

# Vermont SBDD Methodology Whitepaper

Broadband Coverage as of 12/31/2013

April 1, 2014 Deliverables



Version 1



**Project History:** Vermont's Broadband Mapping Initiative (BMI) is a collaborative broadband data collection and verification effort involving partners from the public, private and academic sectors participating as the Vermont Broadband Mapping Team. The BMI is supported by grant funds provided under the National Telecommunications and Information Administration's (NTIA) State Broadband Data and Development Program (SBDD).

In November 2009 the Vermont Broadband Mapping Team (BMT) initiated the creation and development of a comprehensive and verified geographic inventory of broadband service availability in the State of Vermont. Landline and wireless services (fixed and mobile) were mapped using information from the providers and other sources. The broadband mapping information collected and verified through this effort is supporting the broadband development objectives identified in the RUS Broadband Initiatives Program (BIP) and NTIA's Broadband Technology Opportunities Program (BTOP) in Vermont. Most importantly, the geographic inventory will further refine our understanding of the location of "unserved" and "underserved" areas in the state, thereby supporting targeted future investments in these areas.

The BMT includes the following organizations: Vermont Department of Public Service, the Vermont Telecommunications Authority, the Center for Rural Studies at the University of Vermont, Vermont's Enhanced 9-1-1 Board and the Vermont Center for Geographic Information. The BMT is also supported by private sector contractors.

**Summary of Deliverables:** The BMT's broadband data submission (April 1, 2014) includes broadband information as of 12/31/2013 (VT\_SBDD\_2014\_04\_01.ZIP). The data complies with the NTIA NOFA requirements and SBDD data model (FGDB) specifications as of 12/31/2013. A detailed description of each dataset is available in the ./metadata folder included with the deliverable package.

**Listed of Providers Contacted:** The BMT reached out to the following list of providers for this update.

List of all Companies Contacted by BMT		
Doing Business As	FCC FRN	Provided Data?
AT&T Mobility	0004979233	Yes
Burlington Telecom	0010480093	No Response
Charter Communications Inc.	0017179383	Yes
Cloud Alliance	0018600445	No Updates
Comcast	0003768165	Yes
Duncan Cable	0016391716	No Response
EC Fiber	9999	No Response
FairPoint Communications	0003723202	Yes
FairPoint Vermont	0017551359	No Response
Franklin Telephone Company, Inc.	0004356952	No Response

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## List of all Companies Contacted by BMT

Doing Business As	FCC FRN	Provided Data?
GlobalNet	0018331173	No Response
Great Auk Wireless, LLC	0017383332	No Response
Green Mountain Access	0004956652	Yes
Hughes Network Systems LLC	0018483073	No Response
Kingdom Connection	0017631540	No Response
Level 3 Communications	0003723822	No Response
North Branch Networks	0018206391	No Updates
North Country Communications	0019521087	No Response
SegTel	0006204630	No Response
Shoreham Telephone Company	0004380200	Yes
Skycasters	0018756155	No Response
Smuggler's Notch Water Company	0007320963	No Response
Southern Vermont Broadband Cooperative	9999	No Response
Southern Vermont Cable Company	0003770351	No Response
Sovernet Communications	0015120850	No Response
Sprint Nextel	0003774593	No Response
Starband	0005087457	No Response
Stowe Cablevision	0003755766	No Response
TDS Telecom	0004948105	Yes
TelJet	0017834540	No Response
Topsham Communications	0016569485	No Response
Topsham Telephone Company	0016569485	Yes
Trans-Video Cable	0003770401	No Response
U.S. Cellular	0004372322	No Response
Verizon Wireless	0003290673	Yes
Vermont Telephone Company	0003646213	No Response
WaveComm	0003665080	No Response
WildBlue Communications	0007843766	No Response
WirelessVT Solutions	9999	No Response

**Data Development Methodology:** A variety of data source and data collection methods were used to identify the characteristics and geographic extent of broadband service in Vermont. Here is a quick breakdown

- **Cable:** Mapped to street/street-segment level

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- **DSL:** Mapped as polygons (usually Exchange areas) or address points (list of addresses submitted by provider).
- **Fiber Optic:** Mapped as address points (list of address submitted by provider)
- **Fixed Wireless (WISP):** Mapped as polygons (propagation maps prepared by independent contractor using data provided by WISPs)
- **Mobile Wireless:** Mapped as polygons (data submitted by provider)
- **Satellite:** Mapped as polygons (data submitted by provider). Providers of satellite-based broadband services claimed that they covered the entire state.

The cable, DSL, fiber optic, and fixed wireless (WISP) layers were “intersected” with Vermont’s E911 address point layer to determine broadband availability at the address-level. This information was then intersected with Vermont’s 2010 Census Block layer to calculate availability at the block level. This deliverable includes Census block-level data for Census Blocks less than or equal to 2 sq miles, and address level data for Census blocks greater than 2 sq miles.

Mobile wireless and satellite-based broadband polygons were submitted by providers to VCGI. They were formatted to match NTIA specification, but otherwise forwarded as-is.

Vermont’s broadband providers submitted data which was used to populate a table listing maximum advertised and typical speeds by Metropolitan Statistical & Rural Service Areas (Cellular Market Areas). This information was used to populate the speed information contained in the submitted broadband, including speed information at the census block level. In numerous cases providers did not submit typical speed information.

The initial list of Community Anchor Institutions (CAIs) was derived from existing data sources including the VT Critical Facilities Database and Public Libraries Survey from the Institute of Museum and Library Services. Community Anchor Institutions include schools, libraries, medical facilities, public safety facilities, universities and colleges, and other community facilities such as town halls/offices. An email and hard-copy mailing was sent to every institution in the list. They were asked to fill out an online survey. Follow-up emails and phone calls were made to increase the response rate. The data delivered to the NTIA includes all CAIs, but only includes broadband information for a subset. Additional broadband institutions will be added as their information becomes available.

**Data Review:** No formal confidence interval for provider data submissions has been established. Vermont is waiting for clarification from the NTIA on this. However, each provider submitted dataset is evaluated against a minimum standard or expectation of quality. If the data submission is identified by the VT Dept of Public Service as not credible based upon their experience, it is not included in the inventory. If a provider creates a data submission that cannot be parsed or, resolved, we contact the provider to try and work out a method of submission that can be used. Vermont had 64% participation (responded with data updates or that no updates in service area exist) from all 39 broadband providers for this data submission. However, many of these did not have any updates to report.

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**Feedback Loops:** Each broadband provider that supplies broadband service data in some manner to the VT broadband data inventory is given the option to view a final version of their data submission as it will be represented in the NTIA delivery. However, very few providers have asked for a copy of the final version of their data submission for review. Some smaller providers have asked for, and received, a hardcopy map or digital map graphic (PDF) of their coverage area. All of the providers that requested to see what was being submitted to NTIA representing their coverage area received either a copy of the data, a hardcopy map or digital map graphic in accordance with their preference.

**Data Verification Methodology:** The BMT used two primary data verification methods: 1) a phone survey conducted by the UVM Center for Rural Studies (CRS) to verify the broadband maps, and 2) wireless-drive testing to evaluate mobile wireless propagation maps submitted by providers.

**Conclusion:** Vermont's Broadband Mapping Team is pleased to deliver a robust broadband availability inventory to the NTIA. We are confident that it meets the specifications outlined in the NTIA SBDD NOFA. The broadband data and maps will help Vermonters refine their understanding of "un-served" and "underserved" areas of the state, thereby supporting targeted future investments in these areas.