

**FINAL ENVIRONMENTAL ASSESSMENT  
MERIT REACH-3MC II - (Rural, Education, Anchor,  
Community & Healthcare – Michigan Middle  
Mile Collaborative)  
PROJECT**



Prepared for:  
National Telecommunications and  
Information Administration (NTIA)

On behalf of:  
Merit Network, Inc.  
1000 Oakbrook Drive  
Ann Arbor, Michigan 48104-6794

*Prepared by:*

***ECT***

Environmental Consulting & Technology, Inc.  
2200 Commonwealth Blvd., Ste. 300  
Ann Arbor, MI 48105  
Ph: (734) 769-3004  
Fax: (734) 769-3164

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## EXECUTIVE SUMMARY

In August 2010, the National Telecommunications and Information Administration (NTIA) awarded a \$69.6 million federal grant through its American Recovery and Reinvestment Act (ARRA, aka the federal stimulus package) funded Broadband Technology Opportunities Program (BTOP) to Merit Network, Inc. (Merit). As a recipient of this federal grant, Merit is submitting the following Environmental Assessment (EA) to NTIA in compliance with the National Environmental Policy Act (NEPA).

Merit is proposing to build the Rural, Education, Anchor, Community and Healthcare – Michigan Middle Mile Collaborative Project (REACH-3MC II) (the Project), a 1,263 mile long advanced fiber-optic network through underserved counties in Michigan's Upper and Lower Peninsulas with diverse paths to Wisconsin and Minnesota. In addition, Merit will purchase approximately 60 miles of existing fiber infrastructure and one telecommunication hut. The Project is a unique relationship between Merit, one public and seven private sector entities that provide high-performance broadband middle and last mile services, namely, the Michigan 911 Administrator's Office, ACD.Net, Boardman River Communications, CCI Systems, Great Lakes Comnet, Lynx Network Group, and Peninsula Fiber Network. The Project will engage citizens in Michigan, Wisconsin and Minnesota in the digital economy by providing affordable, high-performance broadband Internet, voice, and video services to homes, businesses, and statewide community anchor institution (CAIs) in 29 Michigan counties in both the Upper and Lower Peninsulas, eight in Wisconsin and one in Minnesota. Of these 38 counties, 29 are underserved and eight have underserved areas. Additionally, the Project creates opportunities to provide high-speed capabilities to four Native American tribes in the region: Sault Ste. Marie Tribe of Chippewa Indians, Little Traverse Bay Band of Odawa Indians, Hannahville Indian Community, and the Bad River Band of the Lake Superior Chippewa.

Merit Network, Inc., a not-for-profit broadband service provider, has built and run networks for anchor institutions throughout the State of Michigan for 44 years, supporting the education and not-for-profit community. Michigan State University uses Merit's network and high definition video to teach remote medical school classes around the state. Merit currently operates over 1,600 fiber miles, including the Michigan Lambda Rail and Blue Line fiber projects in its network. Merit is owned and governed by the following Michigan universities: Grand Valley State, Ferris State, Michigan State, Central Michigan, Western Michigan, The University of Michigan, Northern Michigan, Lake Superior State, Michigan Technological, Wayne State, Eastern Michigan, and Oakland. Merit provides high-performance networking and services to the research and education communities in Michigan. Specific Project objectives include the following:

- Foster economic development and growth in underserved areas of Michigan, Wisconsin and Minnesota that lack widely available and affordable broadband services.
- Offer fiber services and speeds from 1.5 Mbps to 10 Gbps to a service area with more than 781,700 CAIs, households, and businesses.
- Collaborate with sub-recipients to offer broadband Internet, voice, and video services to households and businesses.
- Compliment Merit's \$33M BTOP Round One infrastructure award for west, south, east and central Michigan by leveraging its platform, billing, and operations.

The Project proposes to immediately connect 61 CAIs including libraries, universities, community colleges, and community healthcare centers, and pass 759 CAIs in the service area. The fiber network will pass approximately 731,237 households and 49,661 businesses. The fiber infrastructure project will use existing road and utility rights-of-way (ROW's) for the entire 1,263 miles of the route. The proposed fiber optic cable will be installed using a combination of aerial and underground construction methods. Aerial construction involves hanging fiber on existing utility poles with some poles being replaced as needed. Underground construction will consist of vibratory plowing, directional drilling, and utilization of existing underground conduit where available. Directional boring will be used,

where feasible, in environmentally sensitive areas such as stream and river crossings, sensitive wetland crossings and rare species habitats. Plowing will be used for the remaining underground construction, especially where the lines parallel roadways and in disturbed urban areas lacking significant natural and cultural resources. No new utility corridors will be created. Environmental impacts will be minimized through the utilization of existing, disturbed road and utility ROW's for the entire length of the project.

The proposed construction methods identified in the Environmental Assessment are based on preliminary engineering studies; however, it may be necessary to substitute underground construction for aerial construction in certain locations for a variety of reasons including, but not limited to the following:

- Merit's ability to enter into pole attachment agreements with existing pole owners;
- the condition of existing poles and the ability of pole owners to complete "make ready" activities in a manner that maintains the project schedule;
- negotiations with municipalities and land management agencies that may require underground construction; and,
- local ordinances that may require underground construction.

Based on preliminary engineering studies, approximately 43% of the construction will be aerial fiber hung on existing utility poles, with some poles being replaced as needed. No new pole runs are proposed for the Project. Approximately 41% of the construction will involve underground installation of fiber. The remaining 16% of the project corridor is defined as "Urban" where the fiber optic cable may be located within 2,500 feet of the proposed location shown in the Environmental Assessment pending negotiations with municipalities and right-of-way managers. The Project will use existing, previously disturbed ROW's for the entire 1,263 miles of the route.

During the agency consultation process, Merit has identified the wider urban corridors and the potential for alternative construction methods to be used and has requested that agencies review the Project in light of the potential for either aerial or underground construction within the proposed project corridor.

The Project includes 63 Dual Option Areas (DOAs) defined as segments where utility ROW's are not located within or adjacent to road ROW's. The final location and choice of construction methods in these areas will be determined based on land use constraints or the accessibility of existing poles and/or conduit. Thirteen CAI Service Areas, defined as route locations which may be employed to facilitate future connections to CAIs, are proposed for the Project. Construction methods are the same as for the rest of the Project and environmental impacts will be minimized through the utilization of existing, disturbed road and utility ROW's for the entire length of the project. Eleven telecommunication huts will be installed on existing developed sites in close proximity to the proposed fiber optic line; one existing telecommunication hut will be purchased.

Broadband access is a critical component for economic development. As Michigan and northern Wisconsin and Minnesota seek to recover from their 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, 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 directly addresses this problem by building 1,263 miles of 12-168 strand fiber infrastructures into selected rural and underserved areas in Michigan, Wisconsin, and Minnesota. Merit Network, Inc., 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 sub-recipients' business plans, ensures that households, businesses, and CAIs will all see major benefits from, and that citizens in Michigan, Wisconsin and Minnesota are engaged in, the digital economy.



The alternatives considered for the Project are all based upon Merit's existing core or backbone fiber network in Michigan's Upper and Lower Peninsulas, since all proposed fiber routes had to expand from this backbone network. Determining the routes of the proposed fiber paths first involved locating connection points in unserved and underserved areas in 29 Michigan counties in both the Upper and Lower Peninsulas, eight in Wisconsin and one in Minnesota. Once connection points were identified, baseline routes were established to the existing backbone network. Route analyses followed, with fiber paths being finalized in a manner that minimized the temporary environmental impacts associated with the Project, while maximizing connectivity between served and unserved areas. Route finalization included the consideration of the following:

- Presence of utility poles.
- Location and condition of existing utility poles.
- Presence of existing conduits.
- Distance between backbone network access points, major telecommunications points of presence, and CAIs.
- Building infrastructure and network hookup locations at community anchor institutions.
- Existing natural features (such as rivers and wetlands) and known cultural resource sites.

Several alternatives were considered for the Project: No Action, Preferred, and Alternatives Considered but Eliminated from Further Discussion. The No Action Alternative involves not constructing the Project. The Preferred Alternative is comprised of a combination of aerial and underground installation techniques. Alternatives Considered but Eliminated from Further Discussion included: 1) routing the proposed fiber paths via underground installation only, 2) running the proposed fiber paths via aerial installation only, and 3) the use of wireless technology. Without access to high-quality middle mile fiber infrastructure, learning, productivity, and economic development in Michigan, Wisconsin and Minnesota would suffer. Therefore, a combination of aerial and underground installation was ultimately selected as the Preferred Alternative, because it allows for the selection of the most appropriate fiber installation methodology for the various sites along the Project's three corridors and associated spurs. This alternative allows the Project to leverage the time, cost, and environmental benefits of utilizing existing utility poles and underground utility conduits, while saving the more expensive and time-consuming underground installation techniques for areas with no available poles and/or restrictive utility ordinances. Overall, the Preferred Alternative allows implementation of the Project to proceed with the least amount of adverse environmental impacts, while still meeting the Project's purpose and need—to provide affordable, high-performance broadband to homes, businesses, CAIs, and critical community facilities in unserved and underserved areas in Michigan, Wisconsin, and Minnesota.

The proposed Project crosses the Bad River Indian Reservation and four National Forests. The Project Team has been consulting with representatives of the Bad River Band, the U.S. Forest Service and other state and federal natural resource agencies to identify the necessary clearances and permits needed to construct the Project. Agency correspondence is provided in Appendix F.

The existing road ROW's that will be used by the Project are managed by State Highway Departments and local road departments/commissions; existing utility ROW's are typically owned by electric distribution companies. On-going engineering studies have identified no private land crossings to-date.

Adverse environmental impacts resulting from the Project will be minimized through the utilization of existing, previously disturbed utility and road ROW's for the entire length of the Project. The environmental impacts associated with the Project are typically a result of soil disturbance associated with construction. Areas that are disturbed during construction will be restored to their pre-construction condition and stabilized with seed and mulch. Therefore environmental impacts are anticipated to be relatively minor and temporary. The proposed Project was found to have no impacts to noise, air quality, surface water, groundwater, designated Critical Dune, historic architectural, aesthetic/visual, and land use resources. The proposed Project was found to have potential minor, temporary adverse impacts to geology/soils, wetlands, designated Coastal Zones, floodplains, designated federal

Wild and Scenic Rivers, State-designated rivers and waterways, designated Environmental Areas, vegetation, wildlife, threatened and endangered species, wetland habitats, archeological/native, public land, and human health and safety resources. The proposed Project was found to have significant positive impacts on infrastructure, socioeconomic resources, and environmental justice populations.