

Broadband USA Applications Database

Applicant Name: Nelson County Virginia

Project Title: Nelson County Virginia Broadband Project

Project Type: Middle Mile

Executive Summary

Nelson County is a rural Virginia community located between the cities of Charlottesville and Lynchburg. The County was the setting for the 70's television show *The Waltons*, written by County native Earl Hamner, Jr. While Walton's Mountain itself was fictional, the County still bears a striking resemblance to the rural community depicted on TV. There are no incorporated towns or cities in this County of 14,445 persons spread over 471 square miles of mountainous terrain. While the County does not meet the RUS definition of "remote," the absence of broadband services to the majority of residents and businesses forces Nelson County to struggle to attract new businesses and jobs. Market survey results show that over 60% of residents rely on dial-up for Internet access, limiting opportunities for telecommuting and distance learning. There is no higher education facility to support the transition from high school to college, or for adult continuing education. The broadband network will allow the County to compete for new businesses, support and grow existing businesses, ensure the future sustainability of County growth, and allow "remote" businesses to increase visibility beyond County borders through eCommerce and web marketing. Access to high speed services will enable home-based business to start up, will attract higher wage jobs and new businesses, and enable access to distance learning content to augment higher education and training gaps, as well as decrease the 60% out-commute rate. For 4 years, a committed team of stakeholders comprised of representatives from local government, private businesses, residents, healthcare providers, the school district, the local electric cooperative and incumbent cable and wireless providers have worked to improve the County's communication infrastructure. Funding by a grant from the Virginia Department of Housing and Community Development has resulted in extensive community outreach to develop a fiscally responsible implementation plan. Nelson County proposes to invest in open access infrastructure to enable private provider expansion of last mile services to new areas, higher speeds of services and a choice of providers. The project is designed to provide a fiber optic network and towers from the north to the south end of the County, linking the communities of Afton, Avon, Lovingston, Colleen, Tyro and Massies Mill. Backhaul will be augmented in the more difficult to reach areas by microwave. The network would initially pass approximately 170 businesses and 805 residences directly with fiber and wireless, and enable an additional 92 businesses and 750 residences to be served via wireless technologies. The network will facilitate the delivery of more cost effective bandwidth to schools, municipal and state facilities (22 total community anchor facilities) within reach of the proposed infrastructure. Total critical community facilities to be served via fiber and or wireless include: 14 municipal/education facilities; 6 public safety facilities; 3 healthcare providers; 4 community centers and a library, and 3 private provider facilities for interconnection. The project proposes to deliver increased bandwidth to the key institutions

located along the fiber optic backbone through direct fiber connections, offering bandwidth of 100 Mbps per facility; delivering greater amounts of bandwidth at a much lower cost. Current community facilities, public safety included, are connected via leased T1 (1.5 Mbps) loops creating a municipal network. Current costs for T1 connectivity range from \$800-\$1100 per month; many of the County's major employers are subscribing to multiple T1s to achieve the needed bandwidth. By connecting community facilities directly with fiber, each end point on the network will result in higher bandwidth at lower cost, with inter-county network transport at speeds of approximately 2 Gbps. A significant portion of current transport costs will be eliminated by keeping local traffic within the County. The Blue Ridge Medical Center actively supports this project with the intent to utilize the high bandwidth of fiber to access telemedicine resources through the University of Virginia hospital system to provide services to their rural clients (see letter of support). The County does not intend to compete with private providers, seeking instead to enable access to a greater number of areas for last mile service delivery. Local providers have been active participants in the planning project and have agreed to utilize the County-built open access network. The County is mandated by the Virginia Public Procurement Act to utilize a competitive procurement process to ensure that all contracts are bid, awarded, and completed on a fair and impartial basis. The County issued a Request for Interest to identify provider participants and will finalize the procurement process and agreements immediately upon award of grant funding. The businesses and residents have supported the planning process, including participation as members of the Broadband Management Team, which includes skilled IT professionals and executives of the County's key employers. The County's administrative/legal staff has extensive experience with multi-million dollar capital projects and has established the Nelson County Broadband Authority charged with implementation and network oversight. The County currently manages water and waste treatment facilities through a Service Authority with a similar governance structure. The private provider stakeholders bring network management experience with a variety of technologies, and the established governance structure assures non-discrimination and a network open to all on an equal basis. The County will establish a defined set of access guidelines and a uniform rate structure based on the amount of bandwidth for transport that will not discriminate on the information being carried on the network to or from subscribers, nor give priority to any service provider. Such policies and procedures will be included in all contracts for services and posted on the Authority's website and service literature. Network interconnections will occur in neutral collocation facilities placed at the County Courthouse, separated from the Emergency Communications Center, and at the proposed towers. Fiber loops will be placed appropriately every 3,000 to 5,000 feet along the network to enable future extensions and private provider interconnection. The components of the system design and technology to be deployed include: fiber optic network from Afton Mountain to Avon, continuing down Highway 6 through Woods Mill to Highway 29, through Lovingston, and ending in the Colleen Business Park next to the Central Virginia Electric Cooperative Headquarters and substation. Fiber will connect communities on the north with those on the south. Towers (4) will be deployed on Afton Mountain, at the Rockfish School at Chapel Hollow (Avon area), in the Colleen Business Park and between Tyro and Massies Mill. The Tyro/Massies Mill tower will house microwave equipment to provide backhaul to the Colleen tower and for hosting wireless last mile serving equipment. The other 3 towers will be connected to the fiber network for robust wireless backhaul and host wireless last mile serving equipment, as will a tower located in Lovingston, owned by the County and utilized for public safety interoperability and radio

equipment. Point of Presence (POP) space will be located in neutral facilities outside of the new courthouse and Emergency Communication Center in Lovingston. Fiber would be deployed aurally on Central Virginia Electric Cooperative utility poles wherever possible to defray higher underground construction costs; a pole attachment agreement is in place. At least three local private providers have expressed their intent to interconnect with the County's proposed fiber to provide last mile services via broadband over powerline, WiMax wireless, cable modem and 802.11 wireless. Wireless service delivery in the southern area of the County is initially to be an expansion of 802.11 services currently available in limited areas in the far southeastern corner of the County. Overall infrastructure cost of the middle mile network and towers is \$2,283,308. The County's engineering consultants relied on their experience with similar projects and actual deployment costs for those projects in developing costs for Nelson County. A field make ready assessment has been completed and incumbent infrastructure owners included in the planning; thus the County is confident that the budget provided is a reasonable and accurate estimate of project costs. Based upon local market survey results, subscriber estimates for last mile were conservatively established at 25% beginning penetration for underserved areas (all entities) and 40% for unserved locations (all entities). Total projected subscribers are 480 households and 74 businesses, which will receive last mile wireless service, and 18 Critical Community Facilities which will have a direct fiber connection to the middle mile network. The current recession challenges the County's ability to sustain its small but vitally important local economy. As of June 2009, the County's unemployment rate is 6.8% (549 persons), representing a one-year increase of 241%, more than doubling those unemployed in June 08 (228). Using the ARRA job creation and retention estimating procedures as issued by the President's Council of Economic Advisors in May 2009, at least 10 direct jobs will be created over the two-year deployment period attributed to labor in deploying the network (no indirect benefit from equipment purchases calculated). Two additional direct jobs will be created to service new subscribers in the last mile service areas and it is realistic to project that the deployment of broadband will result in additional employment growth beyond these estimates.