



Vermont Telecommunications Authority

To: House Committee on Commerce and Economic Development
House Committee on Corrections and Institutions
Senate Committee on Economic Development, Housing and General Affairs
Senate Committee on Finance
Senate Committee on Institutions
Joint Fiscal Committee
Secretary of the Administration
Secretary of the Agency of Commerce and Community Development (Challenge Lead)
Chief, Connect Vermont

From: Vermont Telecommunications Authority

Date: July 12, 2013

Re: Quarterly Report per Section 49(i) of the FY2012 Capital Bill

Per Section 49(i) of the FY2012 Capital Bill starting on October 1, 2011, the Vermont Telecommunications Authority (VTA) is required to submit a report on investments made or grants awarded in furtherance of the goals stated in 30 V.S.A. § 8060(b), using the telecommunications measures established pursuant to No. 146 of the Acts of the 2009 Adj. Sess. [2010], (an act relating to implementation of challenges for change).

The purpose of this report is to track the progress made in attaining those goals through the aforementioned investments and grants.

This progress report reflects the outcomes and measures applied under Outcome 2, Measures 2, of the Economic Development Challenge (see Challenges for Change, Quarterly Progress Report, p. 97-98, July 2011) to projects funded under Section 49 ("The VTA Capital Appropriations Provision"), as follows:

- i. Percentage of residences and businesses with broadband access, using the current Vermont definition of broadband
- ii. Percentage of cellular coverage on major roads
- iii. Percentage of cellular coverage on minor roads
- iv. Percent of State where public safety radios work

This progress report also includes location-specific information on the progress of deployment of telecommunications technology that does not require the utilization of towers, as expressly required by the VTA Capital Appropriations Provision.

Measure 2(i): Progress made in attaining broadband telecommunications goals

**Summary: Statutorily-required Public Comment Period completed;
Statutorily-required Competitive Solicitation completed;
Broadband grants awarded;
Investments in fiber-optic infrastructure in process.**

The standard used to measure broadband coverage is currently identified as availability of service at e911 locations with a minimum threshold speed of least 768 KBPS download and 200 KBPS upload. This includes broadband service delivered by cable, DSL, fiber optic and wireless broadband (fixed and mobile). Satellite-based coverage is not included.

In making grants available, the VTA is required to coordinate with the need analysis of Connect VT. Connect VT's strategic plan identifies four service-level goals with respect to broadband availability for each e911 location:

1.0 = one connection available (other than satellite) at the minimum threshold of 768/200 kbps or better

Goal date: 100% complete by December 31, 2013

2.0 = two connections available (other than satellite) at a minimum threshold 768/200 kbps or better, where at least one option is fixed and one is mobile or fixed

Goal date: substantially complete by December 31, 2013

3.0 = one available connection (other than satellite) at a minimum threshold of 4/1 mbps

Goal date: Future

4.0 = two connections available (other than satellite) at a minimum threshold 4/1 mbps, where at least one option is fixed and one is mobile

Goal date: Future

In order to make baseline and progress measurements of these goals, Connect VT analyzes Vermont Broadband Mapping Initiative (BMI) data with two lenses: a survey of coverage with mobile broadband availability and another without mobile as an option for broadband delivery. Coverage across the state is expressed as the percentage of e911 locations with broadband, and several maps are generated.

Based on preliminary analysis of the December 2012 BMI data, 96.1% of e911 addresses have broadband availability. The VTA verifies unserved addresses through methods such as direct mailing and analysis of service provider data. The VTA is currently seeking to develop projects to provide service to these unserved areas through VTA2013-NGF-137 (Broadband Notice of Grant Funding Availability), described below.

The VTA began the competitive process for distribution of grants from the FY2012 capital appropriations in early 2012, awarding the first \$625,000 in grants in the second quarter. Additional grants awarded in the third quarter of 2012 brought the overall total grants to \$2,302,340, with the four awardees' projects covering 545 unserved locations in 52 communities. Almost all unserved areas targeted in the grant rounds receiving a funded project.

In addition, the VTA moved forward on a fiber-optic project to be funded with FY2012 capital appropriations, the 36-mile Orange County Fiber Connector along state routes 110, 113, and 132. Areas along the proposed route were identified as "Target Communities" for broadband service expansion by the Agency of Administration and as Target Grant Areas ["TGAs"] by the VTA.

The VTA determined that a fiber cable can efficiently support multiple uses for multiple communications providers:

- as backhaul service for mobile voice providers;
- as a last-mile broadband service to premises along the route;
- as a middle-mile transport facility for broadband companies.

The VTA will make dark fiber available at competitive rates to broadband and mobile voice communication companies, consistent with the VTA Capital Appropriation Provision of subsection (d), which requires that VTA investments "be available for use by as many retail service providers as technology will permit to prevent the state from establishing a monopoly service territory for one provider..."

Eleven miles of fiber-optic cable for the 36-mile Orange County Fiber Connector project route have been hung, successfully tested and put in service along VT Routes 110 and 113. Two service providers have licensed strands and are connecting subscribers along the tested section of this route.

The VTA has also allocated \$50,000 of the FY2012 capital appropriation to the 41-mile Hardwick-to-Newport Fiber Project, 40 miles of which have been completed beginning in Newport and currently built into northern Hardwick.

In addition, engineering is substantially complete and next steps are in progress on three broadband projects. These projects focus on TGAs located in eight towns: Barnard, Bradford, Braintree, Pownal, Rochester, Ryegate, Shaftsbury, and Topsham. During the second quarter of 2013, two TGAs have been completed. Make-ready work is underway on the remaining TGAs and all are on schedule to be completed before December 31, 2013.

In the first quarter of 2013, the VTA issued NGF VTA 2013-137 Broadband: Notice of Grant Funding Availability (See <http://www.telecomvt.org/rfp/137>) seeking proposals for grant-assisted projects to extend respondent's networks to reach additional designated unserved locations. The VTA initially targeted \$881,000 in FY2012 capital appropriations plus \$119,074 in recaptured funds to this initiative, but at the end of March 2013 the VTA allocated an additional \$1,347,840 in FY2012 capital appropriation funding to NGF 137. These additional funds

were made available by VTA's termination of a 2012 award to VTel Wireless, and so the VTA also added TGAs from 22 communities that were to have been served by the cancelled award to the TGA list for NGF 137.

In the fourth quarter of FY2013, the VTA awarded grants to two new broadband projects that will serve 31 locations in the towns of Bradford, Norwich, Rupert and Thetford. Funding totaled \$349, 569.

Measure 2(ii) & 2(iii): Progress made in attaining mobile telecommunications goals

**Summary: Statutorily-required Public Comment Period Completed;
Statutorily-required Competitive Solicitation completed;
First cellular investment contract awarded;
First cellular tower lease signed.**

Based on 2010 drive-test data collected through BMI, the VTA estimated that 87% of major roads and 76% of minor roads have mobile telecommunications coverage ("roads" are defined as roads that are part of the federal aid highway system, not city streets or residential neighborhoods). Coverage of both major air interface platforms for cellular phones, GSM (used by AT&T and T-Mobile) and CDMA (used by Verizon Wireless, Sprint, and US Cellular) was examined. The reported numbers reflect the coverage for GSM phones, which was more extensive (the CDMA estimate is 55% of major roads and 44% of minor roads). It should be noted that these relatively high coverage percentages do not reflect low coverage or gaps in coverage that can result in dropped calls or inadequate signal transmission.

As part of its duties under 3 V.S.A. § 2222b (b) (1), the Agency of Administration is charged with developing an inventory of locations at which mobile telecommunications and broadband services are not available within the state. The VTA understands that, as part of that initiative, Connect VT plans to commission a new independent and comprehensive evaluation of mobile voice and data coverage in 2013. The VTA will report on cellular coverage utilizing the data that becomes available at that time.

Section 49 of the Fiscal Year 2012 Capital Bill requires a competitive solicitation, as well as a Request for Public Comment, to enlist the cell-phone user experience of Vermont residents. The Request for Public Comment had been completed previously and results posted on the VTA's web site (see <http://www.telecomvt.org/resources/public-comments/2011-A01.php>). The competitive solicitation process was also completed.

As a result of that process, the VTA executed two contracts for expansion of cellular service, one with VTel Wireless, an affiliate of Vermont Telephone of Springfield, VT, and another with Vanu CoverageCo, an affiliate of Cambridge, MA – based Vanu, Inc., a developer of software-defined radio equipment which supports the deployment of multiple standards used by cellular operators on a single platform.

Vanu CoverageCo seeks to provide wholesale service to CDMA and GSM carriers that allow those carriers to expand cellular service to their customers through micro-cell equipment mounted on utility pole tops or other available existing structures within Target Corridors. VTel Wireless seeks to add support for 2G/3G cellular voice and data services to its planned Wireless Open World (WOW) network, a 4G LTE mobile data network that is deployed on traditional communications towers and other types of existing structures. VTel's service will pro-

vide wholesale coverage to existing providers, and to provide a new retail cellular offering to residents and businesses in the state.

The VTA awarded a contract for \$2,644,093 to VTel Wireless for the purchase of core equipment and software that will ultimately enable VTel to add cellular voice capability to its \$116 million stimulus-funded Wireless Open World [WOW] 4G/LTE broadband network.

In the second quarter of 2012, the VTA and CoverageCo signed an agreement to expand cellular service. The VTA will purchase the equipment to serve nearly 90 miles of unserved roadway in three sections of the state at a cost of \$500,000. CoverageCo will lease the equipment from the VTA and operate it as part of their overall network. In addition to the 90 miles sponsored by the VTA through this contract, CoverageCo has proposed to cover an additional 125 road miles throughout the State as part of its initial build, funded through private capital investment. The VTA-funded project will touch 17 towns, covering the following routes:

- Route 110 in Washington, through Chelsea, into part of Tunbridge
- From Route 110 in Chelsea along the East Randolph Road into a part of Randolph
- Route 25 from Orange, through Topsham, through Corinth, into a part of Bradford
- From Route 25 in East Corinth along the Topsham-Corinth Road and Powder Spring Road through Topsham to Route 302 in Groton
- Route 302 east of Orange through Topsham through Groton to South Ryegate
- Six miles along Route 15 in Wolcott
- Route 108 in Bakersfield through East Fletcher into Jeffersonville and Cambridge
- Route 15 from Jeffersonville to Johnson

Deployment of the project will continue through the fourth quarter of 2013. Engineering and design work has been completed for the original funded target corridors. Delivery of production units has begun. Backhaul provider agreements for all corridors [with one exception] are confirmed and a backup plan is being developed for the exception.

During the second quarter of 2013, a demonstration corridor on Route 110 was successfully tested. As part of the “additional 125 road miles... funded through private capital investment” in a state-identified Target Corridor, 15 sites were installed on Route 30 between Newfane and Jamaica. They have been tested and are ready for commercial use.

In addition, in August 2012 the VTA submitted an application for a U.S. Economic Development Administration (EDA) Disaster Recovery Grant in the amount of \$1,601,800 with a VTA match of \$400,450. The EDA awarded this grant to the VTA in April, 2013, and the VTA has begun drafting RFPs for the project, as described below.

The EDA grant project will focus on areas hardest hit by Tropical Storm Irene and the May 2011 floods: Northeast Kingdom (Essex County), East Central Vermont (Windsor County and parts of Washington, Addison and Orange Counties) and Windham County. Corridors were selected based on the damage impact from the storm, lack of cellular communication infrastructure,

and documented gaps in radio coverage from the Agency of Transportation and the Department of Public Safety.

The project is an effort to address the lack of resiliency in cellular infrastructure revealed in the 2011 disasters and to address the long-term economic need for extended coverage and greater resiliency in these areas. The scope of the grant is approximately 120 road miles which will leverage an additional 120 miles of coverage funded by private investment.

In addition to the road coverage, nine communities will receive resiliency communication hotspots. The resiliency component consists of backup solar and generator power on town property along with satellite backhaul backup should existing backhaul systems fail in an emergency.

The VTA completed construction of its Bethel Cell Tower on schedule from October – December 2012 after successfully negotiating a lease with AT&T for tower space. AT&T went on the air in the spring of 2013 with Governor Shumlin formally announcing that the service was fully operational in mid-May.

While the VTA also completed a rigorous competitive process to select a tower construction and management vendor for additional cell towers, as previously reported, ultimately tower construction and management did not attract a vendor commitment to additional towers in VTA-targeted corridors in the 2012-2013 timeframe.

However, the VTA has been approached by a tower manager on behalf of a national wireless carrier which it is developing a construction plan for deployment of services in at least one target corridor. The VTA has been asked to consider infrastructure funding for this additional coverage. These discussions are ongoing and may result in a promising initiative for expanding mobile voice coverage.

Additional information under Section 49(i):

Deployment of telecommunications technology that does not require utilization of towers, including location-specific information

Summary: Contract with non-tower-based cellular service provider in deployment

A May 2012 contract between the VTA and CoverageCo [see page 5.] calls for the VTA to fund CoverageCo's deployment of a network using "small cell" equipment. The small cell equipment will be small enough to be mounted on utility poles or other available existing structures, with each small cell covering about one mile along the Target Corridor.

The radio equipment for the project will be provided by CoverageCo's affiliated company, Vanu, Inc. The Vanu "CompactRAN" equipment used in the project is being newly introduced in 2012 and builds on previous generations of Vanu software-defined radio technology deployed commercially in locations as diverse as Texas, Alaska, Nepal, and India, as well as for the U.S. Dept. of Defense.

Measure 2(iv): Percentage of State where public safety radios work

Summary: Co-development and co-location opportunities being pursued as available.

While the VTA is not charged with expanding service territories for public service radios, there has been significant collaboration with the Department of Public Safety in the utilization of State lands at proposed communication facility sites. At lands controlled by the Agency of Natural Resources on Okemo Mountain, in Mount Holly, utilized by Okemo Mountain Resort, the VTA has negotiated a license agreement that will provide for consolidation of equipment on a tower that may be constructed in the future by the Department of Public Safety for public safety radio transmission.

In addition, the licensee, in its construction of a facility, is required to accommodate municipal public safety users such as first responders. The collocation of users and consolidation of equipment not only provides for efficient use of State lands but expands local public safety radio coverage and reserves the opportunity of the Department of Public Safety for future safety radio deployment.

Finally, VTA is participating in the newly-created Public Safety Broadband Network Commission. This Commission is responsible for planning and coordinating state and local efforts in Vermont with the federal efforts associated with FirstNet, the nationwide public safety broadband network currently being planned.