Applicant Name: CLARENDON FOUNDATION, INC.

Project Title: Carrier-Neutral Fiber Optic & Microwave Broadband Transport

Project Type: Comprehensive Community Infrastructure

_____________________________ Executive Summary _____________________________

The Clarendon Foundation, Inc., will design, build and operate a Carrier-Neutral Fiber Optic Cable & Microwave Broadband Transport that will be a model for long haul bandwidth networks in rural and remote areas. This broadband backbone project will connect the region with the lowest cost of Internet bandwidth in the United States (Northern Virginia) with an underserved part of West Virginia, the state with the lowest penetration of broadband service in America. The Clarendon Foundation was co-applicant with the nonprofit West Virginia Broadband Cooperative, Inc., (WVBC) in Round I funding for a similar project. Clarendon is now collaborating with WVBC for deployment and marketing, but Clarendon is sole applicant to clarify governance. Project goals are the same, but design and financials have changed. Supporting letters received during Round I may refer to WVBC as applicant or co-applicant.

Service Areas The Carrier-Neutral Fiber-Microwave Broadband Transport will connect the Tier 1 primary Internet peering point in Ashburn, VA, to unserved and underserved areas in Hampshire and Morgan counties, WV. The network will serve rural and remote areas going west along US 50 and north on SR 522. This redundant fiber-microwave middle-mile network will be available to serve last-mile wireless broadband access, which is not part of the project. Hampshire Morgan Total Households 11,210 8,209 19,419 Businesses 374 281 655 Schools, Gov, Pub Safety, Hosp 39 32 71 The applicant has commitments from ISPs to offer end-user voice, data and video services with Next Generation WiMAX 3.65 GHz technology and WiFi. World Class Broadband This backbone will lower the cost of Internet access and bring broadband to areas now unserved or underserved. Today, broadband service is unavailable in most of the two-county area. The cost of transport with incumbent telcos, added to the cost of bandwidth, would produce a monthly price above $100/Mbps, prohibitive to most residential users and many commercial users. The only broadband access now in most rural and remote areas is satellite Internet. High charges for transport and bandwidth from incumbent telecommunications companies have prevented broadband extension into areas that lack viable competition. The telcos are gatekeepers, blocking economic development that vastly exceeds the value of the broadband service, while enforcing higher rates than with competition. This project will demonstrate that broadband service is sustainable when middle-mile service is priced relative to cost, rather than through carrier restraints. Guaranteed Symmetrical Bandwidth, Uniform Pricing The Fiber Optic-Microwave Transport is expected to lower the cost of symmetrical Tier 1 Internet bandwidth to $8/Mbps per month for backhaul, including transport to the ISP. The project will have the dramatic effect of allowing ISPs to provide Internet broadband service to residents and businesses with guaranteed bandwidth, not the 'up to' speeds that have little relationship to actual sustainable speeds. Residential broadband customers will be guaranteed the bandwidth for which they pay, with equal upload and download speeds. Two ISPs
have committed to offer broadband Internet service starting at $19.95 per month per megabyte of guaranteed symmetrical bandwidth. Telcos and ISPs typically charge different rates for residential and business broadband. Business service provides higher upload speeds, but costs 70% more. This pricing policy limits the growth of small businesses that need symmetrical bandwidth for Voice over Internet Protocol (VoIP) and Internet requirements for business applications. ISPs that deploy WiMAX broadband wireless service for last-mile connectivity will offer broadband service at one price for all end users, businesses or residential. Middle-Mile Availability outside West Virginia The project is designed to serve two West Virginia counties; the backbone path will also enable middle-mile broadband services in Loudoun, Frederick and Clarke counties, Virginia, passing through Leesburg, Berryville and Winchester, VA, and in southern Allegany County, Maryland, passing through Oldtown, MD. Applicant would offer connectivity, but does not plan to connect anchor institutions or emergency services in Virginia and Maryland. Applicant will provide open access at uniform rates to all service providers. Applicant will partner with the nonprofit WVBC for links with local ISPs and advance marketing of service.

Qualifications of the Applicant This project is to be constructed by design-and-build contractor NI Solutions, Inc. NIS has designed a fiber optic broadband network for Independence, MO, to provide voice, data and video services and support wireless platforms and applications. NIS has performed design, development and feasibility studies for Avon, IL; Cleveland Heights, OH; Danville, IL; Jamestown, NY; the Navajo Tribal Utilities Authority; Plainfield, IN; and other municipal and institutional clients. NIS President Irshad Ansari has worked extensively with RUS over a period of 30 years. Three individuals will supervise the project: 'Mark Bayliss, project technical director, CEO of Visual Link Internet and related corporations WorldAirWaves and Cobalt Racks, Winchester, VA, and president of the West Virginia Broadband Cooperative, Inc. 'Kemp Harshman, project legal counsel, president, Clarendon Foundation, Inc. 'Jeffrey C. Jones, project financial officer, VP & CFO, Clarendon Foundation, Inc. These three are also initial directors for WVBC. The cooperative has invited the directors of the Morgan County and Hampshire County development authorities to be directors. Visual Link' provides high-speed wireless broadband access solutions and satellite Internet services in the Continental U.S. and South America. Cobalt Racks' works with customers in 40 countries and has offices in the U.S., Russia and Canada. Clarendon Foundation, Inc., is a tax-exempt nonprofit corporation that organized in 1991 as a public interest law firm in Virginia. Later in 1991, Clarendon began providing free instructional television service to accredited educational institutions. In 1993, Clarendon assigned its History Channel trademark to the Arts & Entertainment Networks, rebranding its instructional TV services "TV America." TV America is being provisioned as an online high-definition video service, offering video on demand. With migration of the World Wide Web to Internet Protocol version 6, TV America will deliver HD programming with "multicast" routing of transmissions. In 2007, the foundation moved its offices to Las Vegas, NV. Clarendon has relationships with wireless operators Clearwire, Xanadoo and others to lease spectrum for deploying broadband wireless Internet access networks across the U.S. The new networks use mobile WiMAX, a 4th Generation technology developed by Intel. Type of broadband system Applicant will use Ethernet over DWDM to provide fully redundant connectivity between Romney, Winchester and Berkeley Springs, with a trunk to Ashburn. The solution uses the Ciena LE311 Ethernet switch and CN4200 DWDM platform. The LE311 Ethernet switch will provide 1 Gbps Ethernet switching between sites. The CN4200 supports both 2.4G and 10G optics. Applicant has included optical amplifiers and dispersion compensation modules to minimize the effect of attenuation and chromatic dispersion...
on the network. The Ciena platform is a flexible platform supporting many interface types and with capacity for growth. Cost The projected cost of all infrastructure for the project is $14,734,722.

Subscriptions This middle-mile project will initially serve 4 Internet service providers, which will offer last-mile service outside the scope of this project. Applicant anticipated adding other ISPs. The project will initially serve 6 data centers, of which 5 have signed commitments. For original WVBC member ISPs, the number of residential broadband subscribers is forecast at 1,396 by the end of three years from approval of the grant and 2,288 by the end of five years from approval of the grant. The number of business subscribers is forecast at 99 after three years and 196 after five years. The number of institutional users is forecast at 20 after three years and 20 after five years. Additional ISPs will expand those numbers, but applicant and WVBC must obtain commitments before adding those forecasts. Job Creation Applicant expects this project to create 191 new jobs in Morgan and Hampshire counties.