

Broadband USA Applications Database

Applicant Name: Merit Network Inc.

Project Title: REACH Michigan Middle Mile Collaborative

Project Type: Middle Mile

Executive Summary

a) Opportunity proposed systems seeks to address As Michigan seeks to recover from its significant economic challenges, broadband becomes an even more important foundation for the future. Alternative energy, next generation manufacturing and other initiatives depend not only on access to information, but on an educated populace well-versed in new technology. In many rural areas of Michigan, the high cost and lack of competition for backhaul service has limited last mile service performance, availability and affordability for homes, businesses, schools, libraries, public safety and other anchor institutions. Last mile providers in parts of Michigan have reported that up to 80% of their costs go to backhaul. The project described in this proposal, "Rural, Education, Anchor, Community, Health Care: Michigan Middle Mile Collaborative" (REACH-3MC), directly addresses this problem by building 955 miles of 72-strand fiber into rural and underserved areas. Merit Network, an established non-profit provider to anchor institutions, together with four commercial service providers, will use the new infrastructure to serve all sectors of the economy. Merit's mission of serving anchor institutions, combined with the partners' business plans, ensures that households, businesses, and critical community facilities will all see major benefits from REACH-3MC. REACH-3MC is a component of a larger plan to address underserved areas across the entire state. In the Upper Peninsula, Peninsula Fiber Network (PFN) is the lead while Merit will be a partner. Along the northeast shore of the Lower Peninsula, Allband Communications Cooperative (a Merit member) is the lead applicant and Merit will be a partner there, too. In the Thumb region, REACH-3MC has coordinated with lead applicant Air Advantage. All four projects complement each other to address the broadband shortfalls of rural Michigan. REACH-3MC leverages the current networks operated by Merit and the partners, to deliver maximum benefit for the cost. Merit's current anchor members enjoy tremendous benefits by collaborating over its existing infrastructure. These benefits have been denied to the anchor institutions in the underserved areas because of the high backhaul costs. Not only will institutions that are newly able to connect benefit, but also current Merit members will benefit from the synergistic effect of the new anchor institutions on the extended network. This network will bring high-performance low-cost backhaul service closer to unserved areas, to 12 completely underserved counties, and to 14 counties with significant underserved areas. The network will immediately connect 38 anchor institutions and could connect 379 more to the rest of the state's anchor institutions through Merit. REACH-3MC could serve over 50 social service sites and 44 public safety sites. Merit is participating in Northern Michigan's Emergency Services Internet (ESI) program to provide e911 services throughout rural northern Michigan. Through REACH-3MC this could be expanded to the REACH-3MC service area. REACH-3MC serves communities that will benefit the most from broadband in a state that is working hard to better

engage in the knowledge economy. This system is a fiber network that uses advanced technologies to bring high-performance, low-cost and easily scalable backhaul services to underserved areas. The design allows for easy support of legacy technology common in smaller last mile providers, while providing a smooth path to newer high-performance technology. Fiber stands, wave services, transport and IP services will be offered by REACH-3MC. Although funding in the current legislation will not immediately solve the entire broadband problem, REACH-3MC will lay the groundwork for continued progress long after project completion. Merit, as cited in over 70 letters of support, has succeeded in helping communities work together, share assets, and make real progress toward improving regional network infrastructures. Merit has a history of bringing together diverse organizations to work together for the benefit of their remote communities; thus REACH-3MC leverages a winning approach to rural broadband. REACH-3MC is a partnership between Merit, LYNX, Iserv, Tc3Net and ACD.net. Merit is the lead applicant and the others are subrecipients. The partners have jointly designed the network and have MOUs in place. ACD.net will also make two applications for last mile projects (Berrien & Cass counties and Hillsdale & Branch counties) that rely on REACH-3MC. On a broader scale REACH-3MC coordinates with the service projects of anchor institutions, such as the NSF-MRI Internet2 DYNES proposal, and BTOP Public Computer Center proposals Michigan State University.

b) Funded service area The proposed funded service area includes 32 contiguous counties in Michigan's Lower Peninsula, identified as the Eastern, Western, Southern, and Central Corridors. The service area was designed to focus on underserved areas and is part of a larger plan to serve underserved areas throughout the State.

c) Number of households and businesses passed The proposed fiber corridors will pass 886,147 households and 45,875 businesses.

d) Number of critical community facilities REACH-3MC will pass 422 identified critical community facilities, of which 44 are public safety entities.

e) Proposed services for the proposed funded service areas REACH-3MC will provide up to 10 Gbps of bandwidth to 38 anchor institutions, and will initially interconnect with 7 identified last mile providers who will offer broadband Internet, voice and video services to households and businesses. A number of other last mile providers have expressed interest in using REACH-3MC. The maximum last mile Internet service will be 18 Mbps down and 10 Mbps up, while the minimum offered will be 768kbps/200kbps.

f) Non-discrimination and interconnection obligations REACH-3MC has developed an open model and addresses the non-discrimination and interconnection obligations. The fact that Merit and one other subrecipient are strictly middle mile providers ensures open access over the network. Two other subrecipients will expand into middle mile services, offering competitive rates. All parties have agreed to follow the obligations and have posted appropriate policies on their web sites.

g) Type of broadband system that will be deployed REACH-3MC comprises 955 miles of 72-strand fiber. The optical system is based on dispersion shifted long haul fiber with DWDM optical transport equipment capability of delivering up to 40 DWDM waves within the ITU standard wavelength grid. The basic access rates will be 10 Gbps and 2.5 Gbps between add/drop sites at strategic locations on the network. These rates can be either Ethernet or SONET standards. Secondary regional access loop fibers will deliver 100 Mbps to 1 Gbps to the drop/add points for aggregation into the backbone network. Routers and switches on the regional access loops will operate with standard TCP/IP protocols and services. REACH-3MC is an extension of Merit's 1600-mile fiber network. Extending advanced service previously unavailable to many parts of rural Michigan.

h) Qualifications Merit has built and run networks for 43 years. It was one of three partners that built the NSFNET, the forerunner of the commercial Internet. It currently operates 1600

fiber miles in its network, delivering the most advanced technology with rock-solid reliability. It is fully staffed with senior engineers, operators and management. As a 501 (c)(3) it exists to serve the public good. Merit's Board governs Merit to maximize its positive statewide impact and to ensure Merit's long-term existence.

i) Overall infrastructure cost The total cost of this project is estimated to be \$41,611,527.

j) Overall expected subscriber projections This project will potentially serve 379 new anchor institutions. Merit is projecting that 50% will take advantage of this network within 3 years of completion. LYNX is expecting 20% of last mile providers to buy service within 3 years. The last mile partners are projecting increased subscribers of 20% for T3CNet over 5 years, 30% for Iserve within 4 years and 33% for ACD.net.

k) Number of jobs estimated to be created Eight additional Merit staff will be hired to manage the expanded services; the four other partners are projecting 44 incremental jobs in support of their initiatives. In addition to the long-term jobs, construction will require an additional 6 contractor staff for the duration of construction. Using the results from the report "Measuring Broadband's Economic Impact" by the U.S. Department of Commerce Economic Development Administration, we expect the addition of 660 jobs per year over what can otherwise be expected. In addition we expect the number of businesses to increase by 55 per year in the service area above the level expected without REACH-3MC. REACH-3MC goes even further to help economic development. As the Internet2 connector in Michigan, Merit will bring the most advanced information into remote Michigan and present Michigan's unique knowledge to the world. Michigan State uses Merit's current network and high definition video to teach remote medical school classes at locations around the state. Madonna University uses Merit to host Project Accessible Hollywood, which brings filmmaking talent and experience not otherwise available into Southeast Michigan. These are examples of the applications REACH-3MC will bring to rural Michigan. REACH-3MC, by serving the all needs, will help Michigan citizens engage in the digital economy. Please reference Supplemental Information 1: Reference Map & Key Application Clarification