Broadband USA Applications Database

Applicant Name: VERMONT TELEPHONE COMPANY, INC

Project Title: Vermont Broadband Enhanced Learning Link (VT BELL)

Project Type: Comprehensive Community Infrastructure

_____Executive Summary_____

The Vermont Broadband Enhanced Learning Link (VT BELL) addresses an Internet bandwidth and transport capacity shortage in the existing middle mile infrastructure within the State of Vermont. This lack of bandwidth slows the deployment of a needed distance learning network, access to Internet2, access to large databases and libraries, and access to many critical resources necessary to ensure the long term educational and economic viability of Vermont. Vermont Telephone Company, Inc.(VTel) proposes expanding VTel's 1,000 mile GigE-to-10GigE fiber network, to deliver GigE (billion bits-per-second) broadband to over 200 high schools, hospitals, colleges, universities, community colleges, rural independent telephone companies, larger telephone companies, and to public safety facilities including police barracks across Vermont, and to Vermont's three highest peaks enhancing our Department of Public Safety's statewide microwave network, while also enabling more cost-effective back-haul to assist current and future wireless carriers. VT BELL will provision reliable redundant broadband to bridge this rural technology gap, and connect to our partners and competitors for Open Access. This network builds on the $12 million VTel already invested into its 1,000 mile optical fiber network to serve rural Vermont, and on the $100 million total we have invested since 1994. We were first in Vermont with DWDM, and we believe we were clearly and evidently a catalyst in reducing wholesale Internet and transport prices by over 80%. VTel's VT/NY/NH/MA network today serves 43 critical community anchors in Vermont, as well as Dartmouth College, McGill University, MIT, University of Vermont and the State of Vermont. This BTOP project seeks to extend our current network to 207 new anchor institutions, at an average estimated revenue per anchor in Year Three of $918, for an expected (but not required) set of service bundles that include for most users (i) GigE WANs to similar institutions and hubs, (ii) 25 or 100 Meg of Internet burstable to GigE, (iii) GigE Internet2 transport, (iv) almost unlimited remote data storage in VTel's new Wallingford, VT, solar-assisted data center, and (v) Cisco HDTV teleconferencing technology. We also propose to offer leased dark fiber on our 50 miles of 192-fiber new backbone at $12.50/strand/mile/month, and offer Internet wholesale at $10/Meg for amounts to any customer or carrier over 500 Meg. The proposed new network build interconnects to all ARRA and federally-assisted fiber and broadband networks within range in upstate New York (including CBN Connect), in New Hampshire (including New England Telehealth Network), and in Vermont (including North Link). VTel proposes one funded service area, comprising 3,200 census blocks across Vermont, New York and New Hamphire covering 68,192 people, including 13,760 businesses and 1,506 critical community organizations over 1,589 square miles equivalent to 17.2% of the state's geography. The VT BELL network will directly connect to 207 Community Anchor Institutions. VTel proposes to build 348 new miles of fiber including at least 50 miles of backbone using our contributed 192-strand fiber that is today

unused in our North Springfield, VT, warehouse, and it is this backbone that we will willingly lease at $12.50/strand/mile/month. Vermont Telephone Company, Inc.'s, proposal adheres fully to the letter and spirit of all principles contained in the FCC's Broadband Policy Statement (FCC 05-151 adopted Aug. 5, 2005), and meets the RUS and NTIA requirements for non-discrimination and network interconnection obligations as specifically outlined. One or more 10Gbps wavelengths will be provisioned around the DWDM network and connected to Juniper MX240 routers, to create a MPLS ring (we have capacity for 80 x 10 Gig paths and recently proposed 12 x 10 Gig paths to UVM, at less than $3,500/circuit/month). Using MPLS, this network will transport a wide variety of protocols and circuit types to support legacy and future communication needs. A Juniper SRX210 services gateway, or better, will be installed at each end-user location. This extends the MPLS network to end-user hubs and permit provisioning of VPLS (Virtual Private LAN Services) between end-users to support telepresence and allow end-users to consolidate servers and other network devices to reduce IT overhead. We invite but don't require 'hubs' to control their own 'spokes'. While GigE is the starting point for the network, VTel recognizes the need for a capacity migration path, and our design and DWDM technology permits simple upgrade to 10Gig (10,000Mbps) per location or office, and we are in discussions with our university clients for upgrade to 40 Gig. We offer unmatched broadband speed, ease of upgrade, best-in-Vermont reliability, capacity to support any broadband service in existence today, consistent capacity at almost any distance, lack of interference from RF sources, and lowest costs. VTel was first in Vermont with GigE, and first with DWDM (we were also first in Vermont to offer Internet access). VTel's 1,000 mile fiber network today reaches directly into many of Vermont largest high schools and secondary schools, in Montpelier, Burlington, Rutland, St. Albans, Springfield, Morrisville, and elsewhere, as well as our regions largest hospital (Dartmouth-Hitchcock), several smaller hospitals, our largest state university (UVM), and our largest state offices. Our network has proven more reliable than other Vermont fiber networks and as a result, VTel was selected in 2009 by Vermont's Department of Information and Innovation, after exhaustive independent reviews, to become the principal Internet provider for the State. We lead in service quality, price, and friendliness. Infrastructure Cost: The project is expected to cost a total of $19,620,800 with 33.5% to be used to begin Year One infrastructure build-out, 71% deployed by end of Year 2, and build out completed by Year 3. We propose to pay 30% using our cash on hand. VTel expects this $19.6 million project to support 72 direct full-time job years, 69 indirect job years, and 677 induced full-time jobs. We estimate this large number of induced jobs for reasons described in more detail under 'Project Benefits'. In summary VTel wants to use the Rural Radio Farm Forum model developed in the early 1940's to help rural America recover from the Greet Depression. VTel's chairman completed PhD work at Stanford and MIT related to Rural Radio Farm Forums, and implemented the model in the 1970's on US-assisted rural overseas projects. VTel will hire four field workers, and equip two "Broadband Vans", to organize small-group neighborhood meetings in anchor sites over three years, to reach 6,000 rural Vermonters, using Broadband and HDTV teleconferencing to help find jobs, organize new businesses, bring in small business, achieve better milk prices, run more profitable farms, learn better ways to assist unemployed family members, and market individual and community skills and resources. Vermont has an aging population, and ranks near the bottom nationally in percent of citizens aged of 25-29, and near the top for percent aged 50-54. We have the highest percent of high school graduates who depart the state for college, and most don't return. Despite our influx of about 20,000 young people who come into the state to attend institutions of higher learning

each year, 80% leave within a year after completing their education. The median age of Vermont workforce is 42.3, the highest in the nation. Networking Vermont's educational, medical, collegiate and public safety resources with massive bandwidth, and enhancing this with thousands of Broadband-assisted community meetings organized by Rural Radio Farm Forum field workers over three years, built on the VTel $100 million already invested into rural broadband, will help us make rural Vermont what it can be, and wants to be -- a shining example of the best broadband in America.