

Broadband USA Applications Database

Applicant Name: UNIVERSITY OF ARKANSAS SYSTEM

Project Title: The Arkansas Healthcare, Higher Education, Public Safety, & Research Integrated Broadband Initiative

Project Type: Comprehensive Community Infrastructure

Executive Summary

Nationally, Arkansas ranks 46th in percentage of households with broadband access, and over half of the state's counties reside in the Mississippi Delta, the most distressed area of the nation. By virtually every indicator, including economic growth, education, and health, the Arkansas citizenry is one of the nation's most vulnerable populations. Exacerbating these facts, Arkansas' healthcare, higher education, public safety, and research entities suffer from insufficient broadband speed and equipment to deliver broadband applications needed to support Arkansas' citizens. The combination is devastating. The benefits of telemedicine (e.g. interactive video clinical consultations, health information exchange, etc.) are unavailable to a significant number of facilities in Arkansas. Use of dial-up, dropped video calls, distorted or jittery video, and few, if any, publicly accessible computers are just some of the problems identified by Arkansas' healthcare facilities. Public safety entities utilize a disjointed emergency transportation system and a trauma network that lacks the resources needed to enable a regional system of emergency care. These public safety systems, which serve a state with the nation's third worst ranking in early deaths, function independently and lack interagency communication. In education, a fiber network currently serves the state's four-year universities and fosters collaboration in distance learning, online courses, and research studies, yet 58,000 students and 50,000 workforce trainees attending the state's two-year colleges lack connectivity to this network. Finally, public libraries and other research entities lack the broadband equipment to extend distance and online education to their communities, leaving consumers without access to applications aimed at improving their health, job skills, and well-being. In response, the project will integrate isolated community anchor networks to expand the broadband capabilities and geographic reach of the Arkansas Telehealth Oversight & Management (ATOM) Network—a group of community anchor institutions with limited bandwidth and equipment that offer healthcare, higher education, public safety, and research services—and the Arkansas Research & Education Optical Network (AREON), the state's only public-owned fiber optic network currently serving four-year universities. While the two networks serve as the foundations for this proposal, their full potential has not yet been achieved. For the ATOM Network, the project will substantially upgrade broadband services and/or equipment and upgrade over 100 new network sites to create a comprehensive statewide network of 441 community anchor institutions. For AREON, the project will expand the network's fiber connectivity to reach all 22 state-supported two-year colleges. The ATOM Network will integrate with AREON by sharing fiber connectivity. All partners will provide public Internet connectivity to their consumers. Additionally, this project will permit high-speed delivery and transmission of the following broadband benefits at the 474 'integrated network' sites:

HEALTHCARE *Clinical telemedicine patient and provider consultations, and scientific research opportunities via real-time video *Electronic health information exchange of patient information *Distance education for real-time, interactive video learning and training *Home healthcare through handheld broadband devices *Research and educational materials available through healthcare colleges and schools *Insurance payment reimbursement for billable services delivered over interactive video HIGHER EDUCATION *Fiber connectivity at all of the state's 22 state-supported two-year colleges *Interconnectivity between two-year colleges and four-year universities through fiber, allowing distance education and research collaboration PUBLIC SAFETY *Improved continuity of emergency systems by connecting Arkansas' bioterrorism network, trauma network, and a metropolitan ambulance service RESEARCH *Interactive video equipment in public libraries to promote participation in consumer health/academic distance education and support groups The project will serve 118 middle mile service areas in a vast proposed funded service area encompassing: *Every county in the state (75) *Every economically distressed county in the state (69) *Every county in Arkansas within the Mississippi Delta, the most distressed area of the country (42) *Every medically underserved county in the state (73) *135 communities The project passes 474 community anchor institutions including: *Every acute care hospital, county health clinic, and center on aging *Every four-year university and two-year college *All state human development centers *A majority of federally qualified community health centers *A majority of mental health clinics and home health agencies *The state's only academic medical center *The state's only publicly owned fiber optic network *The state's only bioterrorism network *The state's only trauma network *Eight public libraries *An ambulance service *Other clinics, centers, and educational units The existing ATOM Network and AREON governance bodies will oversee this project, with the state's academic medical center providing centralized network management. The upgraded ATOM Network will integrate with AREON in a 'hub-and-spoke' system that ensures dedicated healthcare, higher education, public safety, and research activities, freeing existing circuits for public Internet use. Hubs and spokes will receive bandwidth upgrades, interactive video equipment, and/or public computers based on their needs. *Primary Hubs represent 48 sites serving large numbers of end-users that will connect to a statewide fiber network for upgrades of 100 Mbps+, enabling simultaneous management of up to 40 broadband transmissions, including distance education or clinical video conferencing, imaging transfers, record transfers, remote monitoring, and health information exchange. *Secondary Spokes represent 74 regional sites upgraded to 10 Mbps at 59 sites and 20 Mbps at 15 sites via dedicated point-to-point connections providing up to 15 distance education or clinical video conferences, imaging transfers, record transfers, and remote monitoring. *Tertiary Spokes represent 352 sites serving primarily rural areas that will receive upgrades or new lines of 1.5 Mbps at 154 locations, which enables one simultaneous distance education or clinical video conference, image transfer, and record transfer. All tertiary spokes will receive equipment upgrades. This solution will not compete with Internet Service Providers but rather contract with ISPs to provide network services. As applicant, the University of Arkansas for Medical Sciences (UAMS) is the state's only academic medical center and is an ATOM Network partner. Offering 19 years expertise in creating, launching, and sustaining its 60-site Arkansas broadband healthcare network, UAMS oversees 483 hours of interactive video daily and is the centralized management and scheduling service to the state's healthcare broadband activities. ATOM Network partners also manage the state's bioterrorism and trauma networks, constructed the state's home health program, and other efforts. UAMS will grant a subaward

to AREON to manage fiber construction and connectivity at two-year colleges. As creator of the state's only publicly owned fiber optic network, AREON currently oversees 1,455 miles of fiber backbone and 40 miles of lateral fiber serving 11 four-year universities, enabling limitless possibilities in distance education and research collaboration. The project will serve 474 anchor subscribers (total number of partners), collectively serving 2,855,390 end-user subscribers (total population of Arkansas). The project will create 1,110 job-years, 66 direct job-years, 645 indirect job-years, and 400 induced job-years, a projection utilizing 'Estimates of Job Creation' provided by the Council of Economic Advisors. Also, 129,858 jobs will be sustained by providing the expansion of healthcare workers', educators', and others' roles through new broadband applications. The project will meet all non-discrimination and interconnection obligations by (i) fulfilling FCC principles to encourage broadband deployment and preserve/promote the open and interconnected nature of the public Internet; (ii) offering managed services using dedicated connections and security measures to protect patient rights, with no preference for applications or content; (iii) operating in transparency, with full disclosure to potential users on its and its associates' websites; (iv) offering public Internet access at its sites through publicly accessible computers; and (v) selecting ISPs based on cost efficiency and discounted pricing for high-speed broadband. The project requires \$102,464,237, with a 31% match of \$46,720,413.