

Broadband USA Applications Database

Applicant Name: Jefferson County Schools

Project Title: BTOP-Sustainable

Project Type: Middle Mile

Executive Summary

Jefferson County Public Schools in partnership with American Public University System (APUS) requests 11 million dollars in grant funding to implement the Jefferson County Broadband Project. This community broadband project will provide high capacity wireless broadband network access and resources to students, faculty and emergency services personnel in and around the campuses of Jefferson County Public Schools, area firehouses and selected community sites. The West Virginia public school system faces critical challenges in education delivery. State transportation costs drain the fiscal resources available for education. Jefferson County's proximity to the DC metro area allows qualified teachers to cross into neighboring counties in Maryland and Virginia where starting salaries are as much as 50% higher. This shows particularly in areas of science and technology programs where neighboring states supplement the higher salaries with opportunities to participate in magnet programs and International Baccalaureate Programs not available in West Virginia. The broadband infrastructure and programs supported by this project will allow for sharing critical resources and attracting and retaining talent by enabling innovative use of technology in education. The program begins with accessibility to broadband and transcends traditional classroom borders to integrate technology into a unique learning experience. The project as designed will provide coverage to most of the county geography and provide opportunity to the 17,000 Jefferson County households. Of those, 7,000 families are served by Jefferson County Public Schools. Nearly 47% of those families qualify for free and reduced lunch and will directly benefit from the backbone and home-based infrastructure provided by this project. The project will leverage fixed wireless using free unlicensed spectrum for service delivery and features three main components: Build out of a high capacity point to point wireless backbone network that:

- Links the public schools, public libraries, firehouses and other community sites to allow for data transport, video conferencing and collaboration within the network
- Provide broadband Internet access Build out of broadband LAN coverage within the schools, allowing the schools to:
- Deliver media-rich content and enhance the curriculum
- Create breakthrough virtual "magnet classrooms" by aggregating students from different schools to create learning communities that share critical teaching resources and learning materials and offer specialized programs (both core and elective curricula) -- that otherwise would not be economically feasible -- while still protecting the integrity of the neighborhood school
- Bridge distances with real-time collaboration capability between faculty, students and parents
- Extend and reinforce the educational experience to neighboring homes by providing mobile broadband kits for the students who would be underserved because of financial barriers
- Provide new K-12 curriculum materials to enhance the educational experience Offer community-based broadband wireless network that will:
- Provide service to qualifying underserved residents with students enrolled in Jefferson

County Public School K-12 programs within a one-mile radius of the campuses. • Provide broadband service for Emergency Services Personnel enabling the creation of mobile “hot spots” which will connect Internet-enabled responding vehicles called to an emergency location within the grid using the 4.9 GHz secure public safety and EMS frequency • Provide public computer access centers at the libraries, selected community centers and fire stations including computers and access to the Internet • Develop and implement public awareness programs related to Internet safety, technology and the value of broadband Backbone links will provide 100 Mbps of through capacity using that will provide the foundation for a variety of services. Each connection point on the backbone will use the 5.4 GHz spectrum. Access inside community centers and schools, along with the qualified subscriber access will use the 2.4 GHz spectrum. The 900 MHz spectrum will be used to mitigate line of site issues caused by trees or rolling terrain. Emergency services and public safety personnel will use secure 4.9 GHz spectrum. High capacity radios will be mounted on these towers/poles to provide secure point-to-point backbone links. Traffic will be backhauled to the three different locations within the network where egress to the Internet will be provided. Access to content will be unrestricted in accordance with E-Rate filtering rules. This traffic control will permit Jefferson County schools to comply with E-rate fund rules. This project is designed to join public access facilities in Jefferson County. There is no commercial purpose for this network. Access at public computer centers will be free. If technically feasible, other connections to the backbone will be negotiated. Jefferson County Schools in partnership with APUS is in a position to deploy this network over the course of the grant. JCS currently supports over 3000 computers and over 10000 end users each day. JCS and APUS have an established network of vendors and contractors to support the installation, implementation and long term support of all of the equipment specified in this grant. APUS is a leader in innovative education delivery in higher education and has distinguished itself in providing nationally recognized programs for professionals in Emergency Services and Education, two populations which will benefit significantly from the project. We estimate the total infrastructure cost of this project to be \$7,000,000. The estimated subscribers who will benefit from this project are 15,000. Jefferson County Public Schools estimates that this project will create 2 jobs over the period of 3 years and more as the network grows past the grant time period.