**National Telecommunications and Information Administration**
**Broadband Technology Opportunities Program**
**Finding of No Significant Impact**
**Buggs Island Telephone Cooperative Wireless Broadband Initiative Project**

## Summary

The Buggs Island Telephone Cooperative (BIT) applied to the Broadband Technology Opportunities Program (BTOP) for a grant to establish a high-speed wireless network in 15 counties in Southern Virginia. Under this grant, BIT will install WiMax wireless broadband equipment and antennas on 35 existing, privately and publicly owned towers throughout the region. In addition, BIT will install a 10-foot by 10-foot metal grate at the base of 34 of the existing towers to provide a platform for new outside equipment cabinets. An existing building at the one remaining tower will be used to house electronics equipment; therefore, a grate or cabinet will not be required at that location. Backhaul service will be provided over fiber optic cable, when possible, by leasing capacity over the Mid-Atlantic Broadband Cooperative network. Core network equipment will also be placed inside BIT-owned buildings in Bracey, Virginia. Trenching will be used to install conduit at 34 tower sites to connect power and telecommunications facilities from existing on-site sources to the new cabinets that will be mounted on the grates. This network will offer new or enhanced broadband service opportunities to approximately 618 community anchor institutions (CAIs), and is referred to as the BIT Wireless Broadband Initiative Project (Project).

The National Telecommunications and Information Administration (NTIA) awarded a grant for the Project to BIT 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 will comply with 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.

BIT completed an EA for this Project in April 2011. NTIA reviewed the EA, determined it is sufficient, and adopted it as part of the development of this FONSI.

The Project includes:

- Placement of WiMax wireless broadband equipment and antennas, up to 10 feet tall, on 35 existing towers;
- Installing a 10-foot by 10-foot metal grate at the base of 34 of the existing towers;
- Installing cabinets on the metal grate at the 34 towers to house electronics equipment and provide power, battery backup, and backhaul connectivity;
- Trenching over approximately 30-40 feet at 34 tower sites to install conduit through which lines will be run to connect power and telecommunications facilities from existing on-site sources to the new cabinets;
- Placing network equipment in an existing building at one existing tower and inside BIT-owned buildings in Bracey;
- Leasing collocation space on 35 existing towers and ground space at the base of 34 towers;
- Leasing existing fiber optic capacity from Mid-Atlantic Broadband to provide backhaul service from the towers to their core equipment; and
- Providing enhanced broadband connectivity for 618 CAIs in the Project area.

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:

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
Fax 202-501-8009
Email: FMonteferrante@ntia.doc.gov

**Purpose and Need**

The purpose of this Project is to bring affordable broadband services to small businesses, CAIs, and residents in the Virginia region known as Southside, which includes the counties of

Mecklenburg, Brunswick, Lunenburg, Nottoway, Amelia, Cumberland, Buckingham, Prince Edward, Charlotte, Halifax, Greensville, Sussex, Southampton, Surry, and Isle of Wight. This region is mostly rural and either unserved or underserved relative to high-speed Internet access. Discounted rates will be offered to all critical CAIs in these counties, and private networks will be established to securely transfer medical files and enhance telemedicine applications. Through several surveys, the Southside Planning District Commission determined that affordable broadband was the primary technology barrier in the region. Improvements associated with this Project are expected to address this deficiency, attract new businesses, and generate jobs.

**Project Description**

BIT proposes to build, operate, and maintain a fixed broadband wireless network in fifteen rural counties in the Southside region of Virginia. This Project involves leasing collocation space on 35 existing privately and publicly owned cell tower sites for WiMax base station and antenna equipment, and leasing ground space near the tower base at 34 of these sites on which to place outside electronics cabinets. Antennas no taller than 10 feet and wireless radios will be mounted at the top of 35 towers. Near the bases of 34 of these towers, BIT will also install a 10-foot by 10-foot metal grate. BIT will place one or two outside electronics cabinets on the metal grates to provide connectivity for power, battery backup, and backhaul fiber. This equipment will be delivered to the site on a flatbed truck with a small mounted crane or hoist to move the grate and cabinets into place. Wireless base station electronics equipment will be placed in an existing building at the remaining tower site; accordingly, no grate or cabinets are needed in this location.

The new cabinets will require a commercial power connection and a connection to a telecommunications facility for backhaul. To establish these connections, a 30-40 foot long trench will be required to lay buried conduit that will house cables needed to connect AC power and telecommunications service between existing on-site sources and the new cabinets. The trenches will be less than six inches wide and no more than 30 inches deep. The construction procedure will require that the gravel ground cover be moved back so the trench can be opened, conduit installed, and the excavated soil placed back into the trench. The gravel will be placed over the disturbed area to restore it to its original condition. All of this work will be contained within the existing cell tower site on grounds that have been previously disturbed. None of the tower sites contain surface water features, wetlands, floodplains, or coastal zones.

Core network equipment will be installed at BIT buildings in Bracey, Virginia. This work will not require any modifications to the outside of the buildings and will not involve any ground disturbance. In addition, BIT will lease fiber optic capacity to provide backhaul service from the towers to core network equipment. Middle mile fiber cable owned by Mid-Atlantic Broadband is currently available for backhaul service at 25 of the tower sites. At the other 10 cell towers, BIT will mount microwave equipment on the tower to connect to an adjacent tower that has fiber facilities.

The network will provide enhanced broadband service opportunities for 618 CAIs in the Project area. These CAIs include 36 libraries, 21 colleges, 5 hospitals, 408 other medical facilities, 79

fire departments, 30 rescue operations, and 39 law enforcement departments. No end user equipment will be provided under this Project, and no construction activities will occur at the CAIs.

**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.

*Wireless Network Installation (Preferred Alternative).* As noted in the Project Description, this effort will include placement of wireless radio equipment and antennas on 35 existing telecommunications towers in the Southside region. This alternative also includes installation of metal grates and electronics cabinets at 34 tower sites, trenching to connect the cabinets to existing utility infrastructure at the sites, and leasing of existing middle mile fiber cable to provide backhaul service for the wireless network.

*No Action Alternative.* No action was also considered. This alternative represents conditions as they currently exist in the Project area. The no action alternative does not provide a solution to the current constraints on available bandwidth, and lack of broadband capabilities for businesses, CAIs, and residents of the Southside region of Virginia. This option would continue to limit economic development, CAI capabilities, and healthcare and educational services. The EA examined this alternative as the baseline for evaluating impacts relative to other alternatives being considered.

*Alternatives Considered But Not Carried Forward.* Additional alternatives that would also meet the purpose and need of this Project include extending buried fiber optic cable or aerial fiber optic cable to each residence or business. The buried cable alternative would require the underground installation of a significant amount of fiber optic cable, and would entail significant cost, along with an increase in ground disturbing activities, greater impact to the general public, and potential impact to waterways due to sediment runoff. This alternative would also require significant construction activity, resulting in a greater impact on air and noise quality. In addition, this alternative would not leverage the investment that BIT has already made to acquire their licensed 700MHz wireless spectrum. For these reasons, the buried fiber alternative was eliminated from further consideration in the Environmental Assessment.

The aerial cable alternative would rely on attaching the fiber optic cable to existing and new utility poles. Ground-disturbing activities would be less than the buried fiber alternative, but this option would still entail significant cost and greater impact to the general public while attaching the cable to poles along highway rights-of-way. In addition, ground disturbance would still be required because poles do not exist in all areas of the Southside region of Virginia, and holes would have to be dug to install new poles. This alternative would also involve more coordination with other utility companies, as many of the existing cables would have to be rearranged on the poles to create the necessary pole space. This alternative would also be

construction-intensive, resulting in a greater impact on air and noise quality. This alternative also would not leverage the investment that BIT has already made to acquire their licensed 700MHz wireless spectrum. For these reasons, the aerial fiber alternative was eliminated from further consideration in the Environmental Assessment.

**Findings and Conclusions**

The EA analyzed existing conditions and environmental consequences of the preferred alternative and the no action 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 and Recreation, Infrastructure, Socioeconomic Resources, and Human Health and Safety. Cumulative impacts were also evaluated.

***Noise***

Planned construction activities (i.e., installation of metals grates, cabinets, and wireless broadband equipment; and trenching and placement of underground conduit) will produce a minimal amount of noise in the Project area. However, these impacts will be limited in duration and localized around the tower sites. Actual construction time at each cell tower should be less than one week. Anticipated noise levels associated with operation of construction equipment will be within typically accepted standards for performing work in residential, commercial, and industrial areas between the hours of 7 am and 10 pm. No long-term noise impacts are anticipated. Based on these assessments, no significant noise impacts are expected to occur as a result of this Project.

***Air Quality***

The Project will have minimal impact on air quality in the Southside region of Virginia. A flatbed truck with a small mounted crane or hoist will be used to transport and lift equipment into place, and a trencher will be required to place approximately 30-40 feet of conduit at 34 of the sites. Although exhaust emissions will be generated during use of this equipment, such emissions will not be greater than that associated with typical highway traffic in the region. In addition, a significant number of automobile miles will be driven over the course of Project construction to access tower sites. These emissions will be spread over a large geographic area, and the impact to any specific area is expected to be minimal. It is estimated that this Project will result in the release of approximately 30.4 metric tons equivalent of carbon dioxide emissions. This estimate is well below the Council on Environmental Quality's presumptive effects threshold of 25,000 metric tons of carbon dioxide equivalent emission from an action. Long-term operation of a wireless, high-speed internet network will have no impacts on air quality. Based on these assessments, no significant impacts to air quality are expected to result from this Project.

***Geology and Soils***

This Project is expected to have a negligible impact on the geology and soils of the region. All ground disturbances will occur on previously disturbed land at existing cellular tower sites in areas that are enclosed by chain link fencing and have gravel ground cover. The combined

square footage of these sites is less than 10,000 square feet. The construction process will require that the ground be minimally leveled with hand tools prior to setting a 10-foot by 10-foot metal grate at the base of the towers. In addition, approximately 30-40 feet of trenching will be needed to lay conduit and cable to connect new electronics cabinets to the existing on-site commercial power source and telecommunications facilities. The trenches will be less than six inches wide and no more than 30 inches deep. This process will involve moving the gravel ground cover aside so the trench can be opened, conduit installed, and excavated soil placed back into the trench. To prevent soil erosion and restore the area as closely as possible to its original condition, BIT will cover the disturbed area with the gravel. Sediment and erosion control measures defined in the Virginia Erosion and Sedimentation Control Handbook will be implemented during Project construction, as recommended by the U.S. Fish and Wildlife Service (USFWS) in their online self-certification form for communication tower projects in Virginia. Consequently, the Project is not expected to result in significant adverse impacts on geology or soils.

***Water Resources***

This Project involves placing equipment at existing cell tower sites, none of which contain surface water features, wetlands, floodplains, or coastal zone areas. Trenching planned for these sites will be limited to depths of 24-30 inches and are not expected to encounter groundwater. Accordingly, the Project is not expected to impact water resources.

***Biological Resources***

This Project involves placing equipment on existing cellular towers and limiting all ground disturbance to previously cleared or regularly mowed areas. Sediment and erosion control measures defined in the Virginia Erosion and Sedimentation Control Handbook will be implemented during Project construction. This Project follows USFWS recommendations that encourage co-location of broadband equipment on existing structures rather than new tower construction. There are no known nest locations for bald eagles or other endangered species, such as the red-cockaded woodpecker (*Picoides borealis*), near the tower sites associated with this Project. Furthermore, no wetlands are present on or visible from the tower sites. Based on this information, and using the USFWS online self-certification program for communication tower projects, BIT determined that this Project will have "no effect" on federally listed threatened and endangered species and is "unlikely" to disturb bald eagles (*Haliaeetus leucocephalus*) or other migratory birds. The completed self-certification form was mailed to the Virginia Office of the USFWS on February 4, 2011. By limiting ground disturbance and implementing appropriate BMPs to prevent erosion and protect migratory birds, the Project is not expected to have significant adverse impacts on biological resources.

***Historic and Cultural Resources***

Because construction activity is limited to placing equipment within existing cellular tower sites and all ground disturbance will occur in previously disturbed areas, this Project is unlikely to impact any historic and cultural resources in the Southside region of Virginia. In a letter dated August 18, 2010, the Virginia Department of Historic Resources concurred with NTIA's determination that the Project will have no adverse effect on historic properties. In addition,

although construction of communications towers are subject to Federal Communications Commission (FCC) licensing, this Project includes 34 existing towers that have already completed the FCC licensing process, and one tower (Willis Mountain) under 200 feet in height that does not require such licensing.

On May 14, 2010, NTIA notified five tribes of the Project through the Tower Construction Notification System (TCNS). Of the five tribes notified, four tribes (the Shawnee Tribe, the Cherokee Nation, the Catawba Indian Nation, and the Eastern Shawnee Tribe of Oklahoma) have expressed no objection to the Project. However, each requested that work be stopped if potential archaeological items are uncovered during Project construction. No response has yet been received from the Tuscarora Tribe, but their standard TCNS profile indicates that, if no response is provided through TCNS within 30 days of notification, they have no interest in pre-construction review of the Project.

Based on completed cultural resources reviews and consultations, the Project is not expected to have significant adverse impacts on historic or cultural resources.

***Aesthetic and Visual Resources***

The addition of new wireless communications equipment on the existing towers is expected to have minimal impacts on aesthetics and visual resources in the Southside region of Virginia. The WiMax base stations and antennas will completely encircle each tower, but will take up less than 10 feet of vertical space on towers that are at least 200 feet tall (with one exception at Willis Mountain). The planned tower equipment will be similar in nature and visual appearance to equipment already in place on the towers. In addition, the cellular tower sites associated with this Project are not located within National or State Parks, State Forest, or Wildlife Management Areas. Based on these assessments, this Project will not significantly affect aesthetic or visual qualities in the region.

***Land Use***

This Project will have no impact on the land use within the Southside region because all equipment will be installed within existing cellular tower sites. The new equipment is consistent with the current land use. All necessary regulatory approvals for the current land use were presumably obtained by the tower owners prior to initial construction of the tower. No additional approvals are required to add communications equipment to these towers or to add equipment on the ground at the base of the towers within the fenced enclosures. Tower lease negotiations are in progress, and building permits will be obtained just prior to the start of construction. Building permits are issued locally and can be obtained by BIT with only a short lead time. Based on these assessments, the Project will have no significant impact on land uses.

***Infrastructure***

This Project will have a positive impact for residents, CAIs, and businesses within this region that currently have little or no access to affordable broadband services. Implementation of this Project has the potential to improve medical, educational, and economic opportunities in the region. Connections to existing public power supply will be necessary at 34 tower sites, but this

is not expected to adversely affect regional conditions or supply. Implementation of this Project will take up some vertical space on the towers and some ground space within the fenced enclosures. Because there is a physical limit on how much equipment can be placed at a specific site, this Project may limit other companies from being able to co-locate at these sites in the future. Nevertheless, the Project will have a positive overall impact on infrastructure in the Southside region, and will not result in significant impacts on infrastructure.

***Socioeconomic Resources***

This Project will make affordable broadband services available to a segment of the population that is currently unserved and underserved. It is anticipated that access to such services will provide a higher level of education and possibilities for distance learning; better employment opportunities; new business opportunities with the potential for a worldwide market; and better access to medical knowledge and improved healthcare telecommunication services. Overall, the Project will have a positive impact on socioeconomic resources in the region, and will not result in significant impacts on socioeconomic resources.

***Human Health and Safety***

This Project is not expected to have significant adverse impacts on worker health and safety. All work will take place at existing cellular tower sites and not on publicly traveled roadways. This Project will require the climbing of towers to install equipment, but safety techniques for this work are well established and the industry has an excellent safety record related to working on and around cellular towers. In addition, activities on this Project will not occur on or near any hazardous waste sites. However, one of the cellular tower sites (Willis Mountain) is located on limited-access property owned by Kyanite Mining Corporation. The mining company has specific rules related to radio frequency use that must be observed while working at this tower to prevent interference with mining operations and ensure the safety of all workers. All workers on this Project will attend and complete a 30-minute training class provided by the mining company prior to being granted access to the Willis Mountain tower site.

This Project is not expected to have significant adverse impacts on public health and safety. All of the tower sites are located far enough off of roadways that on-site parking is available, and construction activity will not interfere with the normal flow of traffic or pedestrians. Due to the rural nature of this area, 25 of the existing cellular tower sites are located in very isolated locations. Although another five sites are located in urban areas, they are isolated, off of main roads, and within light industrial areas. Construction work at these 30 sites should have no impact on traffic or pedestrians. Three of the sites are located at the rear of college or school campuses. Although construction at these three sites will not interfere with normal functions at the schools, BIT will coordinate with the schools prior to construction to ensure that there are no conflicts with special events or time-sensitive concerns, such as car pool lines. There is also one tower site located behind a church. Typically, this facility is not used during weekdays when construction is planned to occur. Nevertheless, proper coordination will be conducted to ensure that there are no conflicts with any planned special events. With proper coordination, construction at these sites will have no impact on traffic or pedestrians. As stated previously, the last tower site is in a limited-access area owned by a mining company. Because this area is not

accessible to the public, there will be no impact to traffic or pedestrians as a result of Project implementation at this tower site. Moreover, improved telecommunication infrastructure and increased, affordable broadband access will offer the residents of the Southside region of Virginia improved healthcare services.

Based on these assessments, Project implementation will result in positive, long-term impacts and negligible, short-term adverse impacts on health and safety in the region, and will not result in significant impacts on human health and safety.

***Cumulative Impacts***

The only other known project that will be taking place within this Project area and around this same time frame is the middle mile project being undertaken by Mid-Atlantic Broadband Cooperative. Mid-Atlantic Broadband Cooperative received a grant to place middle-mile fiber optic cable throughout this same geographic region and will place fiber cable to some of the same cellular towers where construction for the BIT Project will be taking place. However, BIT has been in communication with Mid-Atlantic Broadband and has established a project schedule that will allow for the Mid-Atlantic Broadband work to be completed at each site prior to BIT work being performed. Therefore, no scheduling conflicts are anticipated. Moreover, one of the direct impacts of this project is that BIT will be leasing backhaul capacity at 25 cellular sites over the Mid-Atlantic Broadband Cooperative network and will, therefore, assist in providing revenue for the continued operation of that network. Cumulative impacts associated with concurrent implementation of multiple projects are not expected to be significant.

**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.

Issued:

Laura M. Pettus

Laura Pettus
Senior Communications Program Specialist
Office of Telecommunications and Information Applications
National Telecommunications and Information Administration

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