



BROADMAPSM
Beyond The Boundaries

Nebraska Broadband Mapping Project: Product Release White Paper

Contact Name Manager: Mike Hybl
Contact Phone Number: 402-471-0211
Contact E-mail: mike.hybl@nebraska.gov

Submitted By: Shana Knutson
Contact Phone Number: 402-471-0232
Contact E-mail: shana.knutson@nebraska.gov

Technical Lead: Don Gray
Contact Phone Number: 402-471-0242
Contact E-mail: don.gray@nebraska.gov

Product Specification: Spring 2012 NTIA Data Model
Product/Process: NTIA—April 1, 2012 Data Deliverable
Dataset Submission QC: NTIA—SBDD_CheckSubmission.py



BROADMAPSM
Beyond The Boundaries

Table of Contents

OVERVIEW 3

SUBMISSION SUMMARY 3

PROVIDER DETAILS 3

 PROVIDER PARTICIPATION 3

 PROCESS CHANGES 4

 COVERAGE AREA CHANGES 6

 DATA CORRECTIONS 8

COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS 8

 OVERALL STATISTICS 8

 CAI CHANGES 9

SUBMISSION RECEIPT 10

 SUBMISSION RECEIPT RESULTS 10

HIGH-LEVEL SUMMARY 11

DATA GATHERING 11

 BROADBAND SERVICE AREAS, MIDDLE MILE AGGREGATION POINTS AND BROADBAND SERVICE OVERVIEW 11

 COMMUNITY ANCHOR INSTITUTION (CAI) 14

DATA INTEGRATION PROCESS 15

DATA VALIDATION AND VERIFICATION 18

 BROADBAND PROVIDER VALIDATION—PROVIDER PORTAL APPLICATION 18

 THIRD-PARTY DATA VERIFICATION 19

 PUBLIC VERIFICATION – CROWD SOURCING 19

 CONFIDENCE VALUES 20

QUALITY CONTROL 20

DETAILED PROCESS REVIEW 20

PROVIDERS RESEARCHED 21



BROADMAP
Beyond The Boundaries

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 April 1, 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	168
Total Valid Broadband Providers	80
Providers in Research Phase	11
Non-Responsive Providers	0
Non-Cooperative Providers	1
Number of Providers - Supplied Updates for this Submission	63
Number of Providers - Confirmed No Updates	5

- New Providers Since Last Data Submission
 - Cable One, Inc.
 - Nebraska Technology & Telecommunications, Inc. (NT&T)
 - Skycasters
 - StarBand Communications Inc.
 - Telebeep Wireless
 - US Cellular
 - WildBlue Communications Inc.
- Non-Responsive/Non-Cooperative Providers
 - Wire Free Nebraska, Inc./Community Internet Systems, Inc.



BROADMAPSM
Beyond The Boundaries

- Providers that Supplied Coverage Updates

AIS
Allo Communications
Arapahoe Telephone Company
AT&T Corp.
Blue Valley Telecommunications, Inc.
BWTelcom
C and R Electronics / Action Communications
Cable One, Inc.
Century Link
Charter Communications
Consolidated Telco, Inc.
Cozad Telephone Company
Cricket Communications, Inc.
Dalton Telephone Company, Inc.
Diode Communications/Diller
Fibercomm L.C.
Fort Randall Cable Systems, Inc
Frontier Communications Of Nebraska
Glenwood Telephone
Golden West Telecommunications Cooperative, Inc.
Great Plains Communications, Inc.

Gryphon Wireless, L.L.C.
Hamilton Telephone Company/Nedelco
Hartelco
Hartman Telephone Exchanges, Inc.
Hershey Cooperative Telephone Company
Huntel, Inc.
Internet Nebraska Corporation
K & M Telephone Company, Inc.
Key Art Comm., Inc
Long Lines Siouxland, LLC
Mainstay Communications
Mobius Communications Company
Nebraska Central Telephone Co. (NCTC)
Nebraska Link
Nebraska Technology & Telecommunications, Inc. (NT&T)
Northeast Nebraska Telephone Company
Orbitcom, Inc.
PC Telcom
Pierce Telephone Co Inc
Pinpoint Communications Inc.
Plainview Tel Co.

Rural Telephone Service Company, Inc.
Skycasters
Southeast Nebraska Communications
Sprint Nextel Corporation
Stanton Telecom, Inc.
StarBand Communications Inc.
Ste Wireless, Inc.
Superior Inet
Swiftel Communications
Telebeep Wireless
Three River Telco
Time Warner Cable
Unite Private Networks, LLC
US Cellular
USA Communications, L.L.C.
Verizon Wireless
Vistabeam
Wauneta Telephone Company
Westel Systems/Hooper
WildBlue Communications Inc.
Zayo Bandwidth Northwest Inc

- Existing Providers – No Updates
 - ABS Computer Headquarters LLC
 - Cox Communications
 - Level 3
 - New Edge Networks (EarthLink)
 - Windstream

- Providers researched and identified as non-broadband providers can be viewed within the table at the end of this document.

PROCESS CHANGES

For this data submission, there was a broadband mapping partner change that naturally led to overall process changes. Below are some bullet points on the process changes, as well as some detail on the benefits of these changes:

- Removal of Address Point Layer
 - You will notice in this data submission that there is the absence of address points as opposed to previously deliverables. **This is by design** and largely due to the many complaints regarding the quality and accuracy of the coverage maps. These complaints have been coming from the service provider community, internal planning teams, as well as the general public. We believe the



BROADMAPSM
Beyond The Boundaries

process in which the address points were collected and presented had serious limitations which limited the accurate representation of the appropriate coverage areas that our service providers can provision broadband services to. To that end, we have engaged with our new vendor (BroadMap) for this round and are utilizing a polygonal approach to the mapping of broadband service provider coverage areas. These in turn are being represented in the census block and wireless coverage areas per the latest data model. We believe this will yield the most accurate results and set the baseline for our mapping effort going forward. Once we have stabilized the coverage areas, we will again look to potentially incorporate address points in future deliverables when and where appropriate.

- Introduced Provider Catalog (PCat) web application
 - This application allows all members of the team (both State and BroadMap) to review the detailed information that tracks all provider interactions, including dates on both the outreach efforts and the completion of data collection, validation and verification. This information is especially helpful when there may be more than a one-to-one relationship with a provider and the team.
- Provider Portal Deployment
 - Introducing the Provider Portal allowed each provider to review their service area coverage as it existed for the fall 2011 data submission, and then request modifications through a graphical interface. Since the previous coverage was represented as the fall 2011 data model, census blocks and streets, we worked with each provider to enhance their coverage representation to a more granular level that would then be stored within the internal core model.
 - As evidenced by provider feedback and participation the providers have certainly embraced the portal as it supplies them with the capability to review their coverage at a granular level using an interactive map. They can easily identify where expansion or refinement is required to ensure the representation of their service areas is accurate.
 - Of the 63 providers that provided new data for the spring 2012 submittal, 52 received training on the provider portal and 44 providers actively used the portal to review their coverage, supply updates and validate the final aggregated coverage.
- Implementation of Internal Core Data Model
 - As mentioned above, the internal model allows for a more granular depiction of a provider's coverage area by aggregating the data they supplied into polygonal representing their full coverage. This data can then be refined or increased, where needed, using the provider portal to reflect their accurate coverage and then extracted into the NTIA data model for data submission.



BROADMAPSM
Beyond The Boundaries

COVERAGE AREA CHANGES

- Coverage Footprint Reductions/Map Refinement -
 - Allo Communications (TT-50)
 - Applied Communications Technology, Inc (TT-41)
 - Atcjet.net LLC (TT-70)
 - CenturyLink (TT-10)
 - Diode Communications (TT-70)
 - Superior Inet (TT-70)
 - Fibercomm L.C. (TT-71)
 - Glenwood Telecommunications Inc (TT-70 and TT-71)
 - Great Plains Broadband, Inc. (TT-41)
 - Great Plains Communications, Inc. (TT-10)
 - Fort Randall Cable Systems, Inc (TT-10)
 - Hartelco (TT-50)
 - Mainstay Communications (TT-10 and TT-50)
 - Huntel Cablevision (TT-41)
 - Huntel Communications (TT-41)
 - K & M Telephone Company, Inc. (TT-10)
 - Cricket Communications, Inc. (TT-80)
 - Mobius Communications Company (TT-10 and TT-41)
 - Hamilton.net, Inc. (TT-10, TT-70 and TT-71)
 - Clarks Telecom (TT-50)
 - Northeast Nebraska Telephone Company (TT-10)
 - Orbitcom, Inc. (TT-10)
 - Pinpoint Communications Inc. (TT-10 and TT-41)
 - Nebraska Central Telephone Co. (TT-10)
 - Three River Communications, LLC (TT-10)
 - Three River Digital (TT-41)

- Technology Changes/Additions -
 - Charter Communications Inc. and Time Warner Cable – Upgraded some of their TT-41 coverage to TT-40

- Coverage Footprint Expansion –
 - AT&T Mobility LLC (TT-80)
 - ATC Communications (TT-10)
 - BWTelcom (TT-10 and TT-50)
 - Verizon Wireles (TT-80)
 - Charter Communications (TT-40)
 - Frontier Communications Of Nebraska (TT-10)
 - Consolidated Telco, Inc. (TT-10)
 - Consolidated Telecom, Inc. (TT-10)
 - Consolidated Telephone Company (TT-10 and TT-50)
 - Curtis Telephone Company, Inc. (TT-10)



BROADMAPSM
Beyond The Boundaries

- Cozad Telephone Company (TT-10)
- Diode Communications (TT-10 and TT-41)
- Fibercomm L.C. (TT-10)
- Glenwood Telecommunications Inc (TT-41)
- Glenwood Telephone (TT-50)
- Golden West Telecommunications Cooperative, Inc. (TT-10 and TT-50)
- Great Plains Communications, Inc. (TT-50)
- Hartelco (TT-10)
- Hartman Telephone Exchanges, Inc. (TT-10 and TT-50)
- Hershey Cooperative Telephone Company (TT-10)
- Westel Systems (TT-10)
- Huntel Cablevision (TT-70)
- Huntel, Inc. (TT-10)
- Vistabeam (TT-70)
- K & M Telephone Company, Inc. (TT-20 and TT-50)
- Key Art Comm., Inc (TT-10)
- Long Lines Siouxland, LLC (TT-50)
- Mobius Communications Company (TT-50)
- Dalton Telecommunications Inc. (TT-10)
- Pierce Telephone Co Inc (TT-10)
- Cambridge Telephone Company (TT-50)
- Rural Telephone Service Company, Inc. (TT-10)
- STE Wireless, Inc. (TT-70)
- Southeast Nebraska Communications (TT-10)
- Stanton Telecom, Inc. (TT-50)
- Three River Telco (TT-10 and TT-50)
- Unite Private Networks, LLC (TT-50)
- Wauneta Telephone Company (TT-10 and TT-50)



BROADMAPSM
Beyond The Boundaries

DATA CORRECTIONS

- Per NTIA's guidance on 02/21/12, we updated all Verizon speed data to support the business rules they laid out.

~~

All grantees should then apply the following business rule, as some of the speed ranges fall into two tiers:

3G Speeds:

Maximum and Typical download speed: 600 kbps to 1.4 Mbps (Speed Tier 3: 768 kbps – 1.5 Mbps)

Maximum and Typical upload speed: 500 kbps to 800 kbps (Speed Tier 2: 200 – 768 kbps)

4G LTE Speeds:

Max Adv Download Speed: 12 Mbps (Speed Tier 7: 10 Mbps – 25 Mbps)

Max Adv Upload Speed: 5 Mbps (Speed Tier 5: 3 Mbps – 6 Mbps)

Typical download speed: 8.5 Mbps (Speed Tier 6: 6 Mbps – 10 Mbps)

Typical upload speed: 2 Mbps to 5 Mbps (Speed Tier 5: 3 Mbps – 6 Mbps)

- The NTIA 3rd Party data review and summary were also compared to the product prior data submission and no changes were required. The Technology/Speed tier differences highlighted were reviewed with the providers and corrected, where needed.

COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS

OVERALL STATISTICS

Community Anchor Institution - Categories	Overall Count	Broadband Subscriber (Yes)	Trans Tech	Advertised Speed Down	Advertised Speed Up
Category 1 - School K through 12	1497	1114	1119	1120	1117
Category 2 - Library	93	91	92	92	92
Category 3 - Medical/Healthcare	162	155	155	155	155
Category 4 - Public Safety	130	124	130	130	130
Category 5 - Universities/Colleges	162	136	131	136	136
Category 6 - Other: Government	349	330	348	348	348
Category 7 - Other: Non-Government	134	132	134	134	134
Total	2,527	2,082	2,109	2,115	2,112



BROADMAPSM
Beyond The Boundaries

CAI CHANGES

- The amount of CAI's and broadband information increased since the last data submission based on information supplied directly from providers stating they specifically supply service to that individual CAI.
- There were 1,725 CAI's within the following categories, that were reviewed against the below-mentioned databases to identify if any CAIID's need to be updated or added.
 - 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)



BROADMAPSM
Beyond The Boundaries

SUBMISSION RECEIPT

SUBMISSION RECEIPT RESULTS

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



NE_2012_04_01.txt

- Error Report
 - The only items flagged in the submission receipt output are as follows, which has been verified as correct entries within the data submission. Please see the ReadMe text file for more details.
 - The exceptions NTIA noted during the 03/27/12 webinar are as follows:
 - Middle Mile Elevation Fails
 - Middle Mile Latitude/Longitude Fails
 - Middle Mile Ownership Fails
 - Address SpeetTier Fails
 - CAI Transtech Fail

Hyperlinks to Grantee Workspace in which the same issues were identified by other Grantees:

<https://sbdd-granteeworkspace.pbworks.com/w/page/50162555/December%202011%20Data%20Package%20Issues>

<https://sbdd-granteeworkspace.pbworks.com/w/file/49939449/December%202011%20Submission.zip>



BROADMAP
Beyond The Boundaries

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).

The screenshot displays a web application interface for managing provider information. The main section is titled "Company Information" and contains a form with various fields. A dropdown menu for "TT Types" is open, showing options like "Asymmetric xDSL" and "Symmetric xDSL". Below the form is a "Contacts" table with columns for Type, Name, Preferred, Phone 1, Phone 2, Email, and Position. At the bottom, there is an "FRN Info" section with fields for Provider Name and FRN Number.

Company Information		Edit Clone History	
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	NE	TT Types	<ul style="list-style-type: none"> -None- Asymmetric xDSL Symmetric xDSL Other Copper Wireline Cable Modem-DOCSIS 3.0 Cable Modem-Other Optical Carrier/Fiber to the End User Satellite
Company Website	http://www.acmebroadband.com		
Source ID	4999		
Child Source	<input type="checkbox"/>		
Parent URL			
Parent Source ID	0		
User Name			
Password		Addr Level Data Provided	<input type="checkbox"/>
Form 477 Interest	<input type="checkbox"/>	Preferred Contact Method	
Provider Portal Trained	<input checked="" type="checkbox"/>		
Contacts		New	
Type	Name	Preferred	Phone 1
P	Sourcing		Phone 2
			Email
			Position
FRN Info			
Provider Name	DBA	FRN Number	



BROADMAPSM
Beyond The Boundaries

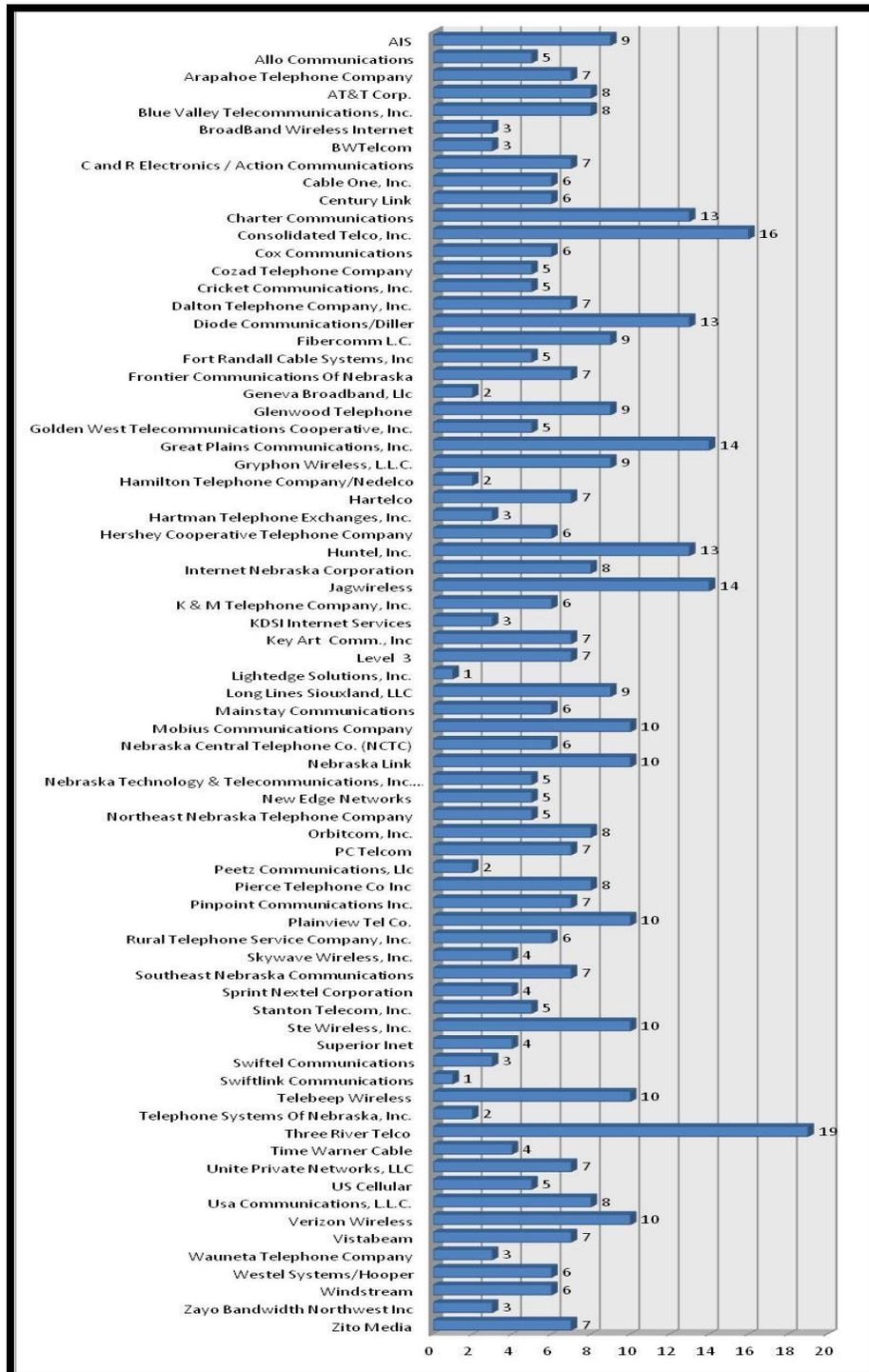
Confidence				New
TT Type	Confidence	Last Modified	Comment	
Status Tracking				
Non Facilities Based Provider	<input type="checkbox"/>			
Business Only Provider	<input type="checkbox"/>			
Reseller	<input type="checkbox"/>		Non Responsive Provider	<input type="checkbox"/>
NDA Review - Internal	<input type="checkbox"/>		Non Cooperative Provider	<input type="checkbox"/>
NDA Review - External	<input type="checkbox"/>		Source Closed	<input type="checkbox"/>
Service Provider Details				
BroadMapper	--None--		BroadMap Status	Unassigned
Initial State Outreach Date			Initial Contact Vehicle	
Provider Origin			Member Association	
			Initial State Outreach	<input type="checkbox"/>
			NDA Status	--None--
			NDA Not Required	<input type="checkbox"/>
Provider Packet Exchanged	<input type="checkbox"/>		NDA Requested	<input type="checkbox"/>
Provider Packet Info Sent			NDA Exchanged	<input type="checkbox"/>
Provider Meeting Status	--None--		NDA Exchange Date	
Technical Meeting Requested	<input type="checkbox"/>		NDA Signed	<input type="checkbox"/>
Technical Meeting Scheduled	<input type="checkbox"/>		NDA Signed Date	
Number of Subscribers			Date Loaded	
			Source Closed Date	

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



BROADMAPSM
Beyond The Boundaries

- To encourage participation throughout the life of the program, we feel it's important to foster relationships with providers and encourage a collaborative team effort between all parties for each data submission. The following table represents the number of times each provider was contacted via e-mail or phone for this data submission.



- Update provider material that describes the data requirements and logistics for data transfer.



BROADMAPSM
Beyond The Boundaries

- 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.
- In the upcoming months, one of the statewide semi-monthly webinars produced by the Planning team is scheduled and will focus on CAI engagement, education on the program, and use of the CAI Portal. The broadband planning and mapping teams are working together to present material on the overall broadband program, benefits, and importance on CAI involvement.



BROADMAP
Beyond The Boundaries

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.

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

- 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: *

Contact E-mail: *

Contact Phone: *

Doing Business As (DBA) Name: *

FCC Registration Number (FRN): *

Please note the following:

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



BROADMAP
Beyond The Boundaries

- Capability to review and request changes to the coverage footprint

Nebraska Broadband Provider Portal
acmetech NE
acmetech NE

Service Area Legend

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

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	Provider Type
	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	Broadband

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

Nebraska Broadband Provider Portal
acmetech NE
acmetech NE

Status: pan

Service Area Legend

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

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	Provider Type
	Provider removed on Mon Mar 19 15:03:35	Other	not applicable	Unknown	Unknown	Unknown	Unknown	Broadband
	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	Broadband



BROADMAP
Beyond The Boundaries

- Middle Mile and Average Weight Nominal Speed (AWNS) collection and validation

The screenshot shows the 'Nebraska Broadband Provider Portal' interface. A map displays service areas, and a 'Middle-Mile Information Editor' dialog box is open. The dialog box contains the following fields:

- Ownership: Owned
- Back-haul Capacity: Greater than or equal to 2
- Back-haul Type: Fiber
- Elevation (feet): -9999
- State Location: NE
- Location Valid: Unknown

Buttons for 'Save Edits' and 'Delete Location' are visible at the bottom of the dialog. Below the map is a table with columns for Service Area, Transmission Technology, Spectrum, Max Adv Download Speed, Max Adv Upload Speed, and Typical Download Speed. The 'Arthur' service area is highlighted in red.

The screenshot shows the 'AWNS Settings' dialog box for 'DSL Symmetric' in Arthur County. The title is 'AWNS Settings for 'DSL Symmetric' in Arthur County'. Below the title, it says 'Change the advertised download speeds and/or change the number of subscribers and click 'Calculate AWNS''. There are five rows of input fields for 'Advertised Download kbps' and '# of Subscribers', all currently set to 0. At the bottom, there are buttons for 'Calculate AWNS', 'Save AWNS', and 'Cancel'. A 'Print' button is also visible in the top left corner.

- 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



The screenshot shows a file upload interface. It starts with a 'Welcome' message. Below that, there is a section for file upload with a '1 Choose a file to upload:' label, a 'Browse...' button, and an 'Upload File (50MB max)' button. A red asterisk note below says '*Uploading a new file with the same name as an existing file will overwrite the existing file'. Below the upload section is an 'Uploaded Files' section. At the bottom right, there is a 'Please click here to auto-notify BroadMap of your uploads, thanks.' link and a 'Logout' button.



BROADMAPSM
Beyond The Boundaries

- Once the provider has reviewed the completed changes to their coverage, middle mile and AWNS, they can then 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:

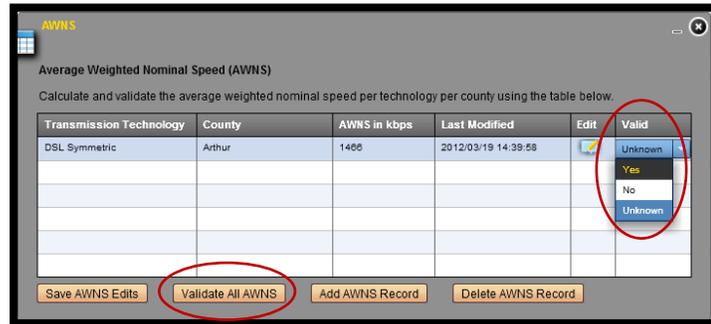
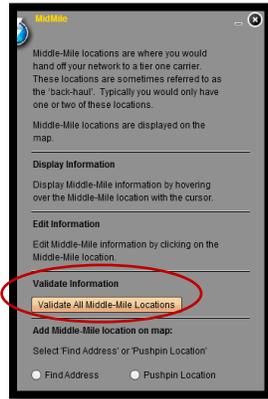
- Coverage validation can be done on one record/footprint at a time or by selecting footprints and selecting the 'Valid' button. The provider could also print off or download their coverage for their own tracking purposes.

Print	Service Area	Transmission Technology	Speed	Adv Upload Speed	Typical Download Speed	Typical Upload Speed	Provider Type	End Use
	Arthur	DSL Asymmetric	not applicable	>= 3 mbps and < 6 mbps	>= 1.5 mbps and < 3 mbps	>= 3 mbps and < 6 mbps	Broadband	Reside



BROADMAP
Beyond The Boundaries

- 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

Due to a change in mapping partners, the focus for this data submission was placed on implementing an improved process methodology and integrating provider's coverage areas into a new internal model. Included in these efforts was educating the providers on the new process, encouraging continued participation and supporting their validation prior to the data submission.

For this submission, the NTIA 3rd Party Data summary was reviewed to ensure any corrections required were represented in the final product and the supporting documentation.

This submission was also compared to the previous data submission, fall 2011, as a quality check to identify and resolve any potential erroneous discrepancies between the two products. Since they originated from two different processes, we wanted to ensure there were no unexpected changes or regression.

PUBLIC VERIFICATION – CROWD SOURCING

The collection and use of public feedback on provider coverage areas is planned for deployment soon after the spring data submission. An updated version of the State public interactive map will be released with enhanced feedback capability, which can then be brought to the provider for potential map refinement.



BROADMAPSM
Beyond The Boundaries

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, 3rd 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.

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.

List of errors within the script, which will be listed as exceptions, can be found on PB Works – Grantee Workspace at the following link:

<https://sbdd-granteeworkspace.pbworks.com/w/page/50162555/December%202011%20Data%20Package%20Issues>

<https://sbdd-granteeworkspace.pbworks.com/w/file/49939449/December%202011%20Submission.zip>

DETAILED PROCESS REVIEW

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



BMap_ProcessDetails
_20120401.pdf



BROADMAP
Beyond The Boundaries

PROVIDERS RESEARCHED

Below is a list of providers we are still in the process of researching or closing NDA and data collection efforts:

- BroadBand Wireless Internet
- Geneva Broadband, Llc
- Jagwireless
- KDSI Internet Services
- Kentec Communications, Inc
- Lightedge Solutions, Inc.
- Peetz Communications, Llc
- Skywave Wireless, Inc.
- Swiftlink Communications
- Telephone Systems Of Nebraska, Inc.
- Zito Media

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.

ACN Communication Services, Inc.	Mcleodusa Telecommunications Services, Inc.
ACN Digital Phone Service Llc	Mettel
Airnex Communications	MilliCorp
Antilles Wireless Llc	Mobius Communications Compnay
Antilles Wireless, LLC	Nebraska Supercomm, L.L.C.
Arlington Telephone Company	Network Innovations, Inc.
Blair Telephone Company	New Cingular Wireless Services Inc.
BT Communications Sales, L.L.C.	New Global Telecom, Inc.
C & R Electronics	Nextel Boost West, LLC
Cable Nebraska Llc	Nextel Partners
Cable Nebraska, LLC.	NYECom Teleservices
Cable USA III DbA RCOM, L.L.C.	Rcom, LLC
Chase 3000, Inc.	Rcom, LLC
Citistream Communications, Inc.	Rivtel Networks Inc.
Computer Concepts, Inc.	Rock County Telephone Company
Connecting Point	Sdn Communications
Consolidated Telecom Inc	Sioux City Msa Limited Partnership
Consolidated Telephone Company	Skytel
Cricket Communications, Inc.	Speakerbus Networks, Inc.
Dark Fiber Solutions, Inc.	Sprint Communications Company L.P.
Deltathree, Inc.	Sprint Pcs
Digital Isp Group, Inc.	Swifttel Communications
Dslnet Communications, Llc	TCG Omaha
Eastern Nebraska Telephone Company	Three River Communications, LLC
Embarq, Centurylink	Three River Digital Cable, L.L.C.
Flying J Communications	Total Call Mobile, Inc.



BROADMAPSM
Beyond The Boundaries

Flying J Communications	Tracfone Wireless, Inc.
Future Technologies	Tracy Corporation II
Global Connection Inc. Of America	Tracy Corporation II
Global Crossing Telecommunications, Inc.	Tw Telecom Holdings Inc.
Globalstar Usa, LLC	United American Technology, Inc.
Granite Telecommunications, L.L.C.	V-Global Communications, LLC
Indigo Wireless	Verizon Wireless
Indigo Wireless	Westel Systems
Inventive Wireless of Nebraska, LLC	Wholesale Carrier Services, Inc.
It Communications, LLC	Witel Communications, LLC.
Kentucky Data Link, Inc.	Windbreak Cable
LH Telecom	Wire Free Nebraska, Inc/Community Internet
Mainstay Communications	WWC License LLC
Matrix Business Technologies	Ztar Mobile, Inc.
McLeodUSA Telecommunications Services Inc.	