

Broadband USA Applications Database

Applicant Name: The Tulalip Tribes of Washington

Project Title: The Washington Rural Broadband Cooperative (WA-RBC)

Project Type: Middle Mile

Executive Summary

Broadband access is essential for all citizens of the State of Washington. Commercial pricing structures limit access to broadband for economically disadvantaged individuals, communities and small business. Rich content (such as high quality video/audio, complex data, telepresence, social networking, education, medical information, and government/community systems) are, in essence, not accessible to entire communities and economic groups within Washington State. Lack of access to low cost broadband has been shown to reduce other important metrics of community well-being including community attachment, perceived social support, community satisfaction and collective efficacy. The WA-RBC Cooperative Model – A model for Broadband Equity The Washington Rural Broadband Cooperative (WA-RBC) will significantly increase the accessibility to low cost, “true broadband” – that is, up to 10 Gbps speeds -- to the areas of Snohomish, Skagit, and Whatcom counties (Phase I). Our effort to provide 10 Gbps speed is highly supported by our consortium of county governments, Indian Tribes, community associations, colleges, police/firefighters and individual citizens. The WA-RBC project team is a unique and sustainable partnership between tribal communities, “middle mile” public and private dark fiber providers, and backbone/long-haul broadband interchanges. Each partner has already made significant investments in fiber optic infrastructures, data centers and Internet exchanges. The WA-RBC partners have significant network and project management experience – and are highly knowledgeable in applications such as public safety, health informatics, economic development, and worker training/education. The WA-RBC will provide community planning (future middle and last mile expansion analyses), financial management and operational support. As a non-profit cooperative, funds obtained for transport, membership, and bundled services will finance the cooperative and also serve as reinvestment capital for the expansion of the WA-RBC to other communities. The WA-RBC is best described using the following five layer, cooperative model: (Note: The physical network and its management services are described in layers 1, 2 and 3; layers 4 and 5 describe applications that will be made available to WA-RBC members and their subscribers.) Layer 1 – Middle Mile Network (MMN) This includes maintenance and build out of core network infrastructure (last mile and middle mile connectivity), maintenance of core technologies. This includes 50.4 miles of new fiber runs and its integration with existing fiber runs for a total of 354.7 miles. Layer 2 – Community Access Points (CAPS) Each CAP will provide a community network access point (e.g., network switching/routing services) to rural residential, small business and essential services. Thirteen CAPS will be funded to serve the three county areas as part of this Phase I proposal. Layer 3 – Network Management Systems (NMS) Includes network management/QoS, connectivity requests, network mapping, data sharing, project/construction management, billing, planning, and partnerships with commercial, government and private networks...

Layer 4 – Shared Applications/Content (SAC) Includes shared hosting and provision of essential software applications such as e-mail, database access, health care (e.g., electronic health records, wellness, case management, scheduling, social services, education/workforce training, VoIP, e-911, and call center support) Layer 5 – Commercial Services/ISPs The provision of HDTV, VoIP telephony services, businesses-to-business, and government-to-government are examples of high bandwidth consumers and providers. Discounted rates will be offered to small business start-ups, economic and other disadvantaged groups until they become self-sufficient. Access to Layer 1 – 4 is nondiscriminatory and competitive – ensuring proper pricing structures that meet the needs of economically disadvantaged regions and small businesses within the State of Washington. The WA-RBC Phase I project (to be completed within 2 years of the funding cycle) will provide connectivity within three counties and their communities, 47,219 individuals, 20,895 households, 394 businesses, and 55 critical community facilities based on US census data and internal analyses. We estimate 12 jobs will be created in direct support of the WA-RBC and approximately five jobs per each of 13 CAPs – installation, support, and planning-related positions. Of course, many additional job creation opportunities will be fueled by high speed access within each region served by the WA-RBC. We expect 78 cooperative members (distributors of content and/or bandwidth) within the first year; with anticipated growth of 25% per year. Contractor and vendor commitments are completed including detailed parts, HW, etc. A Unique Public/Private Partnership Per the NOFA's goal to encourage partnerships, we are pleased to outline the following core management team as described below: - The Tulalip Tribes (via Tulalip Data Services – or TDS) serves as prime on this grant application. TDS provides network management and project management support, provides interconnection via its advanced data center between co-op subscribers and middle/long haul networks, broadband mapping/GIS and distribution of network information, technical workforce training and is the fiscal manager for this project. - Cascadeo Corporation provides network architecture, network deployment, network management, network provisioning, core IT infrastructure, and the 24x7 WA-RBC Network Operations Center. - Black Rock Networks (the prime contractor) provides core middle- and last-mile access to its network, allows for IRU exchange for fiber optic connectivity to the cooperative backbone and stub networks. They are known for cost-effective buildout of rural infrastructure and connectivity to its existing customer base in urban areas. - In addition to the above, the WA-RBC will accelerate broadband penetration in the areas targeted by utilizing existing resources such as the Seattle Internet eXchange (SIX) and the Internet Exchange - Northwest Washington (IX-NWWA). The SIX is a regional interconnection point where entities that provide content such as Microsoft, Google, Yahoo, Akamai, and others, offer free (zero cost) interconnection to all comers. The IX-NWWA is attached to the SIX in Tulalip, WA and provides a means to cost effectively reach the SIX from Snohomish, Skagit and Whatcom Counties. The members utilizing the IX-NWWA share the operational costs on a pro-rata basis which is a fraction of the full cost of a long haul transport connection to the SIX. This model is currently deployed and exceeds QoS benchmarks related to RMA, latency and jitter. Partnerships with other RUS grant applicants such as Snohomish County's Department of Information Services – and our own supporters including the Whatcom County Executive's office, Northwest Indian College, local educational institutions (K – 16), other Indian Nations, police/firefighters and citizens groups – support the technical merit and values of the WA-RBC approach. Guidelines for the cooperative board will be established as part of the WA-RBC 501(c)(3) non-profit corporation which will be established upon funding for this proposal. Project Scope – Phase I – Middle Mile Connectivity

(Whatcom, Skagit and Snohomish Counties) To address the issue of cost and broadband accessibility, this proposal identifies three phases of middle mile connectivity – Phase I (for which initial stage funding is requested) includes tribal communities, and unserved and underserved non-tribal communities within Snohomish, Skagit and Whatcom counties. A future Phase II northwestern expansion to the Makah Tribes and eastern connections to Yakima and Spokane are in planning at this time – and subject to funding for Phase I. Phase III expansion of the WA-RBC will continue from the Makah reservation south to the Quinault reservation and adjacent coastal communities. (Note: Phase II and Phase III dollars will be requested in separate waves of funding – and will likely be subsidized primarily through loans and cooperative member fees based on the successful Phase I expansion.)

Project Detail and Proposed Costs

The overall scope of the funding is to:

- Provide the WA-RBC backbone that connects two discontinuous Black Rock (BR) networks
- Interconnect BR On-net tribes and local governments to the IX-NWWA
- Interconnect BR Off-net tribes and other unserved communities with IX-NWWA
- Provide thirteen CAPs at locations across Whatcom, Skagit and Snohomish counties

The total estimated cost for this project is being estimated at this time – the Phase I implementation is estimated at \$12.37 Million. Capital expenditures include:

- 1) the WA-RBC fiber backbone;
- 2) Community Access Points (CAPs) equipment – Phase I will include the deployment of 13 CAPs – each supporting multiple 10Gbps connection points to the WA-RBC network; and
- 3) deployment of WA-RBC core at IX-NWWA.

Personnel for Phase I Implementation will support the following functions:

- 1) WA-RBC backbone and CAP deployment;
- 2) last mile connectivity/set-up for co-op partners without FTTX (wireless points at community anchor point location);
- 3) WA-RBC Network Operations Center (24x7 coverage);
- 4) project management;
- 5) WA-RBC OSS deployment (Operations Support System: Network Management, Billing, Asset Management, Knowledge Base, and Configuration Management Systems);
- 6) broadband penetration;
- 7) network mapping database and associated public facing publication services; and
- 8) disaster recovery infrastructure.

The WA-RBC team is excited about the future of broadband within the State of Washington – and the opportunity for the WA-RBC to provide state-of-the-art connectivity via an highly extensible, cooperative network.