

Oregon Broadband Mapping Project Methodology

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Product Specification: Fall 2012 NTIA Data Model
Product/Process: NTIA—Oct 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 Oregon Broadband Mapping Project's October 1, 2012 data submission. To support varying levels of technical and program knowledge, both a **process summary** and a **process review** are supplied.

SUBMISSION SUMMARY

PROVIDER DETAILS

PROVIDER PARTICIPATION

- Provider Participation Statistics Summary

Summary	Count
Total Providers Researched/Contacted	449
Total Valid Broadband Providers	108
Non-Responsive Providers	13
Non-Cooperative Providers	08
Number of Providers - Supplied Updates for this Submission	55
Number of Providers - Confirmed No Updates	31
Will Provide Data	1

- New Providers since Last Data Submission (5)
 - Blue Mountain Cable
 - PrineTIME Internet Solutions
 - Safelink Internet Services
 - Silver Star
 - Wallowa Valley Networks





- Existing Providers – No Updates (31)
 - Ashland Fiber Network
 - BendBroadband
 - Cableone
 - Cal – Ore Communications Inc.
 - Cascade Networks, Inc.
 - Coltontel
 - Helixtel.com
 - Integra Telecom
 - J & N Cable Systems, Inc.
 - Molalla Communications Company
 - Monitor Cooperative Telephone Company
 - Nehalem Telecommunications Inc.
 - North-State Telephone Co.
 - Oregon-Idaho Utilities, Inc.
 - PEAK Internet
 - Molalla Communications Company
 - Webformix Company
 - St Paul Telephone
 - PocketiNet Communications Inc
 - QualityLife Intergovernmental Agency
 - Reliance Connects
 - Skycasters
 - St Paul Telephone.
 - Stephouse Networks
 - U.S. Cellular
 - UnwiredWest LLC
 - Upward Access
 - Wave Broadband
 - Webformix Company
 - Whiz To Coho, Inc.
 - XO Communications Services, Inc





• Providers Included (listed by Provider and Holding Company name) by DBA

Air Speed LLC	Gervais Telephone Company	Quantum Communications
Alyrica	Gorge Networks	Reliance Connects
Ashland Fiber Network	Helixtel.com	Rio Networks
AT&T Corp, Inc.	HughesNet	Roome Telecommunications Inc.
AT&T Mobility LLC	Hunter Communications, INC	Rural Technology Group
Axxis Communications	Integra Telecom	Safelink Internet Services
Beaver Creek Telephone Company	J & N Cable Systems, Inc.	SandyNet
BendBroadband	Level 3 Communications, LLC	SawNet
BendTel	LS Networks	SCIO Mutual Telephone
Blue Mountain Cable	MegaPath Corporation	SCS Communications
Cableone	Meritel Group, Inc	Silver Star Telecom
Cal-Ore Communications Inc.	MINet	Skycasters
Canby Telcom	Molalla Communications Company	Sprint
Cascade Networks, Inc.	Monitor Cooperative Telephone Company	St Paul Telephone
CenturyLink	Monroe Telephone	StarBand Communications
CHARTER COMMUNICATIONS INC.	Mount Angel Telephone Company	Stayton Cooperative Telephone Company
City of Cascade-Locks	Rural Network services Inc.	Stephouse Networks
Clear Creek Mutual Telephone Company	Nehalem Telecommunications Inc.	TDS Telecom
Clearwire	NextGen Internet Systems, Inc.	T-Mobile
CoastCom, Inc	Nextnet Ventures, LLC	Tnet Broadband
Cogent Communications Group	North-State Telephone Co.	TW Telecom of Oregon LLC
Coinet	OnlineNW	U.S. Cellular
Coltontel	ORBITCOM	UnwiredWest LLC
Comcast	ORCA Communications	Upward Access
Communications Access Cooperative Holding Enterprise	Oregon Telephone Corporation	Verizon Wireless
Comspan Communications, Inc.	OregonFAST.net	Vertex SSX Corporation
Country Vision Cable	Oregon-Idaho Utilities, Inc.	ViaSat, Inc.
Crestview Cable Communications	PEAK Internet	Wallowa Valley Networks
Cricket Communications, Inc.	Pendleton Fiber Company	WarmSprings Telecommunications Co.
Douglas Fast Net	People's Telephone Company	Wave Broadband
Eagle Telephone System, INC	Pine Telephone Systems, Inc.	Webformix Company
EarthLink Business	Pioneer Telephone Cooperative	Whiz To Coho, Inc.
Eastern Oregon Telecom	PocketiNet Communications Inc	WTech Link
EONI.com	Preferred Connections Inc. NW	X5 PDX, LLC
Freewire Broadband LLC	PrineTIME Internet Solutions	XO Communications Services, Inc. (Affiliated Entity)
Frontier Communications Northwest Inc.	Qnect.net	Yellowknife Wireless Company, LLC
Frontier Communications of Oregon	QualityLife Intergovernmental Agency	Zayo Group LLC





- Non-Responsive Providers (13)
 - Air Speed LLC
 - City of Cascade - Locks
 - Crestview Cable Communications
 - EarthLink Buisness
 - Freewire Broadband LLC
 - HughesNet
 - Level 3 Communications, LLC
 - OregonFAST.net
 - Qnect.net
 - Quantum Communications
 - Rio Networks
 - SawNet
 - Yellowknife Wireless Company, LLC

- Non-Cooperative Providers (8)
 - BendTel
 - Cogent Communications Group
 - Meritel Group, Inc.
 - NextGen Internet Systems, Inc
 - X5 PDX, LLC
 - Next Ventures, LLC
 - Vertex Ventures
 - StarBand Communications

- Other Provider Changes

Name Changes

Covad Communications Company - now identified as MegaPath Corporation

New Edge Networks - now identified as EarthLink Business

WildBlue Communications, Inc. - now identified as ViaSat Communications

Acquisitions and merges

AboveNet Communications Inc. acquired by Zayo Group LLC

Chambers Cable acquired by BendBroadband

Additional providers identified as non-broadband this round

Orbitcom

Coinet

Preferred Connections Inc. NW

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





COVERAGE AREA CHANGES

- Coverage Footprint Reductions/Map Refinement –
 - Alyrica (TT-10)
 - Canby Telcom (TT-50)
 - Charter Communications Inc. (TT-41)
 - Cricket Communications, Inc. (TT-80)
 - Eastern Oregon Telecom (TT-10)
 - Eastern Oregon Telecom (TT-70)
 - New Edge (TT-30)
 - TDS Telecom (TT-10)
 - T-Mobile (TT-80)
 - Verizon Wireless (TT-80)
- Technology Changes/Additions –
 - BendBroadband. – New TT-41 coverage
 - Eagle Telephone Systems, INC. – New TT - 50 coverage
 - Eagle Telephone Systems, INC. – New TT - 10 coverage
 - EONI – New TT-70 coverage
 - EONI – New TT-71 coverage
 - ORCA – New TT-10 coverage
 - WarmSprings Telecommunications Co. – New TT-70 coverage
- Coverage Footprint Expansion –
 - Charter Communications, Inc (TT-40)
 - CoastCom, Inc (TT-50)
 - Douglas Fast Net (TT-10)
 - Douglas Fast Net (TT-50)
 - Eastern Oregon Telecom (TT-50)
 - Frontier Communications Northwest Inc. (TT-10)
 - George Networks (TT-70)
 - Gervais Telephone Company (TT-50)
 - LS Network (TT-30)
 - LS Network (TT-50)
 - OnlineNW (TT-71)
 - ORCA Communications (TT-50)
 - Pendleton Fiber Company (TT-50)
 - Rural Technology Group (TT-70)
 - TW Telecom of Oregon LLC (TT-30)





COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS

OVERALL STATISTICS

Community Anchor Institution - Categories	Overall Count	Broadband Subscriber (1 or 2)	Trans Tech	Advertised Speed Down	Advertised Speed Up
Category 1 - School K through 12	1615	361	351	317	317
Category 2 - Library	189	185	185	177	177
Category 3 - Medical/Healthcare	323	22	10	10	9
Category 4 - Public Safety	1136	239	115	66	66
Category 5 - Universities/Colleges	69	38	37	34	34
Category 6 - Other: Government	227	37	219	28	28
Category 7 - Other: Non-Government	19	3	2	1	1
Total	3578	885	919	633	632

Total CAI records: 3,578

Broadband Service - Yes	885	24%
Broadband Service - Unknown	2,693	75%

Broadband Service - Yes

Unknown Technology Type	154	17%
Unknown Speed	225	8%
Download Speed = Upload Speed	630	71%

Public Wi-Fi Unknown	97%
CAI with CAIID	31%
Libraries with No CAIID	3%

CAI CHANGES

- Library CAI IDs have been updated with Oregon specific identifiers.
- Medical and Health Care facilities have been cleaned up. Removing duplicate data and adding new facilities.





PROCESS REVIEW

1. Provider Outreach and Data Collection

Data is collected from identified broadband ISPs via a process of e-mail notifications and telephone interactions designed to achieve the maximum number of positive responses. ISPs can supply data and/or updates in a number formats via the following communication channels: mail, e-mail, and web applications (provider portal and file upload tool).

2. Data Ingestion and Processing

Acquired data enter a recursive multi-stage editing, validation and verification process until all parties are satisfied that the data is a good representation of both the ISP service area and level of service. Automated scripts run nightly that capture updates posted by an ISP and publish completed updates to the provider portal web application for further provider review.

3. Reporting

At the close of each data collection period all ISP and CAI data is passed through a set of automated processes that parse the geospatial data into the format required for NTIA submission, flag potential data errors and generate associate tabular reports. The final outputs are combined into a single archive file for submission via the Broadband State Data Management Tool hosted by the FCC.

* Process Review Diagram, sections reference below numbered diagram (pg.10)





* Process Review Diagram, sections reference above numbered paragraphs (pg.9):





PROCESS 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.

BDIA Delivery 0412 Edit

Status --None-- Provider Data Reviewed ☐

Outreach Date Provider Data Reviewed Date

Initial Response FootPrint

Meeting Date MiddleMile

No Update Date Subscriber

Waiting For Data Date Provider Login ☐

Data Received Date Provider Login Date

Data Accepted Date

Source Ingested Source Ingested Date

Additional Data

Notes

Next Steps

Inactive ☐ Owner

Created By Last Modified By

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

Company City Name Portland Source Content Type

Company Suite Source Restrictions ☐

Company Postal Boundary Source Restriction Description

Company State TT Types

Company Website http://www.acmebroadband.com

Source ID 4999

Child Source ☐

Parent URL

Parent Source ID 0

User Name

Password

Form 477 Interest ☐

Provider Portal Trained ☒

Addr Level Data Provided ☐

Preferred Contact Method

Contacts New

Type	Name	Preferred	Phone 1	Phone 2	Email	Position
P	Sourcing					

FRN Info

Provider Name	DBA	FRN Number
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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"/>
			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	

- 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 Upload Protocol 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.
- Communicate with Oregon State departments to acquire CAI data.





DATA INTEGRATION PROCESS

The data integration and processing mechanisms currently used allow 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 BB Mapping Database.
- Create Compact Polygons (CP)—(internal methodology for generating area-based feature for coverage in BB Mapping 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.
- Post data to the provider portal web application for provider review and validation.
- 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.
 - o Process coverage area to build the required NTIA data model layers.

With the deployment of the Provider Portal, 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 of 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):

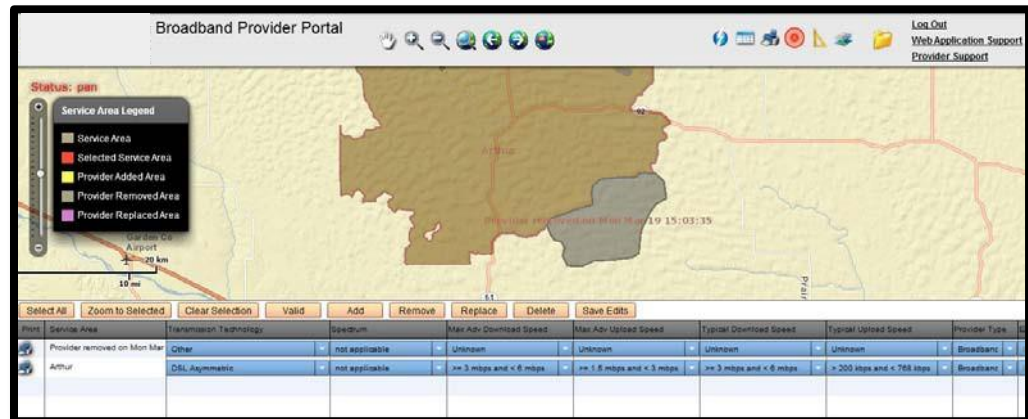
Please note the following:

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

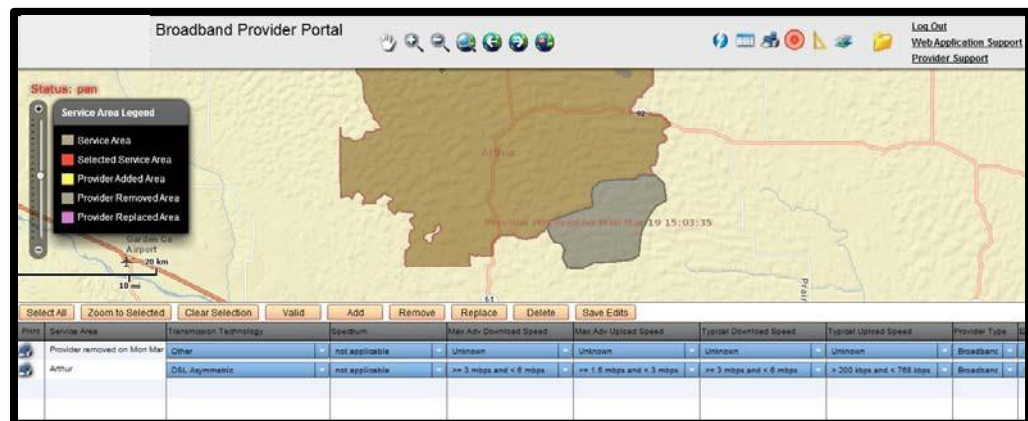




- Capability to review and request changes to the coverage footprint



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





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

Broadband Provider Portal

Status: Click to select pushpin

Service Area Legend

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

Middle Mile Information Editor

Ownership: Back-haul Capacity: Back-haul Type: Elevation (feet): State Location: Location Valid:

Service Area	Transmission Technology	Bandwidth	Max Adv Download Speed	Max Adv Upload Speed	Typical Download Speed
Arthur	DSL Asymmetric	not applicable	are 3 mbps and < 6 mbps	are 1.5 mbps and < 3 mbps	are 3 mbps and < 6 mbps

Display Information

Display Middle-Mile information by hovering over the Middle-Mile location with the cursor.

Edit Information

Edit Middle-Mile information by clicking on the Middle-Mile location.

Validate Information

Add Middle-Mile location on map:

Select Find Address or Pushpin Location

☐ Find Address ☐ Pushpin Location

AWNS

AWNS Settings for 'DSL Symmetric' in Arthur County

Change the advertised download speeds and/or change the number of subscribers and click 'Calculate AWNS'

Advertised Download kbps #1: # of Subscribers:

Advertised Download kbps #2: # of Subscribers:

Advertised Download kbps #3: # of Subscribers:

Advertised Download kbps #4: # of Subscribers:

Advertised Download kbps #5: # of Subscribers:

AWNS in kbps:

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



Broadband File Upload Log In

Username:

Password:

Please enter your login information

- Once the provider has reviewed and/or completed changes to their coverage, middle mile and AWNS, they may validate by selecting the validate field for each feature.

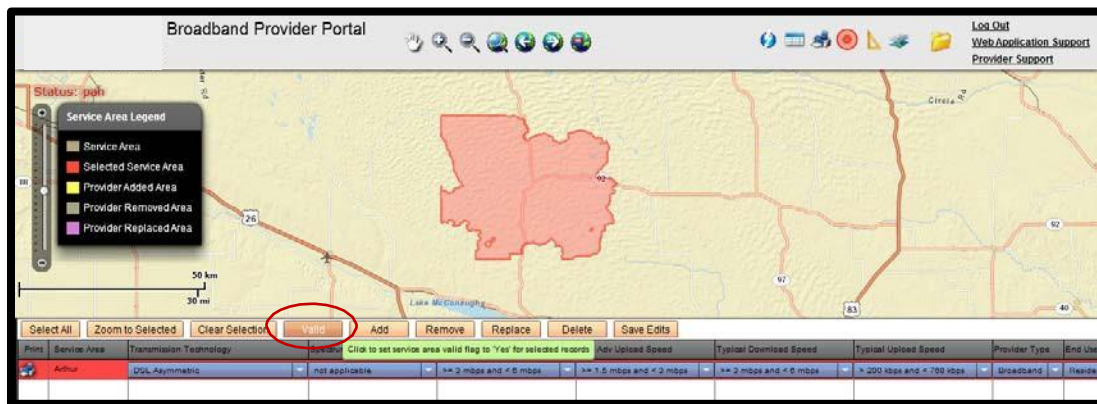


DATA VALIDATION AND VERIFICATION

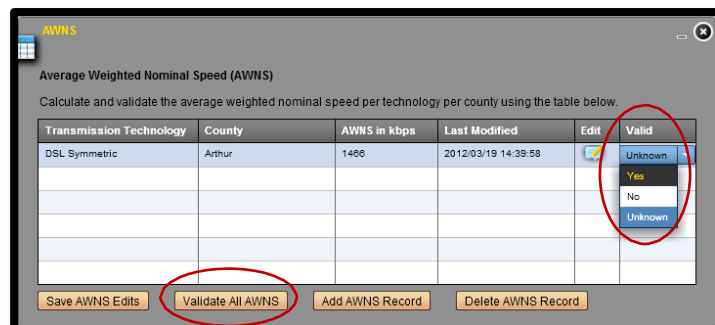
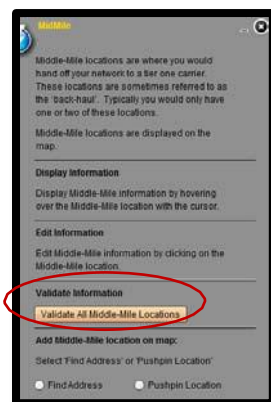
Following the creation of the product, process steps within Data Validation and Verification occur. To ensure the data collected and processed is as accurate and comprehensive as possible, provider validation and internal verification activities are employed. After the initial mapping of providers' coverage 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**).

Validation examples are as follows:

- Coverage validation can be done on one record/footprint at a time or by selecting multiple footprints and selecting the 'Valid' button.



- Middle Mile & AWNS Validation



All validation results are tracked internally through the Validation Table, which is used to improve the overall **Confidence Value** of each provider.





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 rd Party Source Name	Source Type	Verification Type
Pitney Bowes (PBB)	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 Patterns (EVDO, GPRS, WISP, HSPA)	Used to verify the following TT: 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)

PUBLIC VERIFICATION – CROWD SOURCING

Oregon Broadband Map

Public Feedback and speed test data

Since last data submission, we have improved the public website - interactive map to collect more detailed feedback on the represented broadband coverage areas. The feedback is also displayed on the map itself, which we're currently using as discussion points with providers during the outreach phases of each data submission. The data collected can be seen at the following path:

Hyperlink: <http://broadband.oregon.gov/StateMap/index.html>

FCC Speed test data:

Speed test results for Oregon submitted by individuals via the FCC browser and mobile based tools have been included in the verification process for this submission for supporting provider service area claims and bandwidth benchmarking.





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. This is an ongoing initiative, we are working to improve and gain acceptance for from providers included in the program.

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 a text output form that is required to be submitted along with the final deliverable. All data must pass submission check unless otherwise specified by NTIA.

PROVIDERS RESEARCHED

1-800-RECONEX INC	GCI COMMUNICATION CORP	OPERATOR SERVICE CO
800 RESPONSE INFORMATION SERVICES LLC	GLOBAL CAPACITY GROUP INC	OPEX COMMUNICATIONS INC
ACCESS ONE INC	Global Connection Inc. of America	ORBITCOM INC
ACCESS POINT INC	GLOBAL CROSSING LOCAL SERVICES INC	OREGON GOVWORKS
Access2Go	GLOBAL CROSSING NORTH AMERICAN NETWORKS INC	OREGON HEALTH NETWORK
ACCESSLINE COMMUNICATIONS		OREGON MUNICIPAL ISP COALITION
CORPORATION	GLOBAL CROSSING TELECOMMUNICATIONS INC	OREGON TELECOM INC
ACN COMMUNICATION SERVICES INC	GLOBAL CROSSING TELEMAGEMENT INC	Outdoor DAS - American Tower Corp
ADVANCED TEL INC	GLOBAL TEL*LINK CORP	Pac-West Telecomm, Inc.
ADVANCED TELCOM INC	GLOBALCOM INC	PACIFIC-SOUTH TELECOM INC





ADVANTAGE TELECOMMUNICATIONS CORP	GLOBALSTAR USA LLC	PACIFIC NORTHWEST TELCO, INC.
AFFINITY NETWORK INC	GO SOLO TECHNOLOGIES INC	Pacific West
AFFORDABLE VOICE COMMUNICATIONS INC	GOLD LINE TELEMAGEMENT INC	PAETEC Communications, Inc.
AFN, Inc.	Granite Telecommunications	Peerless Network of Oregon, LLC
AGM TELECOM CORPORATION	GROUP SIX COMMUNICATIONS LLC	PELZER COMMUNICATIONS
AIRESRING INC	GTC TELECOM CORP	CORPORATION
AIRNEX COMMUNICATIONS INC	HARBOR COMMUNICATIONS LLC	PIC Professional Services
ALLIANCE GLOBAL NETWORKS LLC	HickoryTech/Eventis Telecom	PNG TELECOMMUNICATIONS INC
ALLIANCE GROUP SERVICES INC	HORIZON TELECOM INC	PORTLAND STATE UNIVERSITY
AMERICA NET LLC	HUGHES COMMUNICATIONS INC / HNS LICENSE	Preferred Connections Inc. NW
AMERICAN PHONE SERVICES CORP	LLC	
American Telecommunications Systems, Inc.	HYPERCUBE TELECOM LLC	PREFERRED LONG DISTANCE INC
AMERICOM TECHNOLOGIES INC	iBasis	PRIME TIME VENTURES LLC
AMERIVISION COMMUNICATIONS INC	IBASIS RETAIL INC	PRIMUS TELECOMMUNICATIONS INC
ANDIAMO TELECOM LLC	IBFA ACQUISITION COMPANY LLC	Priority ONE Telecommunication, Inc.
Applegate Broadband LLC	IDT AMERICA CORP	PRIORITYONE TELECOMMUNICATIONS INC
APPLEWOOD COMMUNICATIONS CORPORATION	INDIGENOUS TELEPHONE INC	
	INETWORKS GROUP INC	PUBLIC COMMUNICATIONS SERVICES INC
ASSOCIATED COOPERATIVE	INFOTELECOM LLC	
TELECOMMUNICATIONS INC	INLAND DEVELOPMENT CORPORATION	PULSE TELECOM LLC
ASSOCIATED NETWORK PARTNERS INC	INMARK INC	QUANTUMSHIFT COMMUNICATIONS
ATC OUTDOOR DAS LLC	Inmate Calling Solutions, LLC	INC
ATL COMMUNICATIONS INC	INMATE COMMUNICATIONS CORP	QUASAR COMMUNICATIONS
ATX LICENSING INC	INTEGRATED SERVICES INC A NEVADA CORPORATION	CORPORATION
BANDWIDTH.COM CLEC LLC		Radix Networks
BCN TELECOM INC	INTELEPOINT LLC	REDUCED RATE LONG DISTANCE LLC





BELLSOUTH LONG DISTANCE INC	INTELLETRACE INC	RELIANT COMMUNICATIONS INC
BETTERWORLD TELECOM LLC	INTELLICALL OPERATOR SERVICES INC	RIDLEY TELEPHONE CO LLC
BG ENTERPRISES INC	INTELLIGENT COMMUNITY SERVICES INC	RRV ENTERPRISES INC
BIGREDWIRE.COM INC	Intlepoint, LLC	Rural Services Company; dba Ulatilla
BLUEBIRD WIRELESS BROADBAND SERVICES	INTRADO COMMUNICATIONS INC	Electric Cooperative
LLC	IPC NETWORK SERVICES INC	Sage Telecom, Inc.
BROADBAND DYNAMICS LLC	J IRWIN COMMUNITY INFORMATICS CONSULTING	Salem Hospital Regiona Health
BROADCORE	KANSAS INDEPENDENT TELECOMMUNICATIONS	Center
BROADVIEW NETWORKS INC	LLC	SBC LONG DISTANCE LLC
BROADWING COMMUNICATIONS LLC	KDDI AMERICA INC	SHARED COMMUNICATIONS INC
BT COMMUNICATIONS SALES LLC	KRUSE - MERCANTILE PROFESSIONAL SUITES	SILV COMMUNICATION INC
BUDGET CALL LONG DISTANCE INC	Lane Telecommunications Services, Inc.	SMARTRAK INCORPORATED
BUDGET PREPAY INC	LCR TELECOMMUNICATIONS LLC	SNAKE RIVER PCS
BUEHNER FRY INC	LDMI TELECOMMUNICATIONS INC	SNET AMERICA INC
BULLSEYE TELECOM INC	LEGACY LONG DISTANCE INTERNATIONAL INC	SNIP LINK LLC
BUSINESS DISCOUNT PLAN INC	LEGENT COMMUNICATIONS CORP	Spacenet, Inc.
BUSINESS NETWORK LONG DISTANCE INC	LEWIS & CLARK COLLEGE	Springfield Utility Board
BUSINESS TELECOM INC	LIGHTYEAR NETWORK SOLUTIONS LLC	STARTEC GLOBAL OPERATING COMPANY
CALIFORNIA OREGON BROADCASTING INC	Lincoln County	
CALL PLAN USA INC	LONG DISTANCE CHARGES INC	STELERA WIRELESS
Cause Based Commerce Inc., - dba The Sienna	LONG DISTANCE CONSOLIDATED BILLING CO	Sterling Communications
Group	LOTEL INC	STI PREPAID LLC
CBEYOND COMMUNICATIONS LLC	LSSI DATA CORPORATION	SUNGARD NETWORK SOLUTIONS INC
CCI NETWORK SERVICES LLC	MAIN STREET TELEPHONE CO	TALK AMERICA INC
CENTEL COMMUNICATIONS INC	MALHEUR HOME TELEPHONE CO	TCAST COMMUNICATIONS INC





CENTRAL TELECOM LONG DISTANCE INC	Master Call Communications	TCG JOINT VENTURE HOLDINGS INC
CENTRAL TELEPHONE INC	MATRIX TELECOM INC	TECHNOLOGY SERVICES INC
CIMCO COMMUNICATIONS INC	MCGRAW COMMUNICATIONS INC	TEL WEST COMMUNICATIONS LLC
CINCINNATI BELL ANY DISTANCE INC	MCI COMMUNICATIONS SERVICES INC	TELCO PARTNERS INC
CITY OF EUGENE	MCIMETRO ACCESS TRANSMISSION SERVICES LLC	Telecare, Inc.
CITY OF KLAMATH FALLS	MCLEODUSA TELECOMMUNICATIONS SERVICES	Telecom Management - dba Pioneer
CITY OF PORTLAND	INC	LD
Clear World Communication Corporation	MD Communications	TELECONNECT LONG DISTANCE
CLOSECALL AMERICA INC	Metropolitan Telecommunications of Oregon - dba MetTel	SERVICES & SYSTEMS CO
COAST INTERNATIONAL INC		TELENATIONAL COMMUNICATIONS
Coinet	NORTHSTAR TELECOM INC	INC
	NORTHWEST OPEN ACCESS	TELEQUALITY COMMUNICATIONS INC
COMCAST BUSINESS COMMUNICATIONS LLC	NETWORK	TELMEX USA LLC
COMCAST PHONE OF OREGON LLC	NOS COMMUNICATIONS INC	TELRITE CORPORATION
ForesTel,LLC	NOSVA LIMITED PARTNERSHIP	
France Telecom Corporate Solutions, LLC	OLS INC	
FREEDOMSTARR COMMUNICATIONS INC	ONESUITE CORP	
FRONTIER TELENET	ONLINE NORTHWEST	