

# Oregon Broadband Mapping Project Methodology

**Contact Name Manager:** Bryan Conway  
**Contact Phone Number:** 503-378-6200  
**Contact E-mail:** [bryan.conway@state.or.us](mailto:bryan.conway@state.or.us)

**Submitted By:** Philip Woods  
**Contact E-mail:** [Philip.Woods@state.or.us](mailto:Philip.Woods@state.or.us)

**Product Specification:** Fall 2014 NTIA Data Model  
**Product/Process:** NTIA—October 1, 2014 Data Deliverable  
**Dataset Submission QC:** NTIA—SBDD\_CheckSubmission.py



# Table of Contents

## *Contents*

OVERVIEW .....	3
SUBMISSION SUMMARY .....	3
PROVIDER DETAILS .....	3
PROVIDER PARTICIPATION .....	3
SERVICE CHANGES .....	8
COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS .....	9
OVERALL STATISTICS .....	9
PROCESS REVIEW .....	11
PROCESS SUMMARY .....	13
DATA GATHERING .....	13
COMMUNITY ANCHOR INSTITUTION (CAI) .....	14
DATA INTEGRATION PROCESS .....	15
DATA VALIDATION AND VERIFICATION .....	18
THIRD-PARTY DATA VERIFICATION .....	19
PUBLIC VERIFICATION – CROWD SOURCING .....	20
CONFIDENCE VALUES .....	20
QUALITY CONTROL .....	21
PROVIDERS RESEARCHED .....	22





## OVERVIEW

This report provides details on the State Broadband Initiative (SBI), implemented by the State of Oregon Broadband Mapping project. The data presented is a snap shot of Internet Service Providers' (ISPs) broadband coverage prior to June 30th, 2014. The data was collected and processed during the summer of 2014 by the Oregon Broadband Mapping Project and submitted to the NTIA in accordance with the SBI grant requirements on October 1st, 2014.

The report also includes information on **Data Gathering**, **Data Integration**, **Data Validation** and **Verification**, and **Quality Control**. The objective of this report is to support varying levels of technical and program knowledge, while providing comprehensive detail.

## SUBMISSION SUMMARY

### PROVIDER DETAILS

#### PROVIDER PARTICIPATION

- Provider Participation Statistics Summary

Summary	Count
Total Providers Researched/Contacted	475
Total Valid Broadband Providers	124
Non-Responsive Providers	11
Non-Cooperative Providers	6
Number of Providers - Supplied Updates for this Submission	44
Number of Providers - Confirmed No Updates	61
Will Provide Data	2

\*Does not include ISPs Identified as resellers

- New Providers since Last Data Submission (1)
  - FTX Networks
- Will Provide Data (2)
  - Cavenet
  - EasyStreet
- Existing Providers – No Updates, confirmed (61)
  - Alyrica Networks, Inc.
  - Ashland Fiber Networks
  - Beaver Creek Telephone Company
  - Blue Mountain Cable
  - Cal-Ore Communications Inc
  - Cascade Networks, Inc.





- City of Cascade-Locks
- CoastCom, Inc.
- Coltontel
- Comspan Communications, Inc.
- Cottage Grove Wifi
- Country Vision Cable Inc.
- DC Wireless
- Douglas Fast Net
- Eagle Telephone System, Inc.
- Eastern Oregon Telecom
- Elgin TV Association
- EONI.Com
- Fibersphere
- FireServe
- Freewire Broadband LLC
- Gervais Telephone Company
- Helixtel.Com
- Hunter Communications Inc
- InfoStructure
- Integra Telecom
- Ispeed Wireless
- J&N Cable System, Inc.
- LS Networks
- MINet
- Molalla Communication Company
- Monitor Cooperative Telephone Company
- Monroe Telephone
- North-State Telephone Co.
- OneWave Networks
- ORCA Communications
- Oregon-Idaho Utilities, Inc.
- Oregon Telephone Corporation
- PEAK Internet
- Pendleton Fiber Company
- Pioneer Telephone Cooperative
- PocketiNet Communications Inc.
- Prinetime Internet Solutions
- Qualitylife Intergovernmental Agency
- Roome Telecommunications Inc.
- Rural Technology Group
- SawNet
- SCIO Mutual Telephone
- Siuslaw Broadband
- Skycasters
- Snake River PCS
- SpeedyQuick Networks
- Stephouse Networks
- U.S. Cellular
- Unwiredwest Internet





- Upward Access
- Warm Springs Telecom
- Wave Broadband
- Whiz To Coho, Inc.
- Wtechlink
- Yellowknife Wireless Company, LLC
  
- Non-Responsive Providers (11)
  - Air Speed LLC
  - Axxis Communication
  - EarthLike Business
  - Gorge Networks
  - HughesNet
  - M2 Machmedia
  - NextNet Ventures LLC
  - Outreach Internet
  - Quantum Communications
  - Safelink Internet Services
  - Starband.net
  
- Non-Cooperative Providers (6)
  - BendTel
  - Croisan Creek Broadband
  - ExchangeNet
  - Meritel Group, Inc
  - NextGen Internet Systems, Inc.
  - Qnect.Net
  
- Other Provider Changes

#### **Name Changes**

#### **Acquisitions and merges**

**Gorge Networks** Acquired the City of Cascade Locks cable network. The sale closed August 1<sup>st</sup> 2014 and so is not shown in this report.

**AT&T** Acquired Cricket Wireless in early 2014. As of this time Cricket is still reporting as a separate entity.

#### **Middle Mile Only**

AT&T Corp  
Helixtel

#### **Reseller**

XO Communications (TT-20 & 30)





### Additional Information

**Pioneer Telephone Cooperative** - Company are not satisfied with the project specifications as they feel the technology of transmission does not accurately reflect their services.

**Comcast** – Data submitted for this report showed a significant change in service availability, particularly in areas where census blocks are greater than two square miles. The changes represent a contraction in service availability areas.

Areas that have been noted as concern in past reports based on public input are no longer included in the submitted data. Comcast was asked to explain the large number of changes but only confirmed that its recent data is correct.

**Charter Communications, Inc.** - There is a possibility of over representation of service area. The company has not responded to requests to clarify their service offerings in areas where public input indicates that they do not provide service as defined under the terms of the SBI grant. Area of concern is an area east of Grants Pass, Oregon.

**CenturyLink**- Data Submitted for this report showed significant change in service availability. The changes represent a contraction to service availability areas. CenturyLink was asked to explain the changes to work their data and responded that they had developed better data compilation workflows and that this data was a better representation of their service area.

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

- **Providers Included by DBA**

Air Speed LLC	Fibersphere	Prinetime Internet Solutions
Alyrica Networks, Inc.	FireServe	Qnect.Net
Applegate Broadband LLC	FTX Networks	Qualitylife Intergovernmental Agency
Ashland Fiber Network	Freewire Broadband LLC	Quantum Communications
AT&T Corp	Frontier Communications Northwest Inc.	Reliance Connects (Cascade Utilities)
AT&T Mobility LLC	Frontier Communications Of Oregon	Reliance Connects (Trans-Cascade Telephone)
Axxis Communications	Gervais Telephone Company	Roome Telecommunications Inc.
Beaver Creek Telephone Company	Gorge Networks	MTE Communications
BendBroadband	Helixtel.Com	Rural Technology Group
BendTel	HughesNet	Safelink Internet Services





Blue Mountain Cable	Hunter Communications Inc	SandyNet
Cable ONE	InfoStructure	SawNet
Cal-Ore Communications Inc.	Integra Telecom	SCIO Mutual Telephone
Canby Telcom	Ispeed Wireless	SCS Communications
Cascade Networks, Inc.	J & N Cable Systems, Inc.	Silver Star Telecom
Cavenet	Level 3 Communications, LLC	Siuslawbroadband
CenturyLink	LS Networks	Skycasters
Charter Communications Inc.	M2 MachMedia	Snake River PCS
City Of Cascade-Locks	MegaPath Corporation	SpeedyQuick Networks
Clear Creek Mutual Telephone Company	Meritel Group, Inc	Sprint
CoastCom, Inc	MINet	St Paul Telephone
Cogent Communications Group	Molalla Communications Company	Starband Communications, Inc.
Coltontel	Monitor Cooperative Telephone Company	Stayton Cooperative Telephone Company
Comcast	Monroe Telephone	Stephouse Networks
Communications Access Cooperative Holding Enterprise	Mount Angel Telephone Company	T-Mobile
Community Broadband	Nehalem Telecommunications Inc.	TDS Telecom
Comspan Communications, Inc.	NextGen Internet Systems, Inc.	Tnet Broadband
Cottage Grove Wifi	Nextnet Ventures, LLC	TW Telecom Of Oregon LLC
Country Vision Cable Inc.	North-State Telephone Co.	U.S. Cellular
Crestview Cable Communications	OneWave Networks	Unwiredwest Internet
Cricket Communications, Inc.	OnlineNW	Upward Access
Croisan Creek Broadband	ORCA Communications	Verizon Wireless
Datavision Communications	Oregon-Idaho Utilities, Inc.	Viasat Communications
DC Wireless	Oregon Telephone Corporation	Wallowa Valley Networks
Douglas Fast Net	OregonFAST.Net	Warm Springs Telecom
Eagle Telephone System, Inc.	Outreach Internet	Wave Broadband
EarthLink Business	PEAK Internet	Webformix Company
Eastern Oregon Telecom	Pendleton Fiber Company	Whiz To Coho, Inc.
EasyStreet Online	People's Telephone Company	Wtechlink
Elgin TV Association	Pine Telephone Systems, Inc.	Yellowknife Wireless Company, LLC
EONI.Com	Pioneer Telephone Cooperative	Zayo Group LLC
ExchangeNet	PocketiNet Communications Inc	





## **SERVICE CHANGES**

- Coverage Footprint Reductions/Map Refinement
  - BendBroadband (TT-40)
  - BendBroadband (TT-71)
  - CenturyLink (TT-10)
  - Comcast (TT-40)
  - Community Broadband (TT-70)
  - Mount Angel Telephone Company (TT-10)
  - Nahalem Telecommunications Inc. (TT-10)
  - T-Mobile (TT-80)
  - TW Telecom of Oregon LLC (TT-30)
  - Viasat, Inc. (TT-60)
- Technology Changes/Additions –
  - Clear Creek Mutual Telephone Company (TT-10)
  - Cogent Communication Group (TT-50)
  - Cricket Wireless (TT-80)
  - FTX Networks (TT-50)
  - InfoStructure (TT-10)
  - InfoStructure (TT-20)
  - InfoStructure (TT-30)
  - Mount Angel Telephone Company (TT-50)
  - SandyNet (TT-50)
  - Sprint (TT-80)
- Coverage Footprint Expansion –
  - AT&T Mobility LLC (TT-80)
  - CenturyLink (TT-50)
  - CoastCom, Inc (TT-10)
  - CoastCom, Inc (TT-20)
  - Douglas Fast Net (TT-10)
  - Level 3 Communications, LLC (TT-50)
  - OnlineNW (TT-50)
  - Silver Star Telecom (TT-50)
  - Stayton Cooperative Telephone Company (TT-50)
  - TDS TELECOM (TT-10)
  - Tnet Broadband Internet Llc (TT-71)
  - TW Telecom Of Oregon LLC (TT-50)
  - Verizon Wireless (TT-80)
  - Zayo Group LLC (TT-50)







## COMMUNITY ANCHOR INSTITUTION (CAI) DETAILS

### OVERALL STATISTICS

Community Anchor Institution - Categories	Overall Count	Broadband Subscriber	Trans Tech	Subscribed Speed Down	Subscribed Speed Up
Category 1 - School K through 12	1721	1198	1146	1226	1226
Category 2 - Library	221	211	211	206	204
Category 3 - Medical/Healthcare	619	185	184	182	181
Category 4 - Public Safety	1049	246	205	164	164
Category 5 - Universities/Colleges	157	51	52	51	51
Category 6 - Other: Government	249	51	234	44	44
Category 7 - Other: Non-Government	150	14	13	11	11
<b>Total</b>	<b>4166</b>	<b>1956</b>	<b>2045</b>	<b>1884</b>	<b>1881</b>

**Total CAI records: 4166**

Broadband Service - Yes	1956	47%
Broadband Service - Unknown	2210	53%

### Broadband Service - Yes

Unknown Technology Type	136	7%	Y to BB service but no to TT
Unknown Download & Upload Speed	116	6%	Y to BB service but unknown D & U speeds
Download & Upload Speed	1837	94%	Y to BB service and Y to D & U speeds
Download & No Upload	3	.02%	Y to BB service and Y to download but unknown upload

*Libraries with CAIID	98%
*Schools (Private & Public) with CAIID	88%
CAI with CAIID (Cat. 1, 2, & 5)	82%

\* Schools and library percentages represent CAIID that correspond with NTIA specifications.





## CAI CHANGES

### CAI ID Values

As directed by the NTIA for CAI categories 1 (K-12) and 2 (libraries) a national unique identifier has been assigned where ever such information is available.

- **Libraries IDs**

The library identifier code is based on a combination of FSCSKEY and FSCSEQ fields from data available at the following link <https://harvester.census.gov/imls/data/pls/index.asp>. The aforementioned link is a dataset hosted by the Institute of Museum and Library Services

- **Schools IDs**

CAI identifier for K-12 schools is based on the identifier assigned by the National Center for Education Statistics (NCES). Not all institutions are in the NCES database; in such cases alternative identifiers have been used as described below:

If an institution is identified by a record in the Oregon Department of Education school database, that value was used. The attribute is an integer.

If an institution is not identified by a record in the Oregon Department of Education school database, an internal value was assigned. This value is a combination of CAI- and \*, where \* is an integer value. An example value is CAI-0001.

### Additional Notes

- This submission represents significant work on all categories of community anchor institutions.
- Enhanced CAI locations by correcting address inconsistencies and removing duplicates. These changes were completed through internet research and CAI outreach.
- School K-12 data has been further verified and edited to show a more comprehensive and accurate list of private and public institutions.
- Researching category 1 (K-12) connectivity information has proven to be a greater challenge than anticipated and has resulted in instances where only partial information is available such as capturing information on connectivity speeds, but not the technology of transmission or the providing ISP.
- K-12 data sources for connectivity information varied but generally came from the school district level with supplemental input from educational school districts, individual schools and some state level programs.
- All library information came from the Oregon State Librarian.
- \*See Change and Corrections document concerning NTIA harmonizing SBI data with the FCC E-rate fiber map.





## ***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**

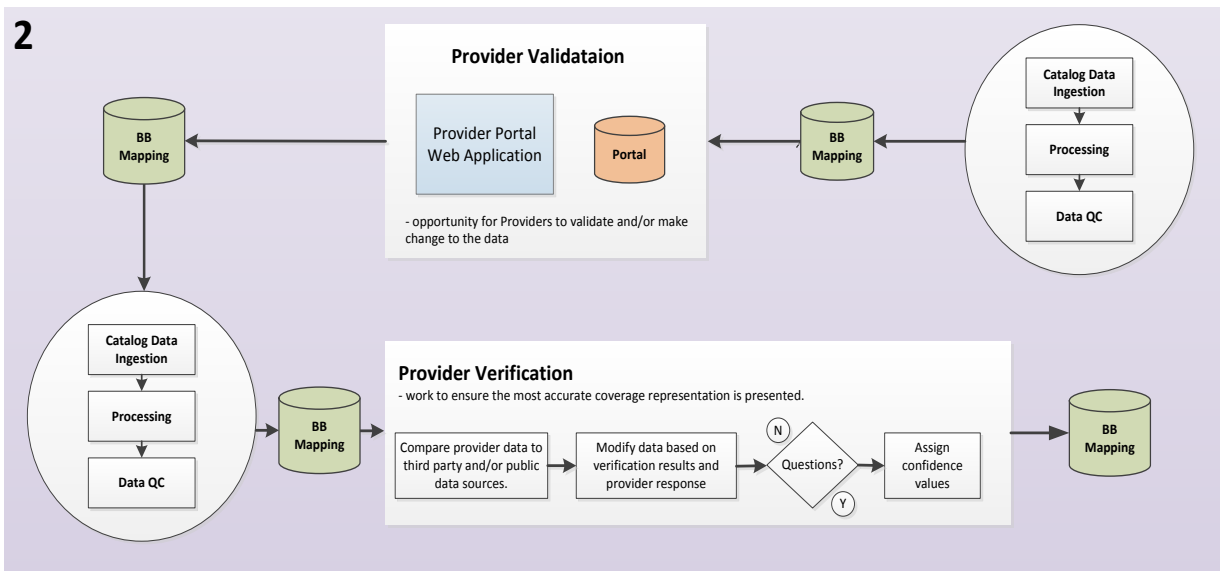
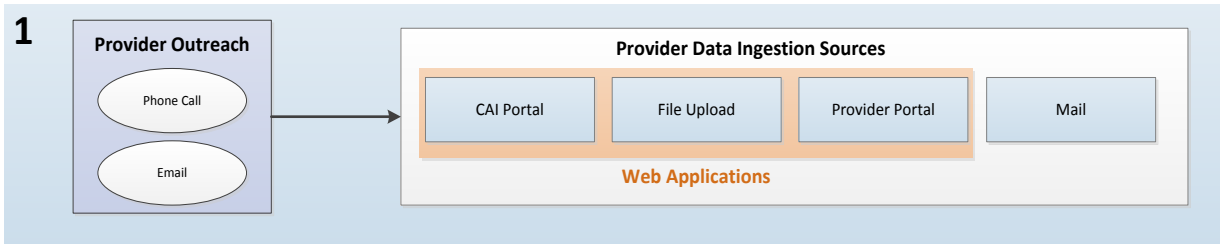
At the close of each data collection period all ISP and CAI data is passed through a set of automated processes that parse the geospatial data into the format required for NTIA submission, flag potential data errors and generate associate tabular reports. The final outputs are combined into a single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

\* Process Review Diagram, sections reference below numbered diagram (pg.12)





\* Process Review Diagram, sections reference above numbered paragraphs (pg.11):





## 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.

PCat Hello, ihardin!

[Tasks](#) [DBAs](#) [Sources](#) [Settings](#) [Reports](#)

[My Tasks](#)

Source Name	DBA Name	Received	Status
-------------	----------	----------	--------

[Unassigned Tasks](#)

Source Name	DBA Name	Received	Status
-------------	----------	----------	--------

[All Open Tasks](#)

Source Name	DBA Name	Received	Status	Assigned To	Completed
-------------	----------	----------	--------	-------------	-----------

[All Tasks](#)

Source Name	DBA Name	Received	Status	Assigned To	Completed
<a href="#">OR ProviderPortal_5399_20130320.shp</a>	<a href="#">Frontier Communications Northwest Inc.</a>	03/20/2013	Completed	alake	03/20/2013
<a href="#">OR ProviderPortal_710_20130320.shp</a>	<a href="#">CenturyLink</a>	03/20/2013	Completed	ihardin	03/20/2013
<a href="#">OR ProviderPortal_710_20130319.shp</a>	<a href="#">CenturyLink</a>	03/19/2013	Completed	ihardin	03/19/2013
<a href="#">frontiercommnw/OR DSLAM Last Mile EC NW - Dec 2012 rev.xls</a>	<a href="#">Frontier Communications Northwest Inc.</a>	03/19/2013	Completed	alake	03/19/2013
	<a href="#">Frontier</a>				





PCat Hello, ihardin!

Tasks DBAs Sources Settings Reports

**Acmetech OR (DBA ID: 6362) Active**

<http://www.calvin-and-hobbes.org/>

Parent Provider:

Provider Type: Broadband provider as described in the NOFA

**DBA Details**

155 Cottage St	User name: <a href="#">acmetech_or</a>	<b>TransTechs</b>
Salem, OR 97301	Password: <a href="#">acme66tech</a>	10 Asymmetric xDSL
Have Ever Participated: <a href="#">False</a>	Portal Trained: <a href="#">True</a>	20 Symmetric xDSL
Do Not Contact: <a href="#">False</a>	Awarded Grant: <a href="#">False</a>	<b>FRN Numbers</b> <a href="#">+</a>
NDA: <a href="#">False</a>	NDA Signed:	
NDA Required: <a href="#">False</a>	NDA Exchanged:	
Business Only: <a href="#">False</a>		
Origin:		
Notes: <a href="#">This is our testing account</a>		
Created 12/18/2012 by		

**Contacts**

**Contact Log**

**Confidence** [+](#)

**0413 Delivery** [+](#)

**1012 Delivery** [+](#)

**Sources** [+](#)

- 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: \* Kristin Rousseau

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

Contact Phone: \* 603-448-4475

Doing Business As (DBA) Name: \* acmetech

FCC Registration Number (FRN): \* 2222222

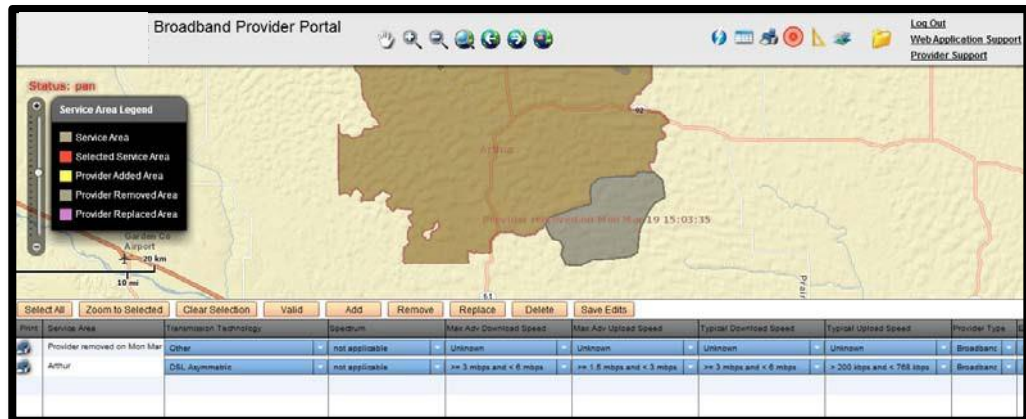
Please note the following:

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

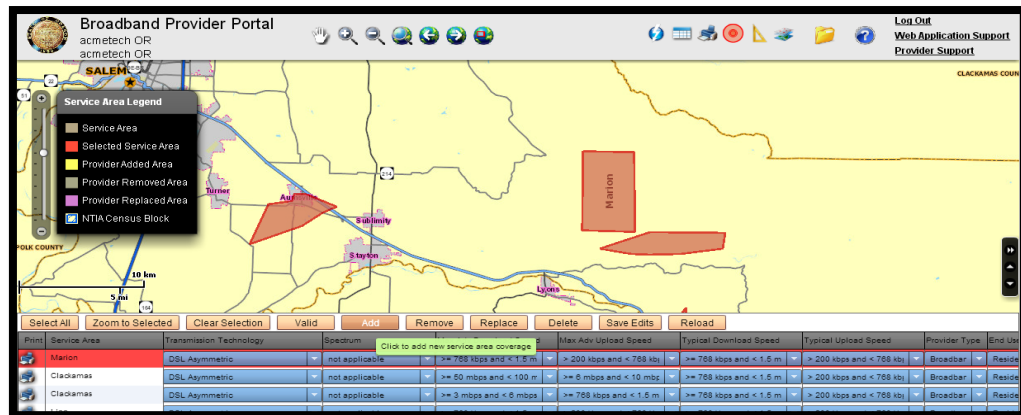




- Capability to review and request changes to the coverage footprint



- 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

400 m  
1000 ft

**Middle Mile Information Editor**

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

**Table:**

Service Area	Transmission Technology	Speed	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

**Buttons:** Select All, Zoom to Selected, Clear Selection, Valid, Add, Remove, Replace, Delete, Save Edits

**Right Panel:**

Middle-Mile locations are where you would hand off your network to a tier one carrier. These locations are sometimes referred to as the "back-haul". Typically you would only have one or two of these locations.

Middle-Mile locations are displayed on the map.

**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.

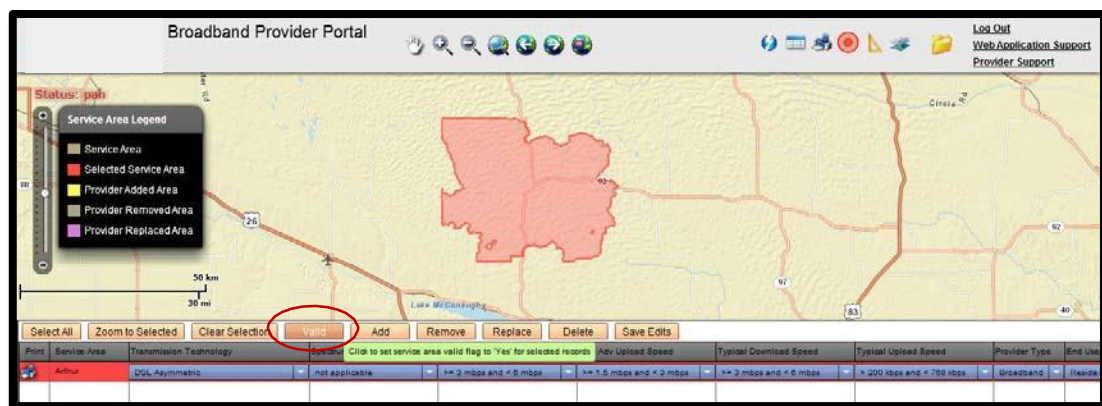


## DATA VALIDATION AND VERIFICATION

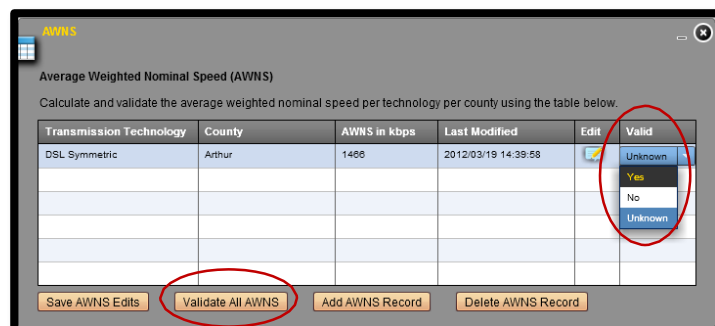
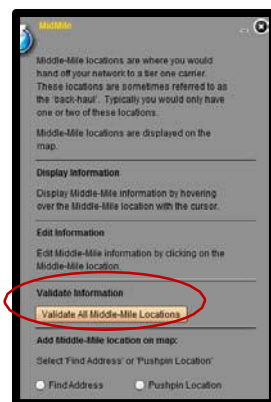
Following the creation of the product, process steps within Data Validation and Verification occur. To ensure the data collected and processed is as accurate and comprehensive as possible, provider validation and internal verification activities are employed. After the initial mapping of providers' coverage 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. Whenever possible this process takes place before the report submission date. We work with the individual providers to address any outstanding issues. Providers that do not cooperate in this process are assigned a lower confidence value that reflects data quality issues and provider engagement.

3 <sup>rd</sup> Party Source Name	Source Type	Verification Type
GeoTel	Fiber Routes and LitBuildings	Used to verify TT: Fiber to End User (50)
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)
Mosaik Solutions	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)
Ookla	Speed test data points: Android, iOS, Stnet	Used to verify TT: Asymmetric xDSL (10), Symmetric xDSL (20), Other Copper Wireline (30), and Optical Carrier/Fiber to the End User (50). 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 not been included in the verification process for this submission for supporting provider service area claims and bandwidth benchmarking because this information is no longer available from the FCC.

## ***CONFIDENCE VALUES***

All verification, validation and manual quality review results are tracked by provider/technology type and stored and maintained, within a customer management system. Each Internet Service Provider is assigned a Confidence Value (CV), expressed as a percentage between 0 and 100. The CV reflects the overall confidence in the data displayed on the statewide broadband map.

The CV value is based on factors such as:

- Data quality and completeness;
- Alignment with commercially available reference materials and public feedback captured via the Feedback and Speed Test tools embedded in the Oregon Broadband Map;
- Data currency; and,
- Provider engagement with the Broadband Mapping project.





PCat Tasks DBAs Sources Settings Reports Hello, ihardni

### Confidence for Acmetech OR

**Points**

TT: 10: Asymmetric xDSL Delivery: 0413

**Dates**

Peer Review Date: aa / dd / yyyy  
Provider Validation Date: aa / dd / yyyy  
3rd Party Verification Date: aa / dd / yyyy

**Points**

Geometry: 0 Represents the common geometry of the specified technology. 1 Point

Attribution: 0 Attribution is complete and matches specified technology. 1 Point

3rd Party: 0 3rd party verification review supports provider's footprint, discrepancies are minimal. 1 Point per dataset (Maximum 2)

Validation: 0 Provider validated their coverage via portal or otherwise. 1 Point

Peer Review: 0 Peer review was completed and agrees with provider's coverage. 1 Point

Crowd Sourcing: 0 Results from the following do not show significant discrepancies and/or supports (agrees) with coverage and attribution. Website, Speed Test Results, Feedback, anecdotal sources. 1 Point per dataset (Maximum 2)

NTIA Guidelines: 0 Technology and attribution satisfies NTIA guidelines. Example: Technology/Speed tier table, doesn't come up in the Submission Receipt as an error. 1 Point

Currency: 0 Data, validation, and verification activities are current within a timeline of 2 data submissions, or 1 year. 2 points if participated in current submission, 1 point if participated in previous submission, 0 points if have not participated within the previous year. Sliding scale 0-2

Engagement: 0 A measure of how engaged the provider is in the project. 1 point for responding to communications, 2 points for actively participating and submitting data in a timely manner (not at the last minute), 3 points for significant work on ensuring update accuracy. Sliding scale 0-3.

**Notes:**

In addition to the continued efforts on provider validation, 3rd party verification and the release of the public interactive map with feedback collection functionality, the providers will be supplied their current CV assessment in advance of the next data gathering event so each can identify the various ways their participation efforts can improve their CV rankings.

## 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

This list represents all providers researched during the entire history of the program.

1-800-Reconex Inc	FTX Networks	OregonFAST.Net
360 Networks (Usa) Inc.	France Telecom Corporate Solutions, Llc	Outdoor Das - American Tower Corp
800 Response Information Services Llc	Freedomstarr Communications Inc	Outreach Internet
Abovenet Communications Inc.	Freewire Broadband LLC	Pac-West Telecomm, Inc.
Access One Inc	Frontier Communications Northwest Inc.	Pacific-South Telecom Inc
Access Point Inc	Frontier Communications Of Oregon	Pacific Northwest Telco, Inc.
Access2go	Frontier Telenet	Pacific West
Accessline Communications Corporation	Gci Communication Corp	PacInfo Internet Solutions
Acn Communication Services Inc	Gervais Telephone Company	Paetec Communications, Inc.
Advanced Tel Inc	Global Capacity Group Inc	Para-Tech satellite
Advanced Telcom Inc	Global Connection Inc. Of America	PEAK Internet
Advantage Telecommunications Corp	Global Crossing Local Services Inc	Peerless Network Of Oregon, Llc
Affinity Network Inc	Global Crossing North American Networks Inc	Pelzer Communications Corporation
Affordable Voice Communications Inc	Global Crossing Telecommunications Inc	Pendleton Fiber Company
Afn, Inc.	Global Crossing Telemanagement Inc	People's Telephone Company
Agm Telecom Corporation	Global Tel*Link Corp	Pic Professional Services
Air Speed LLC	Globalcom Inc	Pine Telephone Systems, Inc.
Airespring Inc	Globalstar Usa Llc	Pioneer Telephone Cooperative
Airnex Communications Inc	Go Solo Technologies Inc	Png Telecommunications Inc
Alliance Global Networks Llc	Gold Line Telemanagement Inc	PocketiNet Communications Inc
Alliance Group Services Inc	Goose Lake Computing	Portland Internetworks
Alyrica Networks, Inc.	Gorge Networks	Portland State University
America Net Llc	Granite Telecommunications	Preferred Connections Inc. Nw
American Phone Services Corp	Group Six Communications Llc	Preferred Long Distance Inc
American Telecommunications Systems, Inc.	Gtc Telecom Corp	Prime Time Ventures Llc
Americom Technologies Inc	Harbor Communications Llc	Primus Telecommunications Inc
Amerivision Communications Inc	Harney ESD	Prinetime Internet Solutions
Andiamo Telecom Llc	Helixtel.Com	Priority One Telecommunication, Inc.
Applegate Broadband LLC	Hickorytech/Eventis Telecom	Priorityone Telecommunications Inc
Applewood Communications Corporation	Horizon Telecom Inc.	Public Communications Services Inc
Ashland Fiber Network	HughesNet	Pulse Telecom Llc
Associated Cooperative Telecommunications Inc	Hunter Communications Inc	Qnect.Net
Associated Network Partners Inc	Hypercube Telecom Llc	Qualitylife Intergovernmental Agency
AT&T Corp	Ibasis	Quantum Communications
AT&T Mobility LLC	Ibasis Retail Inc	Quantumshift Communications Inc
Atc Outdoor Das Llc	Ibfa Acquisition Company Llc	Quasar Communications Corporation
Atl Communications Inc	Idt America Corp	Qwest Corporation





Atx Licensing Inc	Indigenous Telephone Inc	Qwest Ld Corp
Axxis Communications	Inetworks Group Inc	Radix Networks
Bandwidth.Com Clec Llc	Infinity Wireless	Reduced Rate Long Distance Llc
Bcn Telecom Inc	InfoStructure	Reliance Connects (Cascade Utilities)
Beaver Creek Telephone Company	Infotelecom Llc	Reliance Connects (Trans-Cascade Telephone)
Bellsouth Long Distance Inc	Inland Development Corporation	Reliance Globalcom Ltd. - Reliance Communications
BendBroadband	Inmark Inc	Reliant Communications Inc
BendTel	Inmate Calling Solutions, Llc	Ridley Telephone Co Llc
Betterworld Telecom Llc	Inmate Communications Corp	Rio Networks
Bg Enterprises Inc	Integra Telecom	Roome Telecommunications Inc.
Bigredwire.Com Inc	Integrated Services Inc A Nevada Corporation	Rrv Enterprises Inc
Blue Mountain Cable	Intelepoint Llc	Rural Services Company; Dba Ulatilla Electric Cooperative
Bluebird Wireless Broadband Services Llc	Inteltrace Inc	Rural Technology Group
Broadband Dynamics Llc	Intellicall Operator Services Inc	Safelink Internet Services
Broadcore	Intelligent Community Services Inc	Sage Telecom, Inc.
Broadstripe Llc	Intlepoint, Llc	Salem Hospital Regiona Health Center
Broadview Networks Inc	Intrado Communications Inc	SandyNet
Broadwing Communications Llc	Ipc Network Services Inc	SawNet
Bt Communications Sales Llc	Isomedia	Sbc Long Distance Llc
Budget Call Long Distance Inc	Ispeed Wireless	SCIO Mutual Telephone
Budget Prepay Inc	J & N Cable Systems, Inc.	SCS Communications
Buehner Fry Inc	J Irwin Community Informatics Consulting	Shared Communications Inc
Bullseye Telecom Inc	Johnson Network	Silv Communication Inc
Business Discount Plan Inc	Kansas Independent Telecommunications Llc	Silver Star Telecom
Business Network Long Distance Inc	Kddi America Inc	Siuslawbroadband
Business Telecom Inc	Kruse - Mercantile Professional Suites	Skycasters
Cable ONE	Lane Telecommunications Services, Inc.	Smartrak Incorporated
Cal-Ore Communications Inc.	Lcr Telecommunications Llc	Snake River PCS
California Oregon Broadcasting Inc	Ldmi Telecommunications Inc	Snet America Inc
Call Plan Usa Inc	Leap Wireless (Cricket Communications)	Snip Link Llc
Canby Telcom	Legacy Long Distance International Inc	Spacenet, Inc.
Cascade Networks, Inc.	Legent Communications Corp	SpeedyQuick Networks
Cause Based Commerce Inc., - Dba The Sienna Group	Level 3 Communications, LLC	Springfield Utility Board
Cavenet	Lewis & Clark College	Sprint
Cbeyond Communications Llc	Light Tower	Sprint Communications Co Lp
Cci Network Services Llc	Lightyear Network Solutions Llc	St Paul Telephone
Centel Communications Inc	Lincoln County	Starband Communications, Inc.







Central Telecom Long Distance Inc	Long Distance Charges Inc	Startec Global Operating Company
Central Telephone Inc	Long Distance Consolidated Billing Co	Stayton Cooperative Telephone Company
CenturyLink	Lotel Inc	Stelera Wireless
Chambers Cable	Ls Networks	Stephouse Networks
Charter Communications Inc.	Lssi Data Corporation	Sterling Communications
Cimco Communications Inc (Comcast)	M2 MachMedia	Sti Prepaid Llc
Cincinnati Bell Any Distance Inc	Main Street Telephone Co	Sungard Network Solutions Inc
City Of Cascade-Locks	Malheur Home Telephone Co	T-Mobile
City Of Eugene	Master Call Communications	Talk America Inc
City Of Klamath Falls	Matrix Telecom Inc	Tcast Communications Inc
City Of Portland	Mcgraw Communications Inc	Tcg Joint Venture Holdings Inc
Clear Creek Mutual Telephone Company	Mci Communications Services Inc	Tds Long Distance Corp
Clear World Communication Corporation	Mcimetro Access Transmission Services Llc	TDS Telecom
Clearfly Networks	Mcleodusa Telecommunications Services Inc	Technology Services Inc
Closecall America Inc	Md Communications	Tel West Communications Llc
Coast International Inc	MegaPath Corporation	Telco Partners Inc
CoastCom, Inc	Meritel Group, Inc	Telecare, Inc.
Cogent Communications Group	Metropolitan Telecommunications Of Oregon - DbA Mettel	Telecom Management - DbA Pioneer Ld
Coinet	Midcolumbia.Net	Teleconnect Long Distance Services & Systems Co
Coltontel	Midvale Telephone Exchange Inc	Telenational Communications Inc
Columbia Broadband Inc	Millenicom	Telequality Communications Inc
Comcast	MINet	Telmex Usa Llc
Comcast Business Communications Llc	Miracle Communications	Telrite Corporation
Comcast Phone Of Oregon Llc	Mitel Netsolutions, Inc.	Teltrust Corporation
Commpartners Llc	Mobilite Llc	Threshold Communications Inc
Communications Access Cooperative Holding Enterprise	Molalla Communications Company	Tillamook Lightwave
Communications Network Billing Inc	Momentum Telecom Inc	Time Warner Cable Llc
Community Broadband	Monitor Cooperative Telephone Company	Tnet Broadband
Comspan Communications, Inc.	Monroe Area Communications	Ton Services Inc
Comtech21, Llc	Monroe Telephone	Total Call International Inc
Comtel Telcom Assets Lp	Mount Angel Telephone Company	Total Holdings Inc
Consumer Telcom Inc	MTE Communications	Touchtone Communications Inc
Convergia Inc	Multiline Long Distance Inc	Trans National Communications International Inc
Cooperative Communications Inc	My Tel Co Inc	Transpac Telecom Inc
Corban Technologies, Inc.	National Access Long Distance Inc	Transunion Teledata Llc
Cordia Communications Corp	National Brands, Inc.	Tri-M Communications - DbA Tcm Communications







Core Digital Services	National Directory Assistance Llc	Tribal One Broadband Technologies
Cottage Grove	Nationalcomtel	Tti National Inc
Country Vision Cable Inc.	Nationwide Long Distance Service Inc	TW Telecom Of Oregon LLC
Covad Communications Company	Navigator	U S Telecom Long Distance Inc
Covista	Necc Telecom	U.S. Cellular
Covista Inc	Nehalem Telecommunications Inc.	Ucn Inc
Crestview Cable Communications	Net One International Inc	Uni-Tel Communications Group Inc
Cricket Communications, Inc.	Net Talk.Com Inc	United American Technology Inc
Croisan Creek Broadband	Netlojix Telecom Inc	United Communications Inc
Ctc Communications Corp	Network Billing Systems Llc	United Telecom Inc
Cti Long Distance Inc	Network Communications International Corp	Unwiredwest Internet
Custom Teleconnect Inc	Network Enhanced Technologies Inc	Upward Access
Cypress Communications Operating Company Llc	Network Operator Services	Utility Telephone Inc
Dabney/Strawn Llc	Network Service Billing Inc	Value-Added Communications, Inc.
Datavision Communications	Network Us Inc	Vanco Direct Usa Llc
DC Wireless	Networkip Llc	Vanco Us Llc
Dct Telecom Group, Inc.	Neutral Tandem-Oregon Llc	Verizon Business Global Llc DbA Verizon Business
Ddd Calling Inc	New Century Telecom Inc	Verizon Enterprise Solutions Llc
Deltacom Inc	New Edge Networks	Verizon Long Distance Llc
Deltel Inc	New Horizons Communications Corp	Verizon Select Services Inc
Digizip.Com Inc	Newpath Networks Llc	Verizon Wireless
Direct Communications Long Distance Inc	NextGen Internet Systems, Inc.	Vertex SSX Corporation
Direct Link Of Oregon, Inc	Nextlink Wireless Inc	Viasat Communications
DISH	Nextnet Ventures, LLC	Vidafon Inc
Douglas Fast Net	Nexus Communications Inc DbA Nexus-Tsi	Voicecom Telecommunications Llc
Dslnet Communications, Llc	Nexustel Llc	Wallowa Valley Networks
Eagle Telephone System, Inc.	Nitel	Warm Springs Telecom
Eaglecap.Net Llc	Nobel Creek Communications	Wave Broadband
EarthLink Business	Nobeltel, Llc	WCS Wireless License Subsidiary LLC (NextWave Wireless Inc.)
Eastern Oregon Telecom	Noble Creek Communications	Webformix Company
Easton Telecom Services Llc	Norlight, Inc.	Western Independent Networks Inc
Electric Lightwave Llc	Norstar Telecommunications Llc	Whiz To Coho, Inc.
Elgin TV Association	North-State Telephone Co.	Wholesale Carrier Services Inc
Eltopia Communications, Llc	North County Communications Corporation Of Oregon	Wildblue Communications, Inc.
Encompass Communications Llc	Northstar Telecom Inc	Willamette University
Enhanced Communications Group Llc	Northwest Open Access Network	Wiltel Communications Llc
Enhanced Communications Network	Nos Communications Inc	Windstream Communications Inc





Entrix Telecom Inc	Nosva Limited Partnership	Windwave Technologies, Inc.
EONI.Com	Ols Inc	Winfield Wireless ISP
Ernest Communications Inc	One Economy	Wired Or Wireless Inc
Eschelon Telecom Of Oregon Inc	Onesuite Corp	Working Assets Funding Service Inc
Evercom Systems, Inc.	OneWave Networks	World Communications Inc
ExchangeNet	OnlineNW	Worldnet Communication Services Inc
Extenet Systems	Operator Service Co	Wtechlink
Ezwireless	Opex Communications Inc	Wtechlink Inc
Fiber South Consortium	Orbitcom	X2comm Inc
Fiberlink Llc	ORCA Communications	X5 PDX, LLC
Fibersphere	Oregon-Idaho Utilities, Inc.	XO Communications Services, Inc. (Affiliated Entity)
FireServe	Oregon Govworks	Yellowknife Wireless Company, LLC
First Choice Technology Inc	Oregon Health Network	Yestel Usa Inc
First Communications Llc	Oregon Municipal Isp Coalition	Ymax Communications Corp
Flatel Inc	Oregon Telecom Inc	Zayo Group LLC
Forestel,Llc	Oregon Telephone Corporation	Zeus Telecommunications Llc

