

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

Summary

Merit Network, Inc. (Merit) applied to the Broadband Technology Opportunities Program (BTOP) for a grant to install aerial and buried fiber optic infrastructure, as well as the necessary switching and routing equipment, to extend and build upon the existing network system in 33 contiguous counties in Michigan's Lower Peninsula. New networks will directly connect 42 anchor institutions in underserved areas, including libraries, universities, community colleges, and community healthcare centers. The proposed action is called the Rural, Education, Anchor, Community, and Healthcare Michigan Middle Mile Collaborative, or REACH-3MC (Project).

The National Telecommunications and Information Administration (NTIA) awarded a grant for the Project to Merit, through BTOP, as part of the American Recovery and Reinvestment Act (ARRA). The funding must be obligated and the Project completed within three (3) years. This timeline is driven by the laws and regulations governing the use of this ARRA grant funding.

BTOP supports the deployment of broadband infrastructure in unserved and underserved areas of the United States and its Territories. As a condition of receiving BTOP grant funding, recipients must comply with all relevant Federal legislation, including the National Environmental Policy Act (NEPA) of 1969, which limits the types of activities that can be undertaken prior to completion of required environmental reviews. BTOP grant recipients, whose activities are not categorically excluded from further environmental review, must prepare an Environmental Assessment (EA) that meets the requirements of NEPA. After a sufficiency review, NTIA may adopt the EA and use it as the basis for finding that the proposed project would not have a significant impact on the environment. Following such a finding, the BTOP grant recipient may then begin construction or other activities that could impact the environment.

An EA for the Project was completed by Merit in August 2010, and reviewed, determined sufficient, and adopted by NTIA as part of the development of this Finding of No Significant Impact (FONSI).

The Project includes:

- Installing approximately 737 miles of aerial and 142 miles of buried 72-strand fiber optic infrastructure in existing road rights-of-way (ROWs);
- Installing approximately 136 miles of aerial 72-strand fiber infrastructure on existing or replacement poles in existing off-road utility ROWs;
- Installing hand holes at intervals of approximately 2,000 feet along the length of the buried fiber optic cable route;
- Replacing approximately 1,550 existing utility poles as needed to support Project needs;

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

-
- Installing incidental fiber infrastructure needed to directly connect the network with 42 community anchor facilities; and
 - Hiring of staff to manage and maintain the expanded REACH-3MC network.

Based on a review of the analysis in the EA, NTIA has determined that the proposed Project, if implemented in accordance with the preferred alternative, would not result in any significant environmental impacts. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required. The basis for the determination is described in this FONSI.

Additional information and copies of the EA and FONSI are available to all interested persons and the public through the BTOP website (www2.ntia.doc.gov/) and the following contact:

Frank J. Monteferrante, Ph.D.
Environmental Compliance Specialist
Broadband Technology Opportunities Program
National Telecommunications and Information Administration
U.S. Department of Commerce
Room 2830B
1401 Constitution Avenue, NW
Washington, DC 20230
Tel. 202-482-4208
e-mail FMonteferrante@ntia.doc.gov

Purpose and Need

The high cost and lack of competition for backhaul services have limited last mile broadband performance, availability, and affordability to homes, businesses, schools, libraries, public safety providers, and other anchor institutions within rural areas of Michigan. The purpose of the Project is to provide high-speed, affordable intermediate or middle mile broadband service to unserved and underserved areas in Michigan.

Project Description

The Project will add approximately 1,015 miles of 72-strand fiber infrastructure to Merit's existing fiber backbone network across 33 counties in Michigan's Lower Peninsula. The Project will provide up to 10 Gbps of bandwidth to 42 anchor institutions and will interconnect with four last mile providers that will offer broadband Internet, voice, and video services to households and businesses. Eight additional Merit staff will be hired to manage the expanded services and maintain the expanded network.

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

Approximately 879 miles of new fiber optic cable will be installed within existing road ROWs, including 737 miles of aerial cable hung on existing or replacement poles and 142 miles of buried cable. The remaining 136 miles of network cable will be installed as aerial fiber within existing, off-road utility ROWs. No new utility corridors will be created. The Project also involves installation of incidental fiber infrastructure to connect the new network to 42 community anchor facilities. These building connections will be confined to existing utility corridors and the building-specific infrastructure footprint. Because these connections will generally be no more than 250-500 feet in length, these building runs have not been counted toward the Project's total mileage.

Of the total route construction approximately 86% will be aerial fiber hung on existing or replacement utility poles. When traversing waterways, the installation contractor will access both sides of the water feature via road and utility ROWs, and fiber will be strung from bank to bank by hand or by boat and pulled into place. Approximately 1,550 poles (approximately 0.5% of the total poles involved in the Project) will require replacement. Construction crews will access the pole sites from existing public roads and existing utility ROWs. Timber mats will be used to support construction equipment in wetland areas where saturated conditions create the potential for rutting. The pole replacement process will involve drilling a hole approximately four to eight feet in diameter to a depth of approximately 15-35 feet, and either pouring a concrete footing on which to mount the replacement pole, or burying the replacement pole directly into the ground and backfilling the hole with crushed rock. Replacement poles will be installed approximately 15-30 feet from the existing pole. Pre-existing aerial utilities will be moved to the new poles and activated prior to pulling existing poles from the ground and sending them offsite for proper disposal. The Project does not propose new pole runs. Disturbed areas will be restored to preconstruction grades and stabilized after pole replacement, and any excess soil will be placed in upland areas.

Underground installation of fiber infrastructure will involve approximately 14% of the total route construction. Existing underground conduit will be used wherever feasible. Where existing conduit is not available, new fiber conduit will be installed using directional boring or plowing techniques. Directional boring will be used in sensitive areas. With directional boring, ground disturbance will only occur over an area 10-foot by 10-foot square, set back at least 25 feet from existing wetlands or stream banks. Staging of any required equipment will be in upland areas. Bore pits will be restored to their original grade using the original soil materials and will be seeded following the completion of fiber installation. Plowing will be used for the remaining underground fiber construction. This installation method will use a tractor-crawler and friction-type plow blade capable of minimal surface ground disturbance (approximately six inches wide). Fiber encased in flexible conduit less than two inches in diameter will be plowed into the ground at a depth of at least four feet. Restoration in plowed areas will involve compaction of the original soils in the cable plow slot. Hand holes will be installed at intervals of approximately 2,000 feet along the buried fiber route to provide storage space for fiber slack and maintenance

National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project

access. Hand hole installation involves excavating a three foot by three foot area down to the depth of the buried fiber conduit.

Construction work will likely occur in five or six locations simultaneously and continue into the winter months until frozen soils and snow require that field teams stop work. Aerial crews will install aboveground fiber infrastructure at an approximate rate of 5,000 feet per day.

Underground crews will install underground fiber infrastructure at an approximate rate of 550 feet per day using directional boring methods, and 2,500 feet per day when plowing. It is anticipated that road shoulders along the majority of the Project route will be large enough to accommodate construction workers and equipment, such that vehicles and other equipment will be located completely off of the road. Appropriate warning signage for vehicles will be posted at each location, but frequent lane closures or complete road closures are not anticipated. In the event that traffic needs to be routed around a vehicle for aerial construction, a flagman will be posted to safely direct traffic in accordance with Michigan Department of Transportation (MDOT) procedures.

Alternatives

NTIA requires that an EA include a discussion of the no action alternative. The no action alternative provides a baseline against which the effects of the proposed action may be compared. Under the no action alternative, the proposed action would not be implemented and the site-specific impacts associated with the proposed Project would not occur in the Project area. In addition, this EA evaluated potential impacts associated with the Project as outlined above. Three other alternatives focusing on modified fiber installation designs (i.e., all buried or all aerial) and different technology options (i.e., wireless connectivity) were considered but eliminated from further consideration. Installing a combination of underground and aerial fiber optic cable was chosen as the preferred Project design, and this FONSI addresses the findings related to that Preferred Alternative.

Preferred Alternative as described in the Project Description– Combination of Underground and Aerial Fiber Installation. The Project is comprised of a combination of aerial and underground fiber optic infrastructure. Using a hybrid alternative will allow the Project to leverage the time savings, cost-effectiveness, and environmental benefits of using existing utility poles and underground utility conduits, while saving the more expensive and time-consuming underground installation techniques of directional boring and plowing for areas with no available poles and/or restrictive utility ordinances. The Preferred Alternative will allow for Merit to select the most appropriate fiber installation methodology along the planned route based on differing site conditions and requirements along each mile of the extensive 1,015-mile fiber route.

No Action Alternative. Under the no action alternative, Merit would not expand their existing backbone fiber network to include approximately 1,015 miles of additional advanced fiber optic

National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project

infrastructure. As a result, Merit and its partners would be unable to provide affordable, high-performance broadband services to end users in rural and underserved areas in 33 counties within Michigan's Lower Peninsula. All existing property would remain as it presently exists, and no installation of new equipment would occur. The no action alternative served as the baseline for assessing the impacts of the alternatives.

Alternatives Considered But Not Carried Forward. Merit considered only routing the proposed fiber paths via underground installation, but ultimately rejected that alternative due to high anticipated costs of construction and excessive ground disturbance. Merit also considered only running the proposed fiber paths via aerial installation, but determined that this alternative would limit the areas served, increase route distance, and increase Project construction time and cost such that the Project would no longer be feasible. A third alternative considered by Merit involved installation of wireless infrastructure in lieu of aerial or underground installation of fiber optic cable. Wireless infrastructure would have required construction of approximately 45-55 microwave radio towers and associated infrastructure throughout Michigan's Lower Peninsula. The costs associated with constructing and operating such a network would make the Project infeasible, and the length of time needed to install the wireless infrastructure would jeopardize the Project's deadline. Furthermore, microwave radio technology is not as reliable as fiber optic technology and does not currently support the capacity proposed. For these reasons, a wireless network was eliminated as a possibility for this Project.

Findings and Conclusions

The EA analyzes existing conditions and environmental consequences of the Preferred Alternative and the no action alternative within 11 major resource areas. The resource areas analyzed included Noise, Air Quality, Geology and Soils, Water Resources, Biological Resources, Historic and Cultural Resources, Aesthetic and Visual Resources, Land Use, Infrastructure, Socioeconomic Resources, and Human Health and Safety. Cumulative Impacts were also evaluated in the EA.

Based on this evaluation, and as discussed below, Merit has determined that implementation of the Preferred Alternative is not likely to result in any recognizable environmental impacts and does not involve any unusual risks or impacts to sensitive areas.

Noise

No new long-term sources of noise will be created as a result of planned installation of aerial or buried fiber optic cable within existing road and utility ROWs. Noise associated with the construction phase of the Project will be temporary and comparable to that associated with regular maintenance activities along the existing ROWs, as would occur under the no action alternative. Operation of the new cable to provide data transmission is not expected to create any

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

new long-term sources of noise. Thus, this Project will not have significant adverse impacts on ambient noise levels.

Air Quality

No new long-term sources of air emissions (including greenhouse gases) will be created as a result of planned installation of aerial or buried fiber optic cable within existing road and utility ROWs. Emissions associated with the construction phase of the Project will be temporary and comparable to that associated with regular maintenance activities along the existing ROWs, as would occur under the no action alternative. Operation of the new cable to provide data transmission is not expected to create any new long-term sources of air emissions. Thus, this Project will not have significant adverse impacts on air quality.

Geology and Soils

Planned construction activities will result in temporary disturbance of soil in a relatively limited area during the construction phase of the Project. However, the entire proposed fiber infrastructure route is contained within existing road and utility ROWs, and connection points are located in previously disturbed urban areas. All areas with disturbed soil will be returned to their original grades and stabilized. Any required local or state soil erosion and sedimentation control permits will be obtained and adhered to throughout Project construction. Based on these findings, the Project is not expected to have significant adverse impacts on geology or soil resources. No long term differences have been identified between the no action alternative and the Preferred Alternative.

Aesthetic and Visual Resources

No new long-term changes to visual aesthetics are anticipated because the entire planned fiber infrastructure route is located within existing road and utility ROWs. Aesthetic changes associated with the construction phase of the Project will be temporary and comparable to those associated with regular maintenance activities, as would occur under the no action alternative. Thus, this Project will not have significant adverse impacts on aesthetic and visual resources.

Water Resources

To minimize ground disturbances and adverse environmental impacts:

- The majority (95%) of surface water features along the Project route will be crossed via aerial installation (without relying on construction equipment) or existing underground conduit. Eight (5%) watercourse crossings will be traversed via directional boring at least four feet below the bottom of the water feature.
- Floodplains elevations will not be altered via cut or fill.
- Planned crossings of one federally designated portion of a Wild and Scenic River (the Pere Marquette River in Mason County) and its four tributaries will occur via aerial installation on existing utility poles within an existing, regularly-maintained, utility or road ROW.

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

- Crossings of state-designated Natural Rivers and their associated Natural River Zoning Districts will only involve aerial installation on existing poles, thus minimizing vegetation and ground disturbance.
- No actions are planned that would result in contamination of drinking water sources or permanent drawdown of the groundwater table.
- All 315 wetland areas likely to be encountered along the Project route have experienced some type of past disturbance, and all are located within or adjacent to existing road/utility ROWs.

Merit met with staff from the Michigan Department of Natural Resources and Environment (MDNRE) on April 28th, 2010, to discuss aspects of the Project related to Section 404 of the Clean Water Act (33 U.S.C. 1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), and Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, including Part 301 Inland Lakes and Streams, Part 303 Wetlands Protection, Part 323 Shorelands Protection and Management, and Part 353 Sand Dunes Protection and Management. Other surface water protection agencies that have been consulted include the MDNRE Natural Rivers Program, MDNRE Michigan Coastal Management Program, and MDNRE Critical Dune Area Program. MDNRE issued a Natural Rivers permit for the Pere Marquette and White Rivers crossings on June 3, 2010. The U.S. Forest Service (USFS) provided necessary clearances on August 2, 2010.

No significant adverse impacts on water resources are anticipated. The no action alternative would have no adverse impact on water resources.

Merit submitted the joint federal/state wetland permit applications on June 10, 2010. Additional information was requested to support the MDNRE review, and Merit will provide this information. Generally recognized standard operating procedures and applicable requirements will be incorporated into the construction documents to ensure that the contractor is aware of construction methods to be used to minimize potential wetland impacts and comply with permit conditions.

Biological Resources

The Project's impact on corridor vegetation and wildlife will be minimized by aerial installation on existing poles; installation of cable in existing, regularly disturbed road and utility ROWs; and using existing underground conduit wherever possible. Minor, temporary disturbances associated with underground construction and pole replacement will be minimized by returning the ground surface to its original grade and stabilizing the area. As a result, no significant adverse impacts on vegetation or wildlife resources are anticipated. The no action alternative would have no adverse impact on vegetation or wildlife resources.

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

According to a MDNRE Wildlife Division review letter dated May 14, 2010, 11 federal and state listed species and unique natural features have the potential to be impacted along the Project route. Special precautions will be taken for the portions of the route where these species are known to occur in the vicinity of the road and utility ROWs. Timing of construction and installation will be adjusted in accordance with the direction from the regulatory agencies to limit impacts. Per informal consultation with the U.S. Fish and Wildlife Service (USFWS), the project area will be evaluated for the presence of Houghton's goldenrod (*Solidago houghtonii*) in August 2010. If observed within the road ROW, adverse impacts to this species will be avoided by timing aerial installation to occur when the plant is dormant and protected by snow cover, or by accessing poles by foot and climbing manually without the use of heavy equipment. Karner blue butterfly (*Lycaeides melissa samuelis*) habitat was surveyed for on June 14, 2010, and the wild blue lupine (*Lupinus perennis*) plants (larval host) observed will be protected by restricting construction equipment and activities along the road shoulder where lupine does not occur (between the edge of pavement and the existing poles). Provided that the threatened and endangered species mitigation measures described in the Merit June 24, 2010, response and those recommended by the review agencies are appropriately implemented, installation of fiber infrastructure will have negligible adverse environmental impacts on biological resources. Concurrence with Merit's findings was received from USFWS on July 12, 2010, MDNRE Wildlife Division on July 15, 2010, and MDOT on July 29, 2010.

Historic and Cultural Resources

Merit conducted a pre-application meeting with representatives of Michigan's State Historic Preservation Office (SHPO) on April 23, 2010, and subsequently submitted an application package for Section 106 review to the SHPO on May 11, 2010. On June 16, 2010, the SHPO issued a letter stating that the Project will have no adverse effect on historic properties. The Tribal Historic Preservation Office (THPO) of the Ketegitigaaning Ojibwe Nation, Lac Vieux Desert Band of Lake Superior Chippewa Indians issued a letter on June 15, 2010, stating no objections to the Project and no further consultation required prior to construction.

Merit will provide training materials to Project contractors to assist in identification of any unforeseen archeological or cultural resource sites that may be revealed during construction of the Project. These materials will include procedures for stopping work in the immediate area and contacting the Merit Project Manager, who will initiate further consultation with the SHPO to determine the significance of the find and steps to be taken to secure the clearances needed to resume construction in the area. Given these mitigations, the Project will have no significant adverse impact on archeological resources. Similarly, the no action alternative would have no adverse impact on archeological resources.

Land Use

Neither the no action alternative nor the Preferred Alternative will require changes to land use. However, the Project will cross approximately 29 miles of coastal zone in Michigan's Coastal

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project**

Management Plan. Fiber infrastructure installation will occur within existing, disturbed road and utility ROWs in the coastal zone. Furthermore, all construction-related disturbances associated with this Project will be short-term, temporary, and comparable to current ROW maintenance activities. By implementing requirements of the US Army Corps of Engineers/MDNRE joint wetland permits, the Project will comply with Michigan's Coastal Management Plan. No separate coastal zone permit is required. The Project will not involve state-designated critical dunes or environmental areas. The Project route crosses public lands, including national forest, national lakeshore, state forest, and other state lands. A Special Use Permit (SUP) will be needed to cross lands within Manistee National Forest. An application for the SUP was submitted on July 27, 2010. The USFS has indicated that they do not foresee any potential issues that cannot be addressed during the SUP application review process. Therefore, adverse impacts to public land resources associated with the Project are expected to be limited to the construction phase, short-term, and temporary. Any necessary permits related to public land crossings will be acquired and adhered to throughout Project construction.

The no action alternative would have no adverse impact on public land or other special land use resources.

Infrastructure

The availability and accessibility of waste disposal facilities, utilities, and the existing transportation network will not be adversely impacted by the Project. Instead, the Project will positively impact the availability of communication infrastructure in Michigan's Lower Peninsula. The no action alternative would have a significant adverse impact on infrastructure resources, as unserved and underserved areas in 33 Michigan counties would continue to go without affordable, high-performance broadband access.

Socioeconomic Resources

The Project will have a positive impact on the socioeconomic resources of low-income and minority populations living in underserved areas of 33 Michigan counties. It is anticipated that any potential adverse impacts associated with the Project are not likely to significantly affect environmental justice populations in the planned network service area. Conversely, the no action alternative would have a significant adverse impact on socioeconomic resources since the underserved areas within these 33 Michigan counties, including low-income and minority populations, would not be provided with affordable, high-performance broadband access.

Human Health and Safety

It is anticipated that road shoulders will be wide enough along most of the planned fiber route such that vehicles and personnel will be located completely off of the road. Consequently, road shoulder closures may occur, but frequent lane closures or complete road closures are not anticipated. If traffic needs to be routed around a vehicle for aerial construction, a flagman will be posted to safely direct traffic per MDOT procedures. All construction crew members will be

National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project

trained and familiar with applicable traffic control and safety regulations, and will comply with applicable Occupational Safety and Health (OSHA) and MDOT regulations. To mitigate the potential for automobile accidents, road signs will be posted in both directions towards oncoming traffic to denote construction work along road shoulders and in road ROWs. Because most of the Project route is rural, traffic control will be most important near anchor institutions in urban areas with higher traffic volumes. All required permits for roadside work will be obtained prior to Project construction. Given these mitigation measures, the Project is not expected to have significant adverse impacts on public and worker safety. The no action alternative would have no adverse impact on public and worker safety.

Risks associated with installation of conduit in any Brownfield areas include exacerbating existing contamination or increasing the potential for exposure to contaminants. Placement of new fiber in existing underground conduit is not expected to increase these risks because very limited excavation will be conducted at each end of the conduit. Furthermore, these areas were already excavated during the original installation and are presumed to be located either in clean native material or clean backfill material. Installation of new fiber by directional boring involves only a small amount of excavation and does not significantly disturb the soil. Any soil removed from the ground would be returned to its original position and grade. Plowing involves advancing a blade (with the cable or conduit attached) approximately four feet into the subsurface and dragging the equipment behind a tractor to cut a path through the soil. This method does not disperse any soil and will not create a lasting disturbance in the surface soil once the blade has passed. None of the planned methods for underground fiber installation will have a significant adverse impact to human health and safety, whether or not contaminated soils are encountered.

Cumulative Impacts

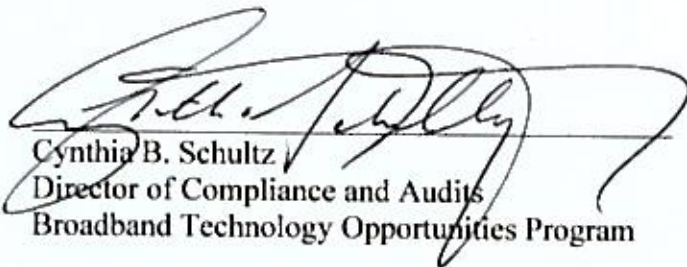
Construction of the Project is expected to result in additional spin-off fiber projects, as other broadband providers seek to build on the Project network and expand services into areas beyond those to be served by the Preferred Alternative. However, most of these spin-off projects are expected to be less than 10 miles in length and associated with existing facilities. Economic and engineering considerations will likely cause these spin-off projects to utilize existing road and utility ROWs, existing utility poles, and underground installation methods similar to those detailed in the Preferred Alternative. There may be minor cumulative impacts to existing infrastructure because existing utility poles can only accommodate a finite number of cables and associated equipment. Addition of aerial cable and equipment associated with the Project network reduces space available for cables and lines associated with future spin-off projects. Conversely, the Project provides a substantial positive cumulative impact on services and resources available in underserved and unserved areas of Michigan's Lower Peninsula. Based on the analysis above, the proposed action will have no significant adverse impacts to any individual component of the environment, nor will they have a cumulative impact to the environment as a whole.

National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Merit Network, Inc., REACH-3MC Project

Decision

Based on the above analysis, NTIA concludes that with the environmental protection measures proposed for implementing the Project using the preferred alternative, the construction and operation of the Project will not require additional mitigation. A separate mitigation plan is not required for the Project. The analyses indicate that the proposed action is not a major Federal action significantly affecting the quality of the human environment. NTIA has determined that preparation of an EIS is not required.

Issued:


Cynthia B. Schultz
Director of Compliance and Audits
Broadband Technology Opportunities Program

August 18, 2010
Date