



BROADMAPSM
Beyond The Boundaries

Oregon Broadband Mapping Project: Product Release White Paper

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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 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	449
Total Valid Broadband Providers	119
Non-Responsive Providers	10
Non-Cooperative Providers	5
Number of Providers - Supplied Updates for this Submission	73
Number of Providers - Confirmed No Updates	11

- New Providers Since Last Data Submission
 - Frontier Communications of the Northwest Inc
 - Rural Technology Group
 - Silver Star Telecom Ilc
 - UnwiredWest Internet
 - US Cellular
- Existing Providers – No Updates
 - City of Ashland Fiber Network
 - Comspan Communications
 - Hughes Network Systems
 - Integra Telecom of Oregon Inc
 - J & N Cable Systems, Inc.
 - LEVEL 3 COMMUNICATIONS LLC
 - Monroe Telephone Company
 - NEW EDGE NETWORK INC (Earthlink)
 - Pine Telephone Systems, Inc.
 - Starband Communications Inc / Spacenet
 - Warm Springs Telecommunications Company



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

Abovenet Communications Inc
Alyricatel inc
AT&T Communications of the Pacific Northwest Inc
Axxis Communication Inc
Bend Broadband
Broadband Cable Telecommunications LLC Beaver Creek Telephone Company
Cable One Inc
Cal-Ore Communications, Inc.
Canby Telephone Association; Canby Telecom
Cascade Networks
Cascade Utilities (Cascade Access)
Casco Communications Inc
CenturyLink (OR)
Chambers Cable
Charter Fiberlink OR - CCVII LLC
City of Ashland Fiber Network
City of Sandy Oregon
Clear Creek Telephone & TeleVision
Clearwire
COLTONTEL
COMCAST CABLE COMMUNICATIONS INC
Comspan Communications
Country Vision Cable
Covad Communication
Crestview Cable
Cricket Communications
Douglas Services, Inc/Douglas Cooperative
Eastern Oregon Net, Inc (EONI)

Freewire Broadband
Frontier Communications of America
Gervais Telephone Company
Gorge Networks
Helix Telephone Company
Hood River Electric Cooperative
Hughes Network Systems
Integra Telecom of Oregon Inc
J & N Cable Systems, Inc.
LEVEL 3 COMMUNICATIONS LLC
Lightspeed Networks Inc.
McMinnville Access Company DBA OnlineNW.
Molalla Communications
Monitor Cooperative Telephone Company
Monmouth Independence Networks (DBA MINet)
Monroe Telephone Company
Mount Angel Telephone
Nehalem Telecommunications Inc (RTI)
NEW EDGE NETWORK INC (Earthlink)
North-State Telephone Co.
Oregon Telephone Company
Oregonfast.net
OREGON-IDAHO UTILITIES INC
Peoples Telephone Co
Pine Telephone Systems, Inc.
PocketiNet Communications, Inc.
Qlife
Roome Telecommunications, Inc.

Rural Network
Rural Technology Group
SCIO Mutual Telephone Assn.
SCS Communications and Security Inc
Silver Star Telecom Ilc
Skycasters
Sprint Nextel Corp
St Paul Telephone
Starband Communications Inc / Spacenet
Stayton Cooperative Telephone Co (SCTC)
Stephouse Holdings Company Ilc
TDS Telecom
Tillamook - CoastCom, Inc
T-Mobile
Trans-Cascades Telephone
TW Telecom of Oregon LLC
Umpqua Indian Development Corporation Telecommunications Division (Rio Net)
UnwiredWest Internet
Upward Access Support
US Cellular
Verizon Wireless
Warm Springs Telecommunications Comp
Wave Division Holdings LLC (Wave Broadband)
Webformix
Whiz to Coho Inc
WildBlue Communications Inc.
Wtechlink Wireless Broadband
Zayo Bandwidth Northwest Inc

- Non-Responsive Providers
 - Air Speed LLC
 - Bendtel Inc.
 - Eagle Telephone System, Inc.
 - Hunter Communications Inc.
 - Nextnet Telecom Inc
 - Preferred Connections Inc NW
 - Tillamook Lightwave
 - Vertex Group Inc.
 - X5 PDX LLC
 - Yellow Knife Wireless



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- Non-Cooperative Providers
 - Blue Mt TV Cable Co
 - Cogent Communications Group
 - Gorge Ventures Inc
 - Meritel Group Inc
 - NextGen Internet Systems, Inc.

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

- Other Provider Changes
 - Zayo Bandwidth Northwest Inc. has acquired 360networks and supplied supporting data that replaces them, which was ingested for this data submission.



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COVERAGE AREA CHANGES

- Coverage Footprint Reductions/Map Refinement –
 - Casco Communications (TT-10)
 - CenturyLink (TT-10)
 - Covad Communications Company (TT-10 and TT-20)
 - Douglas Services, Inc. (TT-70)
 - Gervais Telephone Company (TT-50)
 - Monitor Cooperative Telephone Company (TT-10)
 - Trans-Cascade Telephone (TT-10)
 - UIDC Telecom (TT-30)

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

- Coverage Footprint Expansion –
 - AT&T Mobility LLC (TT-80)
 - Cableone (TT-41)
 - Cellco Partnership and its Affiliated Entities (TT-80)
 - Chambers Cable (TT-41)
 - Clearwire (TT-80)
 - CoastCom, Inc (TT-50)
 - Comcast Cable Communications, LLC. (TT-40)
 - Covad Communications Company (TT-30)
 - Douglas Services, Inc. (TT-10)
 - Frontier Communications Northwest Inc. (TT-10)
 - Gervais Telephone Company (TT-10)
 - Helix Telephone Co. (TT-10)
 - Home Telephone Company (TT-10)
 - Leap Wireless International, Inc. (TT-80)
 - Monitor Cooperative Telephone Company (TT-50)
 - Oregon Telephone Corporation (TT-10)
 - Pendleton Fiber Company (TT-50)
 - Sprint Nextel Corporation (TT-80)
 - T-Mobile USA, Inc. (TT-80)
 - Wave Division Holdings LLC (TT-41)



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DATA CORRECTIONS

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

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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 (1 or 2)	Trans Tech	Advertised Speed Down	Advertised Speed Up
Category 1 - School K through 12	1616	359	349	318	318
Category 2 - Library	189	185	185	177	177
Category 3 - Medical/Healthcare	342	12	9	5	5
Category 4 - Public Safety	1135	238	114	65	65
Category 5 - Universities/Colleges	69	38	37	34	34
Category 6 - Other: Government	227	43	38	34	34
Category 7 - Other: Non-Government	19	3	1	1	1
Total	3597	878	733	634	634



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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)

SUBMISSION RECEIPT

SUBMISSION RECEIPT RESULTS

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



OR_2012_3_30.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>



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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).

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			
Type	Name	Preferred	Phone 1
P	Sourcing		Phone 2
			Email
			Position
FRN Info			
Provider Name	DBA	FRN Number	



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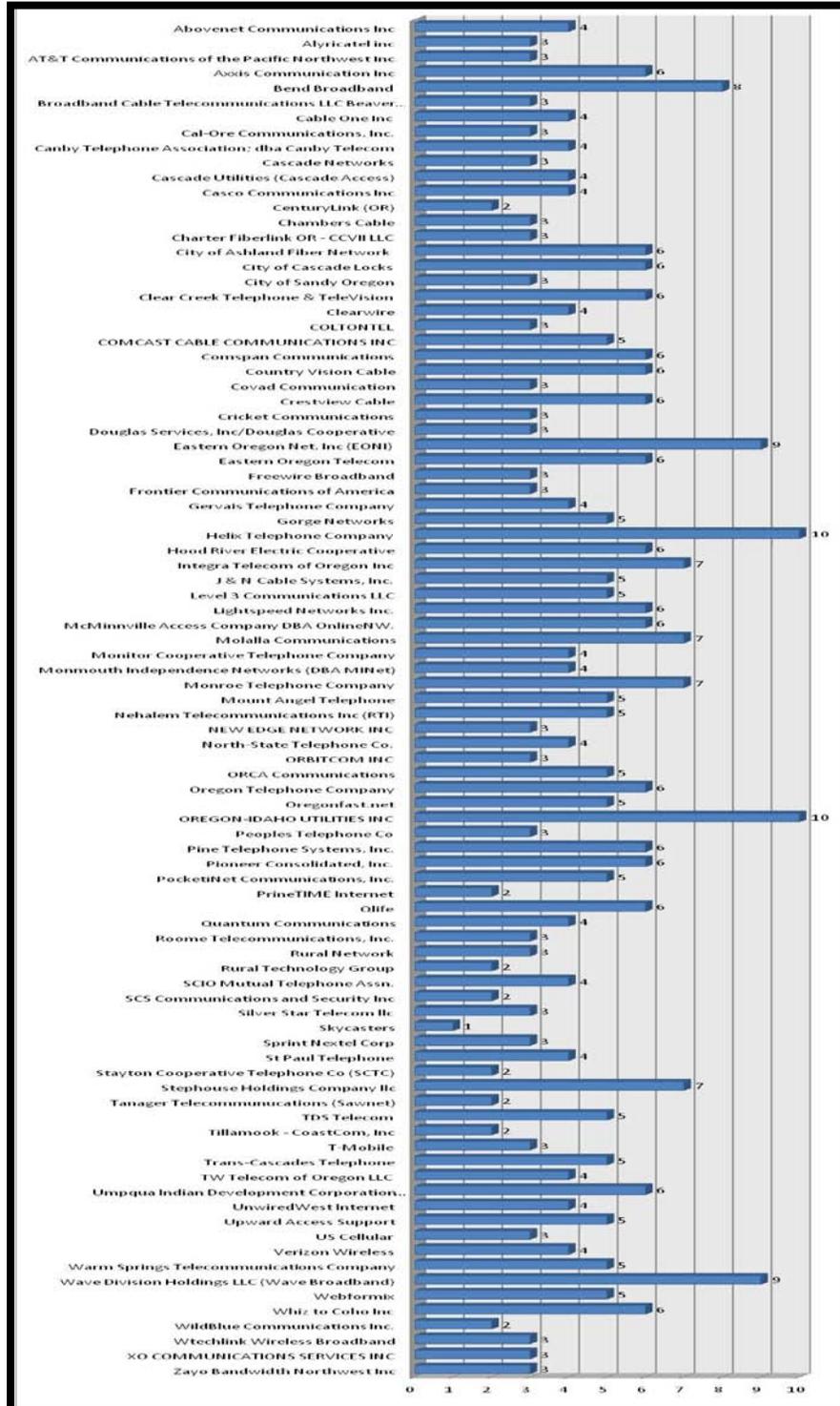
Confidence				New
TI Type	Confidence	Last Modified	Comment	
Status Tracking				
Non Facilities Based Provider	<input type="checkbox"/>			
Business Only Provider	<input type="checkbox"/>			
Reseller	<input type="checkbox"/>		Non Responsive Provider	<input type="checkbox"/>
NDA Review - Internal	<input 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--
Provider Packet Exchanged	<input type="checkbox"/>		NDA Not Required	<input type="checkbox"/>
Provider Packet Info Sent			NDA Requested	<input type="checkbox"/>
Provider Meeting Status	--None--		NDA Exchanged	<input type="checkbox"/>
Technical Meeting Requested	<input type="checkbox"/>		NDA Exchange Date	
Technical Meeting Scheduled	<input type="checkbox"/>		NDA Signed	<input type="checkbox"/>
Number of Subscribers			NDA Signed Date	
			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



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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 that interaction count with each provider.





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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.



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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): *

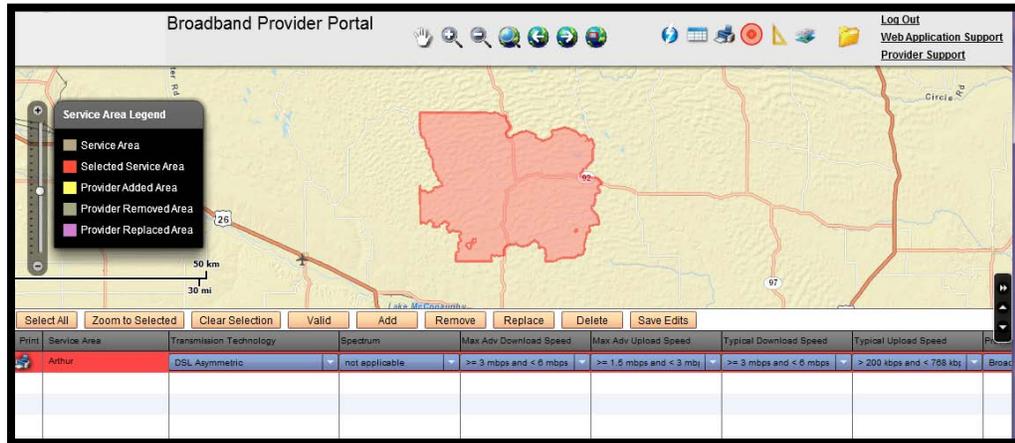
Please note the following:

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

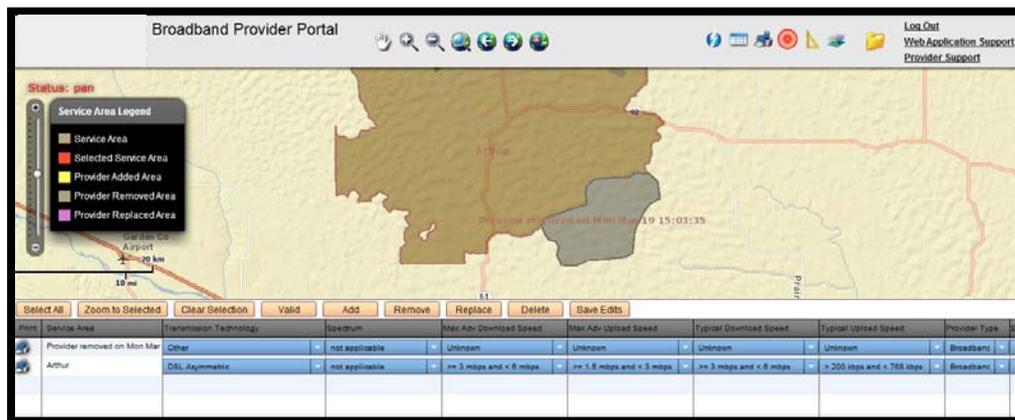


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- Capability to review and request changes to the coverage footprint



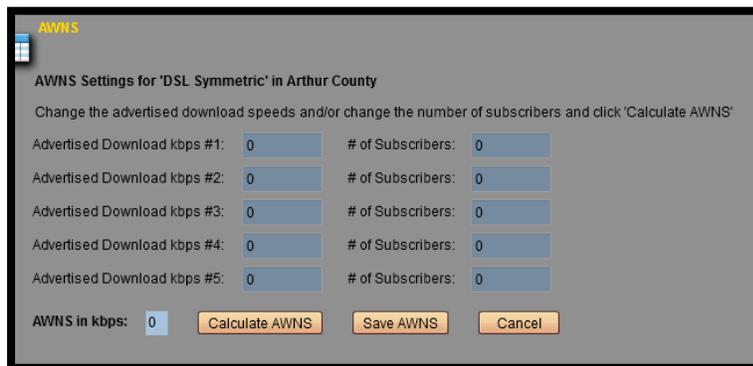
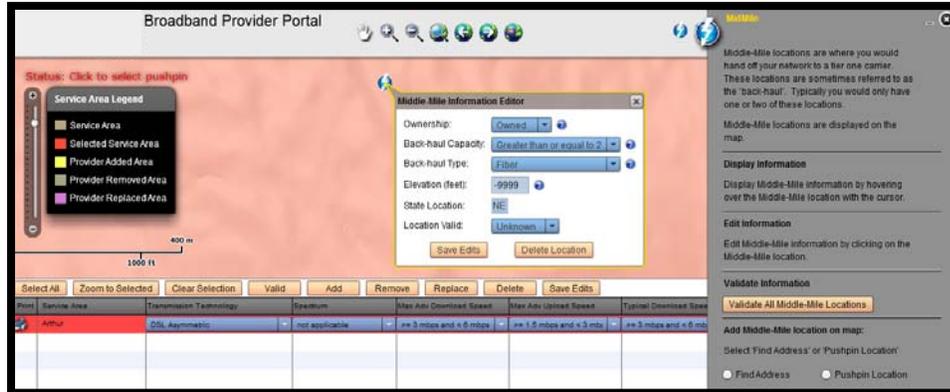
- The provider can Add/Remove portions, or all, of the footprint requesting that their footprint be increased or refined.



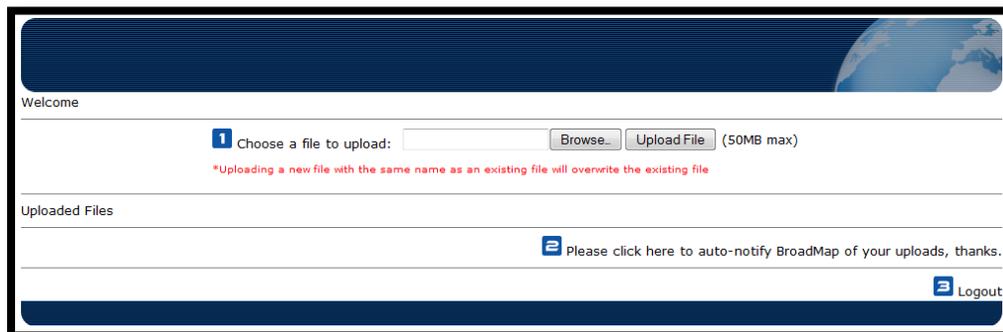
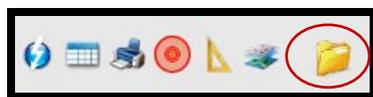


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- Middle Mile and Average Weight Nominal Speed (AWNS) collection and validation



- 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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- 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

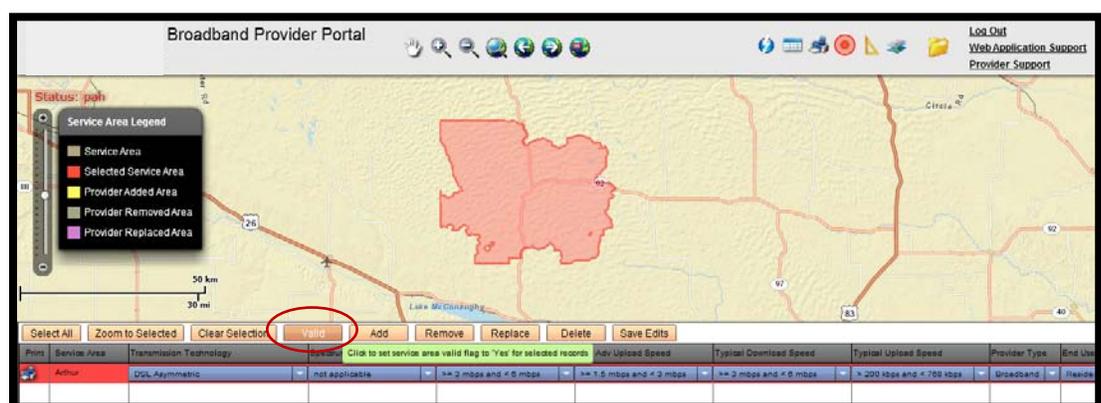
Following the creation of the product, process steps within Data Validation and Verification occur. To ensure the data collected and processed is as accurate and comprehensive as possible, provider validation and internal verification activities are employed. After the initial mapping of providers' coverage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

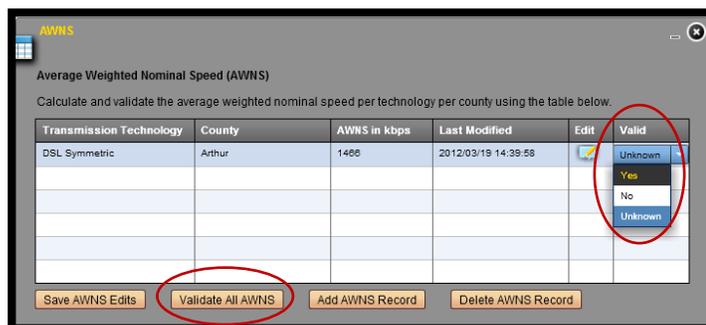
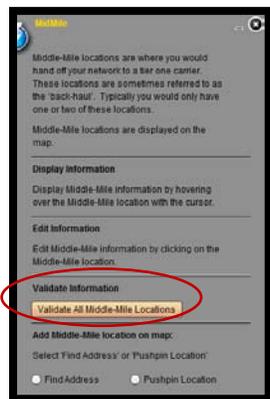
- Coverage validation can be done on one record/footprint at a time or by selecting footprints and selecting the 'Valid' button. The provider could also print off or download their coverage for their own tracking purposes.





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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 rd 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 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)



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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. 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>

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>



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DETAILED PROCESS REVIEW

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



BMap_ProcessDetails
_2012_04_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	ForesTel,LLC	NORTHSTAR TELECOM INC
800 RESPONSE INFORMATION SERVICES LLC	France Telecom Corporate Solutions, LLC	NORTHWEST OPEN ACCESS NETWORK
ACCESS ONE INC	FREEDOMSTARR COMMUNICATIONS INC	NOS COMMUNICATIONS INC
ACCESS POINT INC	FRONTIER TELENET	NOSVA LIMITED PARTNERSHIP
Access2Go	GCI COMMUNICATION CORP	OLS INC
ACCESSLINE COMMUNICATIONS CORPORATION	GLOBAL CAPACITY GROUP INC	ONESUITE CORP
ACN COMMUNICATION SERVICES INC	Global Connection Inc. of America	ONLINE NORTHWEST
ADVANCED TEL INC	GLOBAL CROSSING LOCAL SERVICES INC	OPERATOR SERVICE CO
ADVANCED TELCOM INC	GLOBAL CROSSING NORTH AMERICAN NETWORKS INC	OPEX COMMUNICATIONS INC
ADVANTAGE TELECOMMUNICATIONS CORP	GLOBAL CROSSING TELECOMMUNICATIONS INC	ORBITCOM INC
AFFINITY NETWORK INC	GLOBAL CROSSING TELEMAGEMENT INC	OREGON GOVWORKS
AFFORDABLE VOICE COMMUNICATIONS INC	GLOBAL TEL*LINK CORP	OREGON HEALTH NETWORK
AFN, Inc.	GLOBALCOM INC	OREGON MUNICIPAL ISP COALITION
AGM TELECOM CORPORATION	GLOBALSTAR USA LLC	OREGON TELECOM INC
AIRESPRING INC	GO SOLO TECHNOLOGIES INC	Outdoor DAS - American Tower Corp
AIRNEX COMMUNICATIONS INC	GOLD LINE TELEMAGEMENT INC	Pac-West Telecomm, Inc.
ALLIANCE GLOBAL NETWORKS LLC	Granite Telecommunications	PACIFIC-SOUTH TELECOM INC
ALLIANCE GROUP SERVICES INC	GROUP SIX COMMUNICATIONS LLC	PACIFIC NORTHWEST TELCO, INC.
AMERICA NET LLC	GTC TELECOM CORP	Pacific West
AMERICAN PHONE SERVICES CORP	HARBOR COMMUNICATIONS LLC	PAETEC Communications, Inc.
American Telecommunications Systems, Inc.	HickoryTech/Eventis Telecom	Peerless Network of Oregon, LLC
AMERICOM TECHNOLOGIES INC	HORIZON TELECOM INC	PELZER COMMUNICATIONS CORPORATION
AMERIVISION COMMUNICATIONS INC	HUGHES COMMUNICATIONS INC / HNS LICENSE LLC	PIC Professional Services
ANDIAMO TELECOM LLC	HYPERCUBE TELECOM LLC	PNG TELECOMMUNICATIONS INC
Applegate Broadband LLC	iBasis	PORTLAND STATE UNIVERSITY
APPLEWOOD COMMUNICATIONS CORPORATION	IBASIS RETAIL INC	PREFERRED LONG DISTANCE INC



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ASSOCIATED COOPERATIVE TELECOMMUNICATIONS INC	IBFA ACQUISITION COMPANY LLC	PRIME TIME VENTURES LLC
ASSOCIATED NETWORK PARTNERS INC	IDT AMERICA CORP	PRIMUS TELECOMMUNICATIONS INC
ATC OUTDOOR DAS LLC	INDIGENOUS TELEPHONE INC	Priority ONE Telecommunication, Inc.
ATL COMMUNICATIONS INC	INETWORKS GROUP INC	PRIORITYONE TELECOMMUNICATIONS INC
ATX LICENSING INC	INFOTELECOM LLC	PUBLIC COMMUNICATIONS SERVICES INC
BANDWIDTH.COM CLEC LLC	INLAND DEVELOPMENT CORPORATION	PULSE TELECOM LLC
BCN TELECOM INC	INMARK INC	QUANTUMSHIFT COMMUNICATIONS INC
BELLSOUTH LONG DISTANCE INC	Inmate Calling Solutions, LLC	QUASAR COMMUNICATIONS CORPORATION
BETTERWORLD TELECOM LLC	INMATE COMMUNICATIONS CORP	Radix Networks
BG ENTERPRISES INC	INTEGRATED SERVICES INC A NEVADA CORPORATION	REDUCED RATE LONG DISTANCE LLC
BIGREDWIRE.COM INC	INTELEPOINT LLC	RELIANT COMMUNICATIONS INC
BLUEBIRD WIRELESS BROADBAND SERVICES LLC	INTELLETRACE INC	RIDLEY TELEPHONE CO LLC
BROADBAND DYNAMICS LLC	INTELLICALL OPERATOR SERVICES INC	RRV ENTERPRISES INC
BROADCORE	INTELLIGENT COMMUNITY SERVICES INC	Rural Services Company; dba Ulatilla Electric Cooperative
BROADVIEW NETWORKS INC	Intlepoint, LLC	Sage Telecom, Inc.
BROADWING COMMUNICATIONS LLC	INTRADO COMMUNICATIONS INC	Salem Hospital Regiona Health Center
BT COMMUNICATIONS SALES LLC	IPC NETWORK SERVICES INC	SBC LONG DISTANCE LLC
BUDGET CALL LONG DISTANCE INC	J IRWIN COMMUNITY INFORMATICS CONSULTING	SHARED COMMUNICATIONS INC
BUDGET PREPAY INC	KANSAS INDEPENDENT TELECOMMUNICATIONS LLC	SILV COMMUNICATION INC
BUEHNER FRY INC	KDDI AMERICA INC	SMARTRAK INCORPORATED
BULLSEYE TELECOM INC	KRUSE - MERCANTILE PROFESSIONAL SUITES	SNAKE RIVER PCS
BUSINESS DISCOUNT PLAN INC	Lane Telecommunications Services, Inc.	SNET AMERICA INC
BUSINESS NETWORK LONG DISTANCE INC	LCR TELECOMMUNICATIONS LLC	SNIP LINK LLC
BUSINESS TELECOM INC	LDMI TELECOMMUNICATIONS INC	Spacenet, Inc.
CALIFORNIA OREGON BROADCASTING INC	LEGACY LONG DISTANCE INTERNATIONAL INC	Springfield Utility Board
CALL PLAN USA INC	LEGENT COMMUNICATIONS CORP	STARTEC GLOBAL OPERATING COMPANY
Cause Based Commerce Inc., - dba The Sienna Group	LEWIS & CLARK COLLEGE	STELERA WIRELESS
CBEYOND COMMUNICATIONS LLC	LIGHTYEAR NETWORK SOLUTIONS LLC	Sterling Communications
CCI NETWORK SERVICES LLC	Lincoln County	STI PREPAID LLC
CENTEL COMMUNICATIONS INC	LONG DISTANCE CHARGES INC	SUNGARD NETWORK SOLUTIONS INC
CENTRAL TELECOM LONG DISTANCE INC	LONG DISTANCE CONSOLIDATED BILLING CO	TALK AMERICA INC
CENTRAL TELEPHONE INC	LOTEL INC	TCAST COMMUNICATIONS INC
CIMCO COMMUNICATIONS INC	LSSI DATA CORPORATION	TCG JOINT VENTURE HOLDINGS INC
CINCINNATI BELL ANY DISTANCE INC	MAIN STREET TELEPHONE CO	TECHNOLOGY SERVICES INC
CITY OF EUGENE	MALHEUR HOME TELEPHONE CO	TEL WEST COMMUNICATIONS LLC
CITY OF KLAMATH FALLS	Master Call Communications	TELCO PARTNERS INC
CITY OF PORTLAND	MATRIX TELECOM INC	Telecare, Inc.
Clear World Communication Corporation	MCGRAW COMMUNICATIONS INC	Telecom Management - dba Pioneer LD
CLOSECALL AMERICA INC	MCI COMMUNICATIONS SERVICES INC	TELECONNECT LONG DISTANCE SERVICES & SYSTEMS CO
COAST INTERNATIONAL INC	MCIMETRO ACCESS TRANSMISSION SERVICES LLC	TELENATIONAL COMMUNICATIONS INC
COLUMBIA BROADBAND INC	MCLEODUSA TELECOMMUNICATIONS SERVICES INC	TELEQUALITY COMMUNICATIONS INC
COMCAST BUSINESS COMMUNICATIONS LLC	MD Communications	TELMEX USA LLC
COMCAST PHONE OF OREGON LLC	Metropolitan Telecommunications of Oregon - dba MetTel	TELRITE CORPORATION



BROADMAP
Beyond The Boundaries

COMMPARTNERS LLC	MIDCOLUMBIA.NET	TELTRUST CORPORATION
COMMUNICATIONS NETWORK BILLING INC	MIDVALE TELEPHONE EXCHANGE INC	THRESHOLD COMMUNICATIONS INC
ComTech21, LLC	Miracle Communications	TIME WARNER CABLE LLC
COMTEL TELCOM ASSETS LP	Mitel NetSolutions, Inc.	TON SERVICES INC
CONSUMER TELCOM INC	MOBILITIE LLC	TOTAL CALL INTERNATIONAL INC
CONVERGIA INC	MOMENTUM TELECOM INC	TOTAL HOLDINGS INC
COOPERATIVE COMMUNICATIONS INC	Monroe Area Communications	TOUCHTONE COMMUNICATIONS INC
Corban Technologies, Inc.	MULTILINE LONG DISTANCE INC	TRANS NATIONAL COMMUNICATIONS INTERNATIONAL INC
CORDIA COMMUNICATIONS CORP	MY TEL CO INC	TRANSPAC TELECOM INC
CORE DIGITAL SERVICES	NATIONAL ACCESS LONG DISTANCE INC	TRANSUNION TELEDATA LLC
CoVista	National Brands, Inc.	Tri-M Communications - dba TCM Communications
COVISTA INC	NATIONAL DIRECTORY ASSISTANCE LLC	TRIBAL ONE BROADBAND TECHNOLOGIES
CTC Communications Corp	NationalComtel	TTI NATIONAL INC
CTI LONG DISTANCE INC	NATIONWIDE LONG DISTANCE SERVICE INC	U S TELECOM LONG DISTANCE INC
CUSTOM TELECONNECT INC	Navigator	U.S. Cellular
CYPRESS COMMUNICATIONS OPERATING COMPANY LLC	NECC Telecom	UCN INC
DABNEY/STRAWN LLC	NET ONE INTERNATIONAL INC	UNI-TEL COMMUNICATIONS GROUP INC
DCT Telecom Group, Inc.	NET TALK.COM INC	UNITED AMERICAN TECHNOLOGY INC
DDD CALLING INC	NETLOJIX TELECOM INC	UNITED COMMUNICATIONS INC
DELTACOM INC	NETWORK BILLING SYSTEMS LLC	UNITED TELECOM INC
DELTEL INC	NETWORK COMMUNICATIONS INTERNATIONAL CORP	UTILITY TELEPHONE INC
DIGIZIP.COM INC	NETWORK ENHANCED TECHNOLOGIES INC	Value-Added Communications, Inc.
DIRECT COMMUNICATIONS LONG DISTANCE INC	Network Operator Services	VANCO DIRECT USA LLC
DSLnet Communications, LLC	NETWORK SERVICE BILLING INC	VANCO US LLC
EASTON TELECOM SERVICES LLC	NETWORK US INC	VIDAFON INC
ELECTRIC LIGHTWAVE LLC	NETWORKIP LLC	VOICECOM TELECOMMUNICATIONS LLC
Eltopia Communications, LLC	NEUTRAL TANDEM-OREGON LLC	WESTERN INDEPENDENT NETWORKS INC
ENCOMPASS COMMUNICATIONS LLC	NEW CENTURY TELECOM INC	WHOLESALE CARRIER SERVICES INC
ENHANCED COMMUNICATIONS GROUP LLC	NEW HORIZONS COMMUNICATIONS CORP	WILLAMETTE UNIVERSITY
Enhanced Communications Network	NEWPATH NETWORKS LLC	WILTEL COMMUNICATIONS LLC
ENTRIX TELECOM INC	NextGNetworks	WINDSTREAM COMMUNICATIONS INC
ERNEST COMMUNICATIONS INC	NEXLINK WIRELESS INC	WIRED OR WIRELESS INC
ESCHELON TELECOM OF OREGON INC	NEXUS COMMUNICATIONS INC DBA NEXUS-TSI	WORKING ASSETS FUNDING SERVICE INC
Evercom Systems, Inc.	NEXUSTEL LLC	WORLD COMMUNICATIONS INC
Extenet Systems	NiTel	WORLDNET COMMUNICATION SERVICES INC
Fiber South Consortium	NOBELTEL LLC	X2COMM INC
FIBERLINK LLC	NobelTel, LLC	YESTEL USA INC
FIRST CHOICE TECHNOLOGY INC	Norlight, Inc.	YMAX COMMUNICATIONS CORP
FIRST COMMUNICATIONS LLC	NORSTAR TELECOMMUNICATIONS LLC	ZEUS TELECOMMUNICATIONS LLC
FLATEL INC	NORTH COUNTY COMMUNICATIONS CORPORATION OF OREGON	