

November 15, 2015

**MEMORANDUM**

To: Oliver Goodenough & Julian Bryant

From: Sara Barnowski, Pat Berry, Brent Burns, Caryn Connolly, Mack Jones, John Pritchard, Evangeline Williams

Date: November 15, 2015

RE: Study on wireless internet through satellite technology – H1 Draft 1.1

In response to the ongoing need for sustainable economic development in Vermont, this memorandum provides a description of the proposed bill, H1. The bill authorizes a committee to study a method of providing all Vermonters with affordable, accessible, reliable and state-of-the-art network technology for the evolving information economy.

**Objective of Draft Bill**

Vermont faces a substantial budget deficit, growing income and wealth inequality, limited employment opportunities, an aging population, and infrastructure that is headed toward obsolescence. Reversing these trends and creating sustainable methods of economic development are crucial objectives. Today, robust and sustainable economic development is impossible without reliable, affordable access to the internet. By expanding access to broadband internet, Vermont will create a more technology-friendly environment, fostering entrepreneurs and small businesses, telecommuting, self-directed education, and increased access to transportation, goods, and services. This will all contribute to economic development.

To catalyze this shift, Vermont must provide greater access to adequate internet. The Federal Communication Commission recently updated its broadband benchmark speeds to 25 Mbps download and 3 Mbps uploads. Vermont set an even more ambitious goal in its 2014 Telecommunications Plan. Vermont aims to provide every address access to broadband with a minimum technical requirement of 100 Mbps symmetrical by 2024. Finally, one goal of the newly implemented Sustainable Development Goals established by the U.N. is to “significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet... by 2020.”

Vermont has made strides in this area by installing fiber optic infrastructure across the state. However, much of the existing infrastructure is underutilized because service providers do not have the capacity to provide high-speed broadband internet across the “last mile” to their customers. (See Appendix A) This leaves even well serviced regions, like Montpelier, with sluggish internet access measured at approximately 18 Mbps download. In some areas, unreliable or insufficient access forces individuals to pay exorbitant fees for personal satellite internet. In other areas, there are simply not enough devices to create the demand for high-speed broadband because the customers are unaware of its untapped potential.

To determine the best way to bridge this digital divide, this bill proposes commissioning a study on the provision of internet through satellite technology.

### **Theory of Change**

This bill creates the Satellite Internet Exploratory Study Committee, and tasks it with two objectives. The Study Commission will first conduct a feasibility study to determine if it is possible to provide full (100%) coverage of affordable, reliable, high-speed broadband internet to Vermonters. The Study Commission will use the following benchmarks to determine feasibility: Access must be affordable for all Vermonters, including low-income families. Reliable must mean that there are no avoidable disruptions in internet service for any customers. Finally, high-speed must mean the use of Best Available Speed Technologies (BAST) and seek to achieve Vermont's broadband goals.

The relevant House committee of jurisdiction will first seek funding from Federal and state grant programs to finance this feasibility study. Upon effect of this bill, the Study Commission will then meet six times over the six months following receipt of funding. Over this time period, it will perform an infrastructure case study analyzing systems in other states that employ affordable satellite internet access in similar (topographic, meteorological, and financial) conditions. It will determine whether those strategies can be applied Vermont, and will identify any potential regulatory barriers. Within six months of the receipt of financing, the Study Commission will present its findings to the committees of jurisdiction in the legislature and to the Governor.

If the Study Commission determines that the results are positive and that the provision of satellite internet is a feasible option in Vermont, then it will generate a Preliminary Implementation Plan. The Preliminary Implementation Plan will include: a projected schedule for deployment, interim benchmarks and goals, a cost-benefit analysis, an anticipated budget, and options for financing. The Study Commission will also have the discretion to include any additional subject matter that it deems relevant and reasonable. The Study Commission will have six additional months to complete the Preliminary Implementation Plan and present it to the General Assembly and the Governor.

As the private market continues working to install and connect fiber optic broadband technology throughout the state, this study will explore complementary options. The bill will also enable the legislature to pursue implementation of satellite wireless internet technology if it will better support economic development in Vermont.

### **Consequences of Draft Bill**

Commissioning this study will have no significant direct costs. Members of the Study Commission will be compensated for their time and mileage for six meetings over the course of six months. The Study Commission may authorize the use of other funds to assist with its studies. However, any funding that the Study Commission requires will hopefully be provided

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through available federal, state, and private grant opportunities, so theoretically, no appropriation will be necessary.

Upon completion of the studies, this bill does not require additional action. However, the results of these studies will inform the future development of broadband infrastructure in Vermont. If the Study Commission provides a Preliminary Implementation Plan, then the Legislature and the Department of Public Service will have a roadmap for making affordable, reliable satellite internet available to all Vermonters. The legislature will simply need to propose a new bill to enact the implementation plan and the proposed funding mechanism, assuming that there is no significant political opposition.

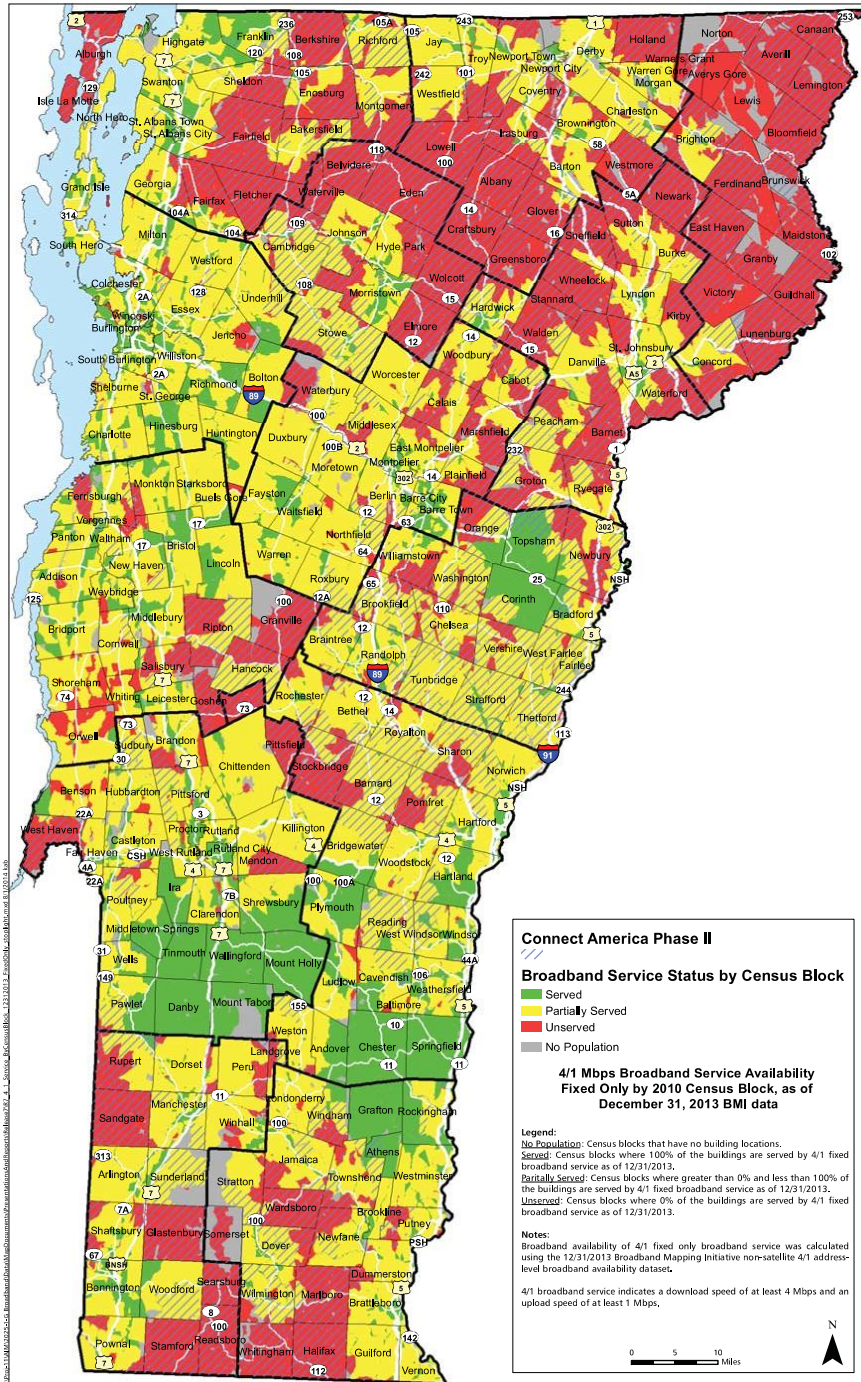
If this process is successful, then increased access to affordable, reliable, high-speed internet will increase substantial economic development in the state. Cutting edge businesses will be more likely to locate in Vermont, attracting young professionals and families. Vermont citizens will also be empowered to seek employment across the region via telecommuting. Improved internet access will also increase property values. Finally, individuals and businesses will pay less for reliable internet services, putting more money in consumers' pockets and stimulating economic activity.

The Preliminary Implementation Plan must address any potential negative consequences, including siting concerns, environmental considerations, and financial constraints. If the Study Commission determines in this plan that the negative consequences outweigh the positive ones, then the Legislature will have no obligation to pursue satellite internet services. It will then need to determine other ways to increase access to affordable, reliable high-speed internet.

### **Conclusion**

Affordable access to high-speed internet for all Vermonters is a prerequisite for broader sustainable economic development. This bill creates a runway for connecting more Vermonters to improved internet services by studying satellite wireless internet technology and creating a proposal for its implementation.

**Appendix A**



Sources: This dataset was developed by Stone Environmental using the non-satellite 4/1 address level fixed only broadband availability dataset developed by the Broadband Mapping Initiative (BMI). The BMI, a collaboration of VCGI, the VT DPS, and the VTA, is funded through a SBDD grant from the NTIA. 2010 census blocks, US Census Bureau, Wire center boundaries, VCGI; Administrative boundaries, VCGI.

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Fig 1: Broadband availability in Vermont

**Appendix B**

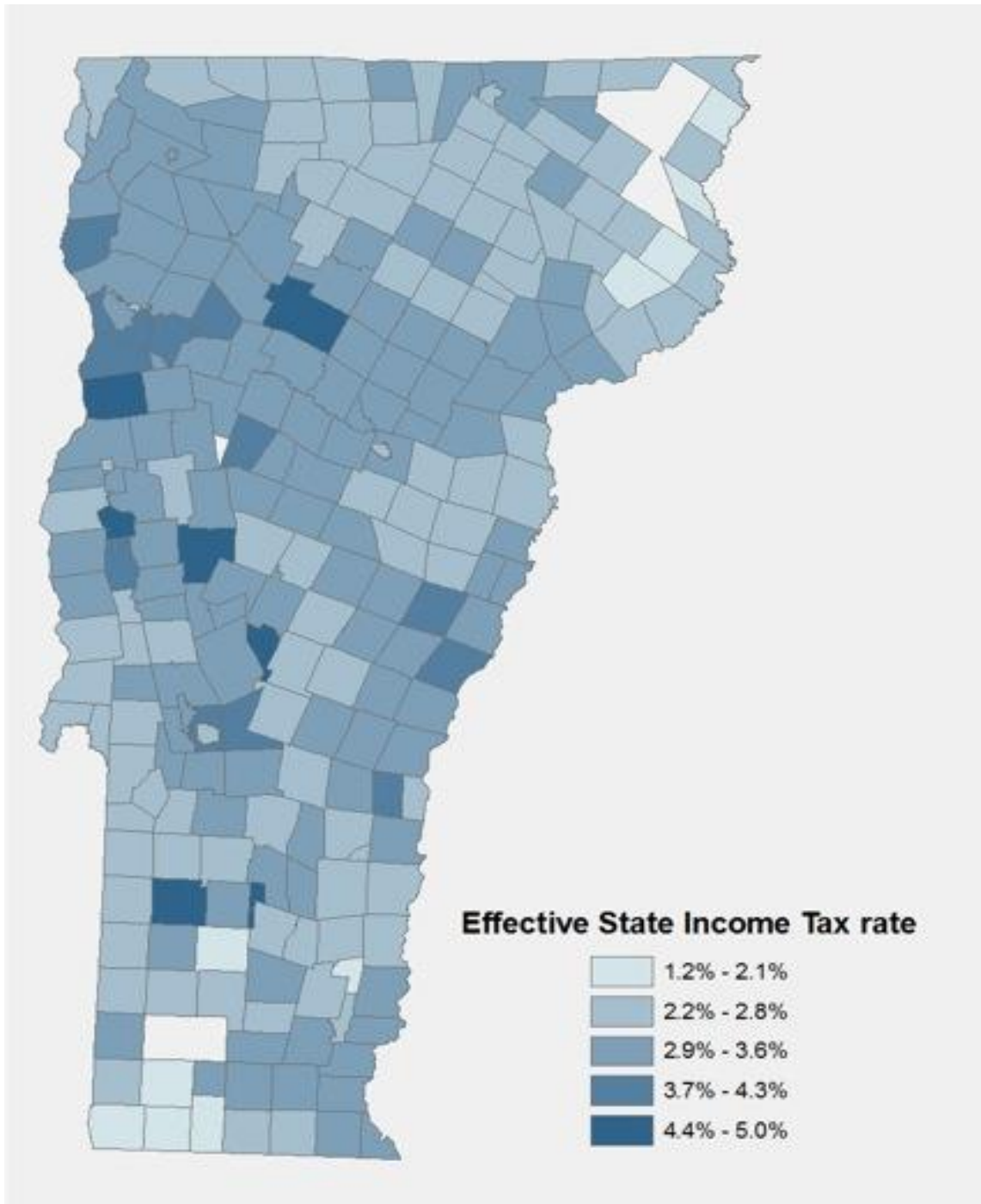


Fig. 2: Representation of income disparity in Vermont

Appendix C

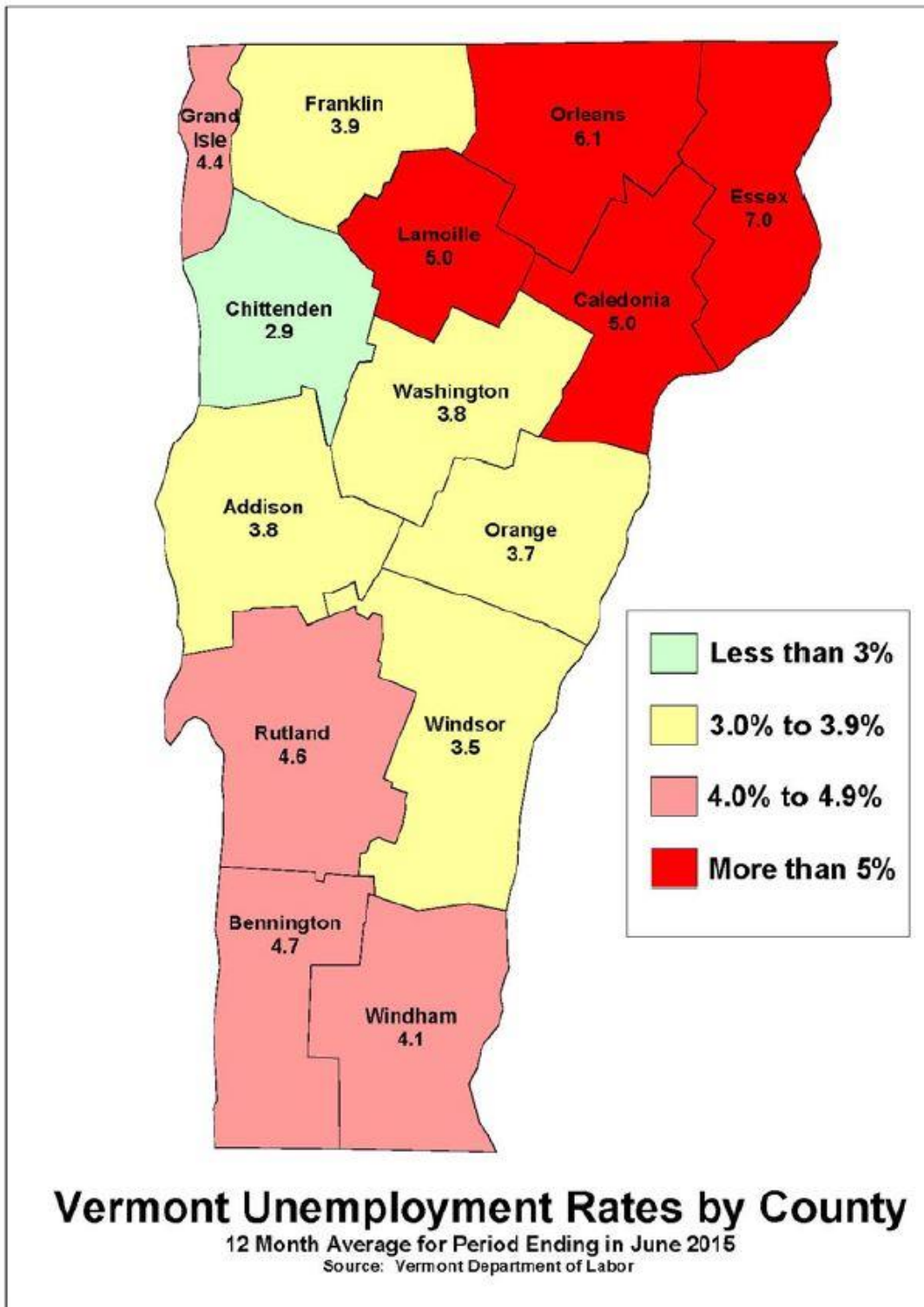


Fig. 3: Unemployment in Vermont