National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
Board of Regents of the University of Wisconsin System
Metropolitan Unified Fiber Network Project

Summary

The Board of Regents of the University of Wisconsin System (recipient) applied to the Broadband Technology Opportunities Program (BTOP) for a grant to deploy a new dark fiber optic or wire line telecommunications network in the greater Madison metropolitan area of Dane County, Wisconsin. The network will cover 110.05 miles, with 1.8 miles of aerial fiber installed on existing poles and 108.25 miles of underground terrestrial fiber. Development of the buried portion of the network will require installing 35.25 miles of new fiber and new conduit; installing 20 miles of new fiber in existing conduit; and leasing 53 miles of previously installed fiber in existing conduits. Lateral fiber connections will be installed from the new network to 97 community anchor institutions (CAIs). In addition, one existing collocation building in Madison will be modified to establish a secure service distribution facility for the network. This proposed action is referred to as the Metropolitan Unified Fiber Network Project (MUFN) (Project).

The National Telecommunications and Information Administration (NTIA) awarded a grant for the Project to the Board of Regents of the University of Wisconsin System, through BTOP, as part of the American Recovery and Reinvestment Act (ARRA). The funding must be obligated and the Project completed within three 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 of 1969 (NEPA). Specifically, NEPA limits the types of actions that the grantee can initiate prior to completing required environmental reviews. Some actions may be categorically excluded from further NEPA analyses based on the specific types and scope of work to be conducted. For projects that are not categorically excluded from further environmental review, the grant recipient must prepare an Environmental Assessment (EA) that meets the requirements of NEPA. After a sufficiency review, NTIA may adopt the EA, use it as the basis for finding that the project will not have a significant impact on the environment, and issue a finding of no significant impact (FONSI). Following such a finding, the BTOP grant recipient may then begin construction or other activities identified in the EA as the preferred alternative, in accordance with any special protocols or identified environmental protection measures.

The recipient completed an EA for this Project in December 2010. NTIA reviewed the EA, determined it is sufficient, and adopted it as part of the development of this FONSI.

The Project includes:

- Installing 1.8 miles of aerial fiber optic cable on existing poles;

- Installing 12.25 miles of new underground backbone infrastructure, including fiber and conduit;
- Installing 23 miles of new underground fiber laterals, including fiber and conduit, to connect 97 CAIs to the new network;
- Installing 20 miles of new fiber in existing conduit owned by the City of Madison;
- Leasing 53 miles of existing fiber in existing conduit owned by the City of Madison, the Wisconsin Department of Transportation (WisDOT), and the University of Wisconsin (UW) Health;
- Extending fiber, and providing equipment cabinets as needed, to 97 CAI facilities; and
- Modifying interior space within an existing collocation building in Madison and installing the utility and telecommunications equipment necessary to establish a secure service distribution facility for the network.

Based on a review of the analysis in the EA, NTIA has determined that the Project, implemented in accordance with the preferred alternative, and incorporating best management practices (BMPs) and protective measures identified in the EA, will not result in any significant environmental impacts. Therefore, the preparation of an EIS is not required. The basis for this determination is described in this FONSI.

Additional information and copies of the Executive Summary 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:

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Purpose and Need

The purpose of the Project is to resolve broadband access and affordability issues in the historically under-serviced communities surrounding Madison, Wisconsin. MUFN will provide crucial high-speed telecommunications service to identified CAIs (e.g., education, healthcare, public safety facilities) and commercial entities seeking to serve business and residential needs in the greater Madison metropolitan area. Installation of fiber optic telecommunications infrastructure under this Project will offer affordable and scalable broadband service to meet

rapidly increasing data transport requirements of educational institutions, health care facilities, public services, and library buildings. The Project is also expected to spur economic development through new business development and job growth, improve public safety initiatives and crisis communication, improve remote training opportunities, and support implementation of internet-supported medical initiatives.

Project Description

Under this Project, the recipient and its contractors will create a 110.05 mile fiber-optic network in the greater Madison metropolitan area, including 1.8 miles of aerial fiber and 108.25 miles of underground terrestrial fiber. MUFN infrastructure will be installed within the cities of Madison, Middleton, Monona, Fitchburg, the Village of Shorewood Hills, and the townships of Madison, Middleton, Burke, and Blooming Grove.

To establish part of the underground network, the recipient will secure leased access to approximately 53 miles of existing fiber in existing conduit owned and managed by the City of Madison, WisDOT, and UW Health. Another portion of the underground network, covering approximately 20 miles, will be established through placement of new fiber in existing underground conduit, also owned by the City of Madison. The remaining 35.25 miles of underground network involves installation of both conduit and fiber. This conduit and fiber construction will include 12.25 backbone miles and 23 miles of laterals. The new backbone infrastructure will be constructed between a new service distribution center and internet peering locations. These backbone miles will be constructed of 3-inch high density polyethylene (HDPE) conduit. Planned lateral extensions will be constructed of 1.25-inch HDPE conduit. All new conduits will be installed in existing rights-of-way (ROWs) within roadway median areas or within 3 feet of existing concrete curbs. Conduit will be installed at a depth of approximately 42 inches below grade in Madison, Monona, Middleton, Dane County, Shorewood Hills, and Middleton roadway ROWs. Conduit will be installed at a depth of approximately 60 inches below grade within the WisDOT ROWs crossing Highway 12/14 on High Point Road.

Horizontal directional drilling (HDD) techniques will be used during conduit and fiber installation to mitigate disturbance of surface features. Access pits for the HDD equipment will be approximately 3 feet wide, 6 feet long, and 6 feet deep. Excavated soils will be temporarily stockpiled adjacent to the pits and subsequently returned to the pits once the bore is complete. Any disturbed landscaping or grade will be restored to its original state. Equipment used to install the underground fiber conduit may include a Vermeer D24X40 series HDD machine powered by a diesel engine, high-pressure vacuum trucks, backhoes, and other utility trucks. After installation, armored fiber-optic cable and tracer wire will be manually pulled through the conduit using fiber pull ropes. Fiber will also be fed manually through approximately 20 miles of existing conduits.

To complete the aerial installation, the recipient through its contractors will lash a second fiber optic cable with an existing cable on existing telephone poles along Monona Drive between

Cottage Grove Road and Pflaum Road. The poles have sufficient load-bearing capability, and will not require new supports.

Conduit and fiber laterals will connect 97 CAIs to the MUFN backbone. These lateral connections will leave the network backbone along roadway ROWs, traverse CAI property, and enter the CAI's facility. Existing building conduit entrance sleeves or cores will be used where feasible, but new 1.5-inch conduit sleeves will be furnished and installed as necessary. Fiber will be routed within the CAI facility using existing conduit or raceway facilities. If insufficient or inadequate facilities exist, fiber will be anchored to permanent building surfaces with J-hooks or bridle rings. A fiber service loop will be attached to a building wall near the fiber termination point. A fiber termination panel will be mounted on an existing aluminum equipment rack. If necessary, the recipient will furnish and install an equipment rack.

The Project also proposes to modify an existing collocation building in Madison to serve as a service distribution center for the new MUFN network. An empty, lower-level room will be modified to create an accessible and secure service distribution facility. Specific work will include installation of drywall walls, modification of the building's heating, ventilating, and air conditioning systems, installing 3 computer racks, and procuring 20 amp electrical service for each rack from the existing, redundant building electrical feeds.

Alternatives

The EA includes an analysis of the alternatives for implementing the Project to meet the purpose and need. NTIA also requires that an EA include a discussion of the no action alternative. The following summarizes the alternatives analyzed in the EA.

Alternative 1 – Combined Aerial and Underground Construction (Preferred Alternative). As discussed previously, this alternative will create a new network in the greater Madison metropolitan area. This alternative maximizes the use of existing underground conduit and fiber, as well as existing utility infrastructure for aerial installation. Through the use of HDD boring techniques, the majority of Project-related disturbance will occur below the ground surface, except in the immediate location of drilling equipment entry and exit pits. The HDD boring method will route the conduit/cable under wetlands, streams, public parks, historic buildings, and high traffic intersections.

No Action Alternative. No action was also considered. This alternative represents conditions as they currently exist. Under the no action alternative, the greater Madison metropolitan area would remain without sufficient broadband capacity to meet rapidly increasing data transport requirements for education, health care, public services, and library needs. The EA examined this alternative as the baseline for evaluating impacts relative to other alternatives being considered.

Alternatives Considered But Not Carried Forward. Alternative methods of construction were evaluated. The recipient considered installation of new underground cable and conduit for the entire network, but this option was eliminated because it would not make use of existing conduit. The recipient also considered aerial installation for the entire network, but this option was deemed less than optimal because it also would not leverage the use of existing underground conduits. The aerial option would also increase the likelihood of network outages due to Wisconsin's severe winter weather and breaking of cable or poles. Finally, the recipeint considered wireless construction for the entire network, which would include at least 25 radio towers at altitudes from 40 to 125 feet above ground level. However, this option was eliminated because microwave radio technology does not currently support the necessary bandwidths and is not as reliable as fiber optics.

Findings and Conclusions

The EA analyzed existing conditions and environmental consequences of the preferred alternative in 11 major resource areas, including 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.

Noise

Construction activities related to the Project will result in a temporary and localized increase in ambient noise. Installation of new fiber optic cable on existing poles, subsurface locations along disturbed ROWs, and the operation of that cable will not create a new, continuous source of noise. Therefore, this project will have only negligible short-term impacts on noise and no long-term impacts on noise in the area.

Air Quality

Use of heavy diesel construction equipment and personal vehicles during construction will temporarily increase air pollutant and greenhouse gas emissions. The use of this construction equipment will be temporary, and emissions will be minor, similar to those currently generated by vehicles traveling along the Project route. Fugitive dust emissions may occur during disturbance of bare ground (e.g., during excavation to create entry and exit pits for HDD boring, during advancement of borings to confirm utility locations). Industry standard BMPs (e.g., limiting vehicular traffic over exposed areas, restoring areas immediately after construction, and cleaning loose soils off roadways on a daily basis) will be implemented, as necessary, to mitigate short term impacts on air quality. No significant air impacts will occur during long-term operation and maintenance of the network. Accordingly, no significant adverse impacts on air quality are expected as a result of this Project.

Geology and Soils

No ground disturbance is expected in locations where aerial fiber will be replaced on existing poles. However, installation of the underground conduit and fiber will disturb shallow soils in the Project area. Underground boreholes, approximately 4 inches in diameter, will be drilled over 35.25 miles. Additionally, excavation of the entry and exit pits for the HDD borings will also disturb local soils. All construction will be located on the edges of existing roads and ROWs. Because these areas have been previously disturbed or filled during other construction or maintenance, disturbance of any pristine soils will be avoided or minimal. Any areas disturbed during construction will be restored to their original state. Applicable erosion control BMPs will be implemented, as necessary, during construction. Based on the shallow depths of Project activity, underlying bedrock and regional geologic resources will not be impacted. Therefore, the Project will not result in significant adverse impacts on geology and soils.

Water Resources

All aquatic resources encountered along the Project corridor will be crossed via existing conduit, through new conduit installed using HDD boring methods, or using aerial fiber on existing utility poles. No vehicular traffic, construction access, or matting will be required within the wetlands or waterways to construct the Project. HDD boring techniques will be used as a mitigation measure to avoid trenching or excavating in the thirteen wetlands and surface water bodies along portions of the Project corridor where new conduit is planned. Drilling bore lengths will be lengthened as necessary to bypass the water feature, and vertical deviations in drill depth will be limited to avoid contact with streambeds. HDD construction techniques may occasionally result in unanticipated discharge of drilling fluid through weak spots in the subsurface to wetlands, streams, and sewers. A contingency plan has been developed and will be implemented to restore any areas impacted by such events. Appropriate BMPs will be employed during construction to limit disturbance and transport of sediment into waterways. Any areas disturbed during construction will be restored to pre-construction conditions. The conduit may come into contact with groundwater, but no water quality impairment or flow impediment is expected. The U.S. Army Corps of Engineers (USACE) was consulted on this Project with the conclusion that no further involvement by the USACE was required. Installation of conduit for the fiber optic network will result in minimal impacts to water resources along the Project corridor.

Biological Resources

According to the U.S. Fish and Wildlife (USFWS) website, six federally listed threatened and endangered species may be present in Dane County. However, fiber-optic cable to be installed under this Project will be placed primarily below grade within existing road ROWs that do not provide suitable habitat for the listed species. Furthermore, consultations with USFWS indicate that none of the listed species are known to occur in close proximity (i.e., less than one mile) to the planned Project corridor. Accordingly, on August 13, 2010, the USFWS concluded that the Project will have "no effect" on listed species or their habitats. Nevertheless, a temporary disturbance of wildlife is expected during construction through the increased presence of humans and construction equipment. However, because surface conditions within the Project area will

be returned to pre-construction conditions, no long term changes in species diversity and richness are expected. Overall, the Project is not expected to significantly impact biological resources.

Historic and Cultural Resources

No construction activity will be performed on or within any properties or districts identified in the National Register of Historic Places. The Wisconsin Historical Society, serving as the State Historic Preservation Office (SHPO), has determined that no further investigation is needed for placement of fiber into existing conduit or conduit installation via HDD in existing roadway ROWs. Based on an investigation by a qualified archaeologist, and in consultation with the SHPO, the recipient has determined that the Project will not result in adverse effects on any undisturbed historic properties except the Elmside Park Group site (47-DA-0560/BDA-0269). In a letter dated October 7, 2010, the SHPO concurred with this assessment and authorized installation of fiber optic cable as proposed for this location, provided that a "qualified archaeologist" monitors all ground-disturbing activities within non-catalogued portions of site 47-DA-0560/BDA-0269. No ground-disturbing activities will be allowed within the catalogued portions of site 47-DA-0560/BDA-0269. If the Project design for this area is modified, the recipient will consult with the SHPO to ensure that compliance standards have been met prior to any construction. In the event that archaeological materials, grave makers, or human skeletal remains are encountered during Project construction, the recipient and its contractors will immediately halt all activities in the area and contact the SHPO.

Through the Tower Construction Notification System, NTIA provided Project details to 24 tribes with interest in the greater Madison metropolitan geographical area. None of the tribes objected to the Project, but several requested that they be contacted if cultural resources such as pottery shards, historic/pre-historic artifacts, or bone fragments/human remains are discovered during construction.

Based on these results, and if implemented in accordance with SHPO stipulations for site 47-DA-0560/BDA-0269, the Project will have no adverse effect on historic or cultural resources.

Aesthetic and Visual Resources

With heavy equipment on site, minor impacts to aesthetic and visual resources may occur during the Project construction period. However, these impacts will be temporary. Long-term impacts on aesthetic and visual resources are also expected to be minor. The majority of fiber optic line will be installed underground, and the short aboveground section will use existing utility poles. The addition of one aerial cable on these poles along existing roadways is not expected to substantially alter aesthetic and visual resources. Accordingly, this Project will have no significant impacts on this resource area.

Land Use

The Project may have short-term impacts on land use, including temporary restrictions on public access to sidewalks, bike trails, and entrances to certain public parks. These restrictions will be in place only during periods of active construction, and access will be restored once construction

is complete. Appropriate barricades, safety fencing, and signage will be used to notify the public of the temporary construction activities in these areas. Because these areas are located along developed roadways, actual impacts are expected to be minimal. Land use beyond the ROW will not be impacted. All laterals will be installed outside of the roadway ROW and will be installed via directional boring to avoid surface impacts. Given the planned conduit depth and location, long-term land usage in the Project area will not be impacted. Based on this evaluation, the Project is not expected to have significant impacts on land use.

Infrastructure

Because much of the planned Project construction involves installation of buried conduit, there is the potential for unintended impacts on underground infrastructure (e.g., existing utilities). Prior to intrusive activities, the recipeint will contact Digger's Hotline and local utilities to field locate and flag existing infrastructure. Installation of the proposed MUFN fiber optic line will also result in a short-term increase in traffic and heavy equipment on existing roadways within the greater Madison metropolitan area. Although some of the new network conduit will be installed in the vicinity of the Dane County Regional Airport, the Project is not expected to create any hazards with regard to operation of that facility. In the long term, installation of the new network will improve telecommunications infrastructure and broadband service throughout the Project area.

Socioeconomic Resources

The Project will result in a number of positive effects on socioeconomic resources. The Project will introduce and enhance reliable high speed broadband access in the greater Madison metropolitan area. The Project will spur economic development through new business development and job growth, improve critical public safety initiatives and crisis communication, improve remote training opportunities, support implementation of internet-supported medical initiatives, and offer greater opportunity for internet use in minority and disadvantaged areas.

Human Health and Safety

Short-term construction would temporarily increase traffic in active work areas. Because work will follow Project-specific traffic maintenance plans, minimal impact to public safety is expected. All workers installing the cable will adhere to construction safety procedures and appropriate traffic and roadside safety practices. Appropriate barricades, safety fencing, and signage will be used to notify the public of the temporary construction activities in affected areas.

The Refuse Hideaway Landfill appears to be located in the immediate vicinity (i.e., less than five miles) of the Project. The possibility of worker contact with hazardous wastes at this site is minimized through the use of HDD installation techniques and existing conduit. The recipeint will meet with the installation contractor prior to the start of Project construction to review safety requirements. Daily safety meetings will also be conducted. All personnel will be properly trained and equipped with appropriate personal protective equipment when performing work that may result in contact with toxic chemicals or hazardous waste. When working on

transmission/high voltage lines, the recipient will request that the local electric utility de-energize the line in advance. The fiber optic line itself does not generate any known adverse health issues that would impact worker or public health and safety.

Based on these assessments and plans, this Project is not expected to have significant adverse impact on human health and safety.

Cumulative Impacts

The planned Project is associated with few negative effects, and the cumulative effects of the Project are considered less than significant for most resources analyzed. Nevertheless, along its 110 mile span through the greater Madison metropolitan area, the Project route will coincide with existing roads and existing utility infrastructure. These systems require routine maintenance and repair. The recipient will work with WisDOT, the City of Madison, and the City of Monona to coordinate scheduling, and would therefore not incrementally result in any significant negative environmental consequences, when combined with other activities not related to this project (e.g., road maintenance or construction). There is also a minor cumulative impact to infrastructure related to the addition of cable on existing utility poles, which can accommodate a finite number of cables and associated equipment. Consequently, there will be less available space for potential future cables and lines on existing poles.

As discussed previously, the Project also has a substantial positive cumulative impact on socioeconomic resources. MUFN will provide broadband access to numerous underserved and unserved communities, which will improve opportunities to engage in the global economy, provide increased education opportunities, and improve public safety through reliable and high speed communication.

Decision

Based on the above analysis, NTIA concludes that constructing and operating the Project as defined by the preferred alternative, identified BMPs, and protective measures 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 that will significantly affect the quality of the human environment. NTIA has determined that preparation of an EIS is not required.

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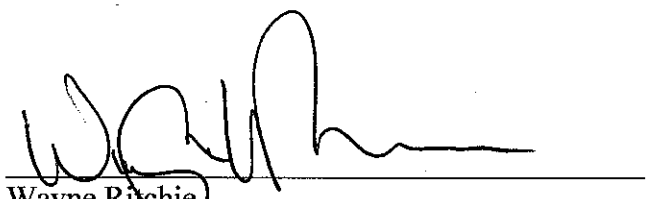

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