

## Broadband USA Applications Database

**Applicant Name:** National Medical Wireless Broadband Alliance, LLC

**Project Title:** Critical Links Project

**Project Type:** Middle Mile

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### Executive Summary

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Without affordable, open access and technology-neutral wireless broadband systems, many hospitals and other health care facilities across the U.S. remain without the full promise of 21st century online access. The Critical Links Project of the National Medical Wireless Broadband Alliance (Alliance) seeks, through this grant proposal, to install the middle mile infrastructure underlying such systems and create a network of 70 hospitals in CA, AZ, NV and HI (Member Hospitals). OPPORTUNITY: Like many U.S. hospitals, the Member Hospitals lack technology-neutral, open access wireless broadband systems that enable any wireless device within each facility to access existing wireless networks. This hampers the adoption and use of electronic health records (EHR) by health care providers within Member Hospitals because they lack wireless access at the point of care. It also affects public safety workers. When in the field, public safety workers cannot directly communicate with the wireless devices of physicians in the Member Hospitals. Also, their equipment does not work inside the Member Hospitals. This is a broad challenge for hospitals nationwide, which require, but often lack access to, middle mile partners to provide backhaul networks and infrastructure to link to national and international backbones. Member Hospitals joined together to develop the Critical Links Project proposal to address this unmet, critical broadband need. In line with the broadband access challenges that face health care providers nationwide, Member Hospitals have critical gaps in the bandwidth, speed and interconnectivity of their IT systems. Filling these gaps is vital to physicians, nurses and staff because they must make critical decisions in real time when patient's lives are at risk. In the event of pandemic events, such as natural or man-made disasters, this need is heightened. Here, the Member Hospitals have experienced, and will continue to experience, speed and interconnectivity issues because they lack robust, reliable wireless infrastructures. The Project will provide the middle mile infrastructure for a technology-neutral, open access wireless system to each Member Hospital, enabling and enhancing the bandwidth and connectivity of each Member Hospital's IT system. By installing this infrastructure, the Critical Links Project will enhance the Member Hospitals' information and communication capabilities to support much-needed telemedicine services. It will foster use and development of cost-effective wireless medical applications and other health IT technologies, such as health information exchanges and EHR, which will ultimately save lives. The Project is in line with Administration objectives and advances high-priority goals of the Broadband Technology Opportunities Program (BTOP). It furnishes Member Hospitals with broadband access, equipment and support by installing essential middle mile infrastructure in their facilities. It has at least 26 interconnection points in underserved areas, improves access to and use of broadband by public safety entities and stimulates broadband demand and economic growth. In recognition of the middle mile infrastructure gaps that the Project will bridge and

the statutory purposes it advances, the Project has received broad support from Member Hospitals, which have agreed to contribute \$14,203,358 to the Project. In addition, the Alliance has received letters in support of the Critical Links Project from the California Hospital Association, the Hospital Council of Northern & Southern California, the National Rural Health Association and 52 community leaders and policymakers at the local, state and federal levels.

**MEMBER HOSPITALS:** The Member Hospitals span four states and, together, have more than 11,330 beds and serve approximately 6.7 million patients per year. Underscoring the multiplier effect provided by the Critical Links Project, Member Hospitals serve communities with a total population over 10.5 million and over 4 million households. These hospitals serve vulnerable populations and rural communities, and include children's, teaching, tribal and critical access hospitals. In addition, the Member Hospitals serve 97 police and fire departments with over 13,500 personnel.

**SERVICE AREAS:** The Project's proposed funded service areas consist of 47 Census Block Groups and 20 Census Tracts, each of which contains at least one Member Hospital. As a middle mile broadband infrastructure proposal, the Project must include an interconnection point in at least one area that qualifies as unserved or underserved. Each Member Hospital is an interconnection point, and there are Member Hospitals in at least 26 underserved areas.

**OPEN ACCESS:** The Project is committed to uphold the non-discrimination and interconnection obligations required under BTOP. As such, the technology-neutral, open wireless systems established in each Member Facility will be designed from the ground up to ensure health care providers have the benefits of broadband innovation that open access, technology-neutral network platforms bring.

**BROADBAND SYSTEM:** The Project provides the missing middle mile infrastructure link for the Member Hospitals via installation and administration of a neutral host Distributed Antenna (DA) System in each Member Hospital. These DA Systems will provide wireless access on users' mobile and non-mobile devices at all frequencies between 380 MHz and 6 GHz. They will also utilize the entire range of technologies used by licensed service providers (GSM, CDMA, iDEN, WiMAX or Public Safety) and unlicensed wireless systems (Wireless Local Area Network (WLAN)) and offer complete interoperability. Because the wireless infrastructure interfaces with any wireless service provider's network, voice and data services are added to the network requiring minimal infrastructure additions. WLAN services are seamlessly integrated with voice services on the same cabling and antennas. In addition, the DA Systems provide multiple broadband links to existing outside networks through over-the-air signals utilizing microwave, cellular and WiMax point-to-point 1 Mbps to 10 Mbps broadband connections. The DA System will accommodate increasing future wireless speeds by leveraging existing wireless infrastructure because they are upgradeable to 100 Mbps and higher.

**SERVICES & APPLICATIONS:** The Alliance will oversee installation of the DA Systems by providing logistical support, coordinating with hospital implementation teams and contracting with third parties for the components, engineering and installation of the systems. Post-installation, the Alliance will provide maintenance, monitoring and support services for the DA Systems through a dedicated Network Operations Center.

**QUALIFICATIONS:** To implement the Project, the Alliance has brought together a highly qualified team of industry professionals, contractors and partners, whose years of experience engineering, administering and integrating health care wireless systems will ensure a timely, sustainable and scalable implementation of this proposal. The Alliance has assembled a steering committee that includes clinical physicians, health IT professionals, representatives from Member Hospitals, a vice president of the California Hospital Association and a key broadband wireless executive.

**INFRASTRUCTURE COST:** The Project will cost

\$71,016,792 to implement. This amount covers infrastructure build-out, permitting and compliance costs. The cost-savings that the 70 Member Hospitals will experience from implementing wireless broadband technologies are significant. Nationwide, it is estimated that health care cost savings due to the implementation of broadband technologies in the U.S. will increase from almost \$6.9 billion in 2005 to \$27.2 billion in 2016. In California, it is estimated that health care cost saving due to the implementation of broadband technologies will increase from less than \$1 billion in 2005 to approximately \$3 billion in 2016. Because the Member Hospitals consist of 70 facilities that serve approximately 6.7 million patients per year and have over 11,330 beds, the cost-savings to the Member Hospitals are likely to be in the millions of dollars per year. SUBSCRIBERS: The Project will accelerate adoption of EHR and other wireless medical applications by enabling broadband connectivity at the point of care, enhancing cellular service for all persons in the Member Hospitals, and enabling network use by public safety entities. The Alliance projects that approximately 80,000 hospital employees, including physicians, will utilize services enabled by the DA Systems per week. It also projects that these services will be utilized by public safety entities approximately 78,500 times per year and by approximately 6.7 million patients per year. JOBS: The Project will generate significant economic and employment growth, and the Alliance forecasts 1,000-plus new jobs directly from infrastructure build-out and the investment by Member Hospitals of some of their cost-savings from the Project. The Alliance already has signed contract options ready to commence upon grant award. Fifty percent of the infrastructure build-out will start within the first 120 days following the grant award and the Project is scheduled to be completed within 15 months. CONCLUSION: The Critical Links Project presents a scalable and sustainable opportunity to furnish 70 hospitals, many of which are in underserved areas, with the middle mile infrastructure to enable high-speed wireless access. It will encourage and enable the development and use of wireless technologies and lead to improved patient care and cost savings. The program represents an approach that can be replicated nationwide to help hospitals realize the promise of 21st century online access.