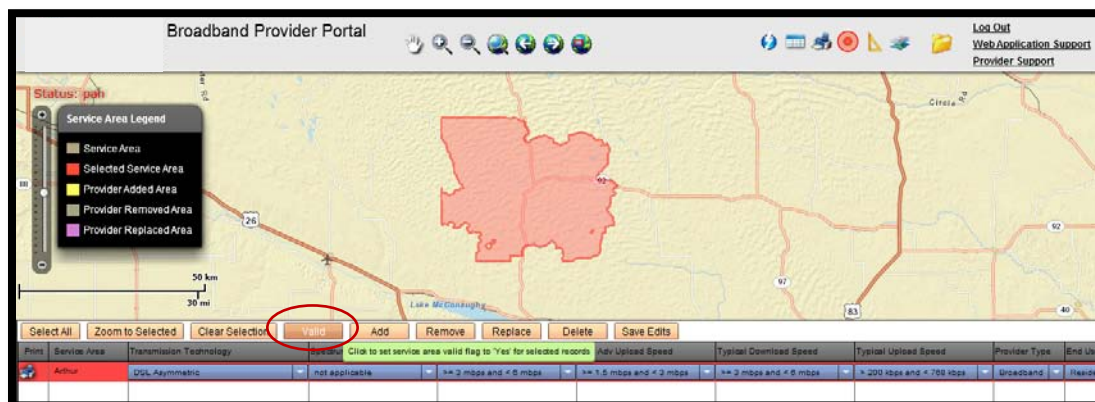
Providers are trained on and requested to use a secure interactive web application to review their current coverage area(s) and supporting broadband attribution and validate their data or submit change requests to update their data. All provider change requests go through the **Data Integration Process** and are reviewed with the provider to complete validation.

With the latest released of the Provider Portal, validation on the coverage area, middle mile and average could be completed individually. Validation examples are as follows:

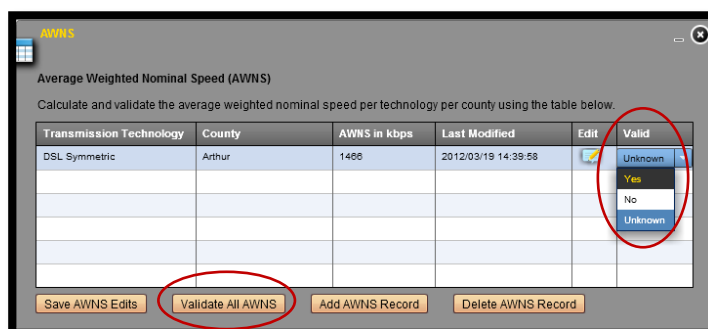
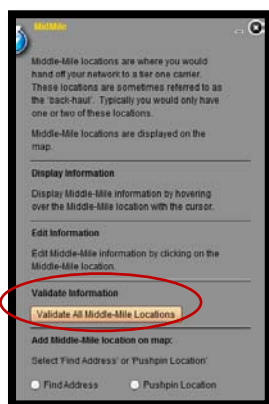
- Coverage validation can be done on one record/footprint at a time or by selecting footprints and selecting the 'Valid' button. The provider could also print off or download their coverage for their own tracking purposes.



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- Middle Mile & AWNS Validation



All validation results are tracked internally through our Validation Table, which also improves the overall **Confidence Value** as mentioned below.

### THIRD-PARTY DATA VERIFICATION

The coverage is visually and programmatically compared against third-party data as new or updated coverage area information is received and ingested from providers. All anomalies identified during this analysis are reviewed with the providers.

3 <sup>rd</sup> Party Source Name	Source Type	Verification Type
Pitney Bowes (PBBi)	Exchange Info Plus (Central Office Locations)	Exchange datasets are used to verify the following Transmission Technologies (TT): Asymmetric xDSL (10), Symmetric xDSL (20), Other Copper Wireline (30), and Optical Carrier/Fiber to the End User (50).
Media Prints	Cable Boundaries	Used to verify the following TT: Cable Modem—DOCSIS 3.0 (40) and Cable Modem—Other (41)
American Roamer	Wireless Coverage	Used to verify the following TT:



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	Patterns (EVDO, GPRS, WISP, HSPA)	Terrestrial Fixed Wireless—Unlicensed (70), Terrestrial Fixed Wireless—Licensed (71) and Terrestrial Mobile Wireless (80)
Comsearch	Wireless Spectrum Holdings and Tower Data	Used to verify the following TT: Terrestrial Fixed Wireless—Unlicensed (70), Terrestrial Fixed Wireless—Licensed (71) and Terrestrial Mobile Wireless (80)

### ***SME PROVIDER COVERAGE VERIFICATION***

Prior to each data submission, a review is completed between the broadband mapping team and broadband subject matter experts. Each coverage footprints is review in detail, including any changes from the previous data submission.

Any questions that arise during this review are brought back to the mapping team for resolution and then signoff. Providers are contacted if the item indented is in response to the initial information they supplied.

### ***PUBLIC VERIFICATION – CROWD SOURCING***

Since the last data submission, we have improved the public website - interactive map to collect more detailed feedback on the represented broadband coverage areas. This data had been reviewed with providers during the outreach phase and during one-on-one provider meetings.

The State website can be reviewed at the following hyperlink:  
<http://msbb.broadmap.com/StateMap/>

### ***CONFIDENCE VALUES***

All verification, validation and manual quality review results are tracked by provider/technology type and stored and maintained within a **Validation table**. A confidence value is assigned, based on internal assessments of the collected information, to highlight the provider coverage areas and/or attributions that would benefit from further investigation and/or enhancements.

With the continued efforts on provider validation, 3<sup>rd</sup> party verification and the release of the public interactive map with feedback collection functionality, the confidence values will be utilized further to identify specific areas in need of attention. We're currently at the initial stages of this initiative, but will have a more complete picture in time for the next data submission.



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## QUALITY CONTROL

Following collection, processing and analysis of the provider and CAI data, the product is checked manually and algorithmically against the NTIA data model. Some of the items included within these checks are:

- Format correctness;
- Table and field structure;
- Valid values, including default values, where applicable;
- Geographic extent and topology errors.

Prior to data submission, another quality control script supplied by NTIA is run. This script, SBDD\_CheckSubmission.py, creates an output in text form that is required to be submitted along with the final deliverable. All errors must come up clean, unless otherwise specified by NTIA.

## DETAILED PROCESS REVIEW

To review the detailed process, please review the attached object:



BMap\_ProcessDetails  
\_2012\_10\_01.docx

## PROVIDERS RESEARCHED

Below is a list of providers that were researched and contacted, but identified as non-broadband providers and didn't require inclusion within the data submission. Some may be due to different naming conventions or inaccurate FRN/DBA names and were therefore considered a closed source.

1-800-RECONEX, INC. -- TC-123-1525-01
SLINX Enterprises Inc. DBA Globalinx
8x8, Inc.
Access Point Inc.
Access Point, Inc. -- TC-123-1518-00
Accessline Communications Corporation
AccuTel of Texas, Inc. -- TC-123-1851-01
ACN Communication Services, Inc. -- TC-123-1793-00
ACN Digital Phone Service, LLC
Airespring, Inc.
Airespring, Inc. -- TC-123-2068-00
ALEC, Inc.
Alternative Phone, Inc.
Alternative Phone, Inc.
American Fiber Network, Inc. -- TC-123-2213-01
Apptix, Inc.

iNetworks Group, Inc. -- TC-123-2297-01
Infinity Networks, Inc. -- TC-123-1984-01
InPhonex.com, LLC
Intellicall Operator Services Inc. -- TC-123-1143-00
Interface Security Systems, LLC
Intrado Communications, Inc.
IP Communications, LLC.
IP Networked Services, Inc.
Kentucky Data Link, Inc. -- TC-123-2123-01
Kosmaz Technologies LLC
Level 3 Communications, LLC -- TC-123-1655-00
LightSquared LP
Lightyear Network Solutions, LLC
M5 Networks, Inc.
Madison River Communications, LLC -- TC-123-1835-01
Matrix Telecom Inc. -- TC-123-1045-00



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Aptela, Inc.	Matrix Telecom, Inc.
AT&T Communications of the South	MCC Telephony of the South, LLC
Baldwin County Internet/DSSI Serv., LLC -- TC-123-2091-01	MCImetro Access Transmission Serv., LLC
Bandwidth.com CLEC, LLC -- TC-123-2262-01	McLeodUSA Telecomm. Services, Inc. -- TC-123-1452-00
BANDWIDTH.COM, INC.	Mediacom Southeast LLC
Bay Springs Communications, Inc. -- TC-123-2147-01	Megagate Broadband, Inc. -- TC-123-1058-02
BellSouth Long Distance, Inc. -- TC-123-1530-00	Metropolitan Telecommun. of MS, Inc. -- TC-123-2174-00
Benchmark Communications, L.L.C. -- TC-123-2185-01	Metropolitan Telecommunications Holding Company
Benchmark Communications, LLC d/b/a Com One	Micro-Comm, Inc. -- TC-123-2084-01
Big River Telephone Company, LLC	Midwestern Telecommunications, Inc
Big River Telephone Company, LLC -- TC-123-1923-00	Millicorp
Birch Communications, Inc.	Mitel NetSolutions, Inc. -- TC-123-2020-00
Birch Telecom of the South, Inc.	Momentum Telecom, Inc
BLC Management LLC	Momentum Telecom, Inc. -- TC-123-1927-01
BLC Management LLC -- TC-123-2110-00	Navigator Telecommunications LLC
Broadstar, LLC	Network Telephone Corporation -- TC-123-1609-00
Broadview Networks, Inc. -- TC-123-2263-00	Network USA, LLC
Broadvox-CLEC, LLC -- TC-123-2299-00	Neutral Tandem-Mississippi, LLC -- TC-123-2236-00
BroadvoxGo!, LLC	New Edge Network, Inc.
Broadwing Communications, LLC	Nextg Networks of Illinois, Inc.
Broadwing Communications, LLC -- TC-123-2047-00	NextGen Communications, Inc.
Budget Prepay, Inc. -- TC-123-1668-01	Nexus Communication, Inc. dba TSI
Budget PrePay, Inc. d/b/a Budget Phone	Nexus Communications, Inc.
BullsEye Telecom, Inc.	nexVortex, Inc.
Business Telecom Inc. -- TC-123-1152-00	Norlight, Inc. -- TC-123-2247-01
Cable tv of Belzoni Inc.	Norris Telecom, LLC -- TC-123-2056-01
Call Catchers Inc.	NOS Communications Inc. -- TC-123-1316-00
Callis Communications, Inc.	NOS Communications, Inc.
Callis Communications, Inc. -- TC-123-2227-01	Ojo Service LLC
Cause Based Commerce Incorporated	OnWav, Inc
Cellco Partnership	Phone.com, LLC
Cellular South, Inc. -- TC-123-0900-04	PNG Telecommunications, Inc. -- TC-123-1716-00
CenturyTel Acquisition LLC	Proximiti Technologies, Inc.
Centurytel Fiber Company, II, LLC -- TC-123-2155-01	Quality Telephone, Inc.
CenturyTel Solutions, LLC -- TC-123-1748-01	QuantumShift Communications, Inc.
Charter Fiberlink MS - CCVI, LLC	Qwest Communications Company, LLC
Cincinnati Bell Any Distance, Inc. -- TC-123-2094-00	Razorline LLC
Columbia Telecommunications, Inc.	RING CONNECTION, INC.
Comcast Phone of Mississippi, LLC -- TC-123-2196-01	Ring Connection, Inc. -- TC-123-1995-01
CommPartners, LLC	Ripley Video Cable, Inc.
Communication Lines, Inc.	RNK, Inc.
ConnectMe, L.L.C.	Rosebud Telephone, LLC
Contact Network, Inc. -- TC-123-1993-01	Select Connect Communications, LLC -- TC-123-1986-00
Covista, Inc. -- TC-123-1646-00	SinglePipe Communications
Credit Loans, Inc. -- TC-123-1742-01	Smartresort Co, LLC dba Beyond Communications
Crexendo Business Solutions, Inc. -- TC-123-2329-00	Southern Communications Services, Inc., d/b/a Southern LINC
Cypress Communications, Inc.	Southern Light, L.L.C. -- TC-123-2118-00
DAVCO, INC. -- TC-123-1449-01	Southern Telecommunications Co. LLC -- TC-123-1600-01
DeltaCom, Inc. -- TC-123-1076-00	Spectrotel, Inc. -- TC-123-2159-01
Dialog Telecommunications Inc.	Sprint Communications Company L.P.
Dialog Telecommunications, Inc. -- TC-123-2070-01	Stratos Offshore Services Company
Diamond Telephone Services, Inc.	Suddenlink
DIECA Communications, Inc. -- TC-123-1775-01	Suddenlink Communications
Dixie Net Communications, Inc. -- TC-123-1634-01	Talk America Inc.
Dixie-Net Fiber, Inc. -- TC-123-2026-01	TC Systems, Inc.
dPI Teleconnect, L.L.C.	TEC of Jackson, Inc. -- TC-123-0820-00
DSLnet Communications, LLC -- TC-123-1679-01	TecInfo Communications, LLC -- TC-123-2050-01
ECR Voice, LLC	TecInfo, Inc



**BROADMAP**<sup>SM</sup>  
Beyond The Boundaries

EnTelegent Solutions, Inc.
Equinox, Inc.
Ernest Communications, Inc.
Etan Industries
EveryCall Communications, Inc.
EveryCall Communications, Inc. -- TC-123-2131-01
Evolve IP, LLC
Excel Home Phone, Inc.
Express Phone Service, Inc.
Fast Phones, Inc.
Fionda VOIP, LLC
Florida Multi-Media Services, Inc
Four Star Marketing, LLC -- TC-123-2324-00
France Telecom Corporate Solutions, LLC
Frontier Communications of America, Inc. -- TC-123-1853-01
Global Capacity Direct, LLC -- TC-123-2188-01
Global Capacity Group, Inc. -- TC-123-2259-01
Global Connection Inc. of America
GLOBAL CROSSING TELECOMMUNICATIONS, INC.
Go-Tel, LLC
GRANITE TELECOMMUNICATIONS LLC
Granite Telecommunications, LLC -- TC-123-2000-01
GreatCall, Inc.
GulfPines Communications, LLC -- TC-123-1664-01
Hypercube Telecom, LLC -- TC-123-1921-01
iCore Networks, Inc.
IDT America Corporation -- TC-123-1253-00
IDT Corporation
Image Access, Inc. -- TC-123-1638-01
iNETWORKS GROUP, INC

TelCove Operations, LLC
Telepak Networks, Inc. -- TC-123-1741-01
Telesphere Networks Ltd.
Tellan Network Technologies, Inc. DBA: VoIPnet Technologies
Tennessee Telephone Service, LLC -- TC-123-2125-01
Tennessee Telephone Service, LLC d/b/a Freedom Communications USA, LLC
The Other Phone Company, Inc. -- TC-123-1612-01
Thinking Phone Networks, LLC
Trans National Commun. Internat'l, Inc. -- TC-123-1750-00
Trans National Communications International, Inc.
tw telecom of mississippi llc -- TC-123-1991-01
UCN, Inc. -- TC-123-2052-00
Universal Telecom, Inc.
US LEC of Tennessee Inc., d/b/a PAETEC Business Services
US LEC of Tennessee Inc. -- TC-123-1720-00
Velocity Networks Inc
Velocity The Greatest Phone Co. Ever Inc -- TC-123-2312-00
VoIPStreet, Inc.
Vonage Holdings Corp.
Wave2Wave Communications Inc.
WEHCO Video, Inc.
Wholesale Carrier Services, Inc. -- TC-123-1992-00
WiMacTel, Inc.
Windstream NuVox, Inc. -- TC-123-1606-00
WirelessLand Technologies, Inc.
XFone USA, Inc. -- TC-123-2121-01
XO Communications, LLC
YMax Communications Corp. -- TC-123-2203-01
Zayo Enterprise Networks, LLC