

**National Telecommunications and Information Administration
Broadband Technology Opportunities Program
Finding of No Significant Impact
University of Hawaii, Ke Ala 'Ike Project**

Summary

University of Hawaii applied to the Broadband Technology Opportunities Program (BTOP) for a grant to install approximately 102 miles of new fiber optic cable. Most of the fiber will be installed and deployed aurally and underground in existing road and utility rights of way (ROWs). The network will directly connect 380 community anchor institutions (CAIs) and provide broadband access to the region's last mile and middle mile service providers. The action will be implemented across six Hawaiian Islands, including Hawaii, Kauai, Lanai, Maui, Molokai, and Oahu, and is referred to as the Ke Ala 'Ike (Project).

The National Telecommunications and Information Administration (NTIA) awarded a grant for the Project to University of Hawaii 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.

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

The Project includes:

- Installing approximately 102 miles of fiber optic cable within existing road ROWs or existing utility corridors;
- Installing approximately 82 miles of cable aurally on existing utility poles on the islands of Hawaii, Kauai, Maui, Molokai, and Oahu;
- Installing 20 miles of cable underground within existing conduits on the islands of Hawaii, Maui, and Oahu; and

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- Providing connections from the new network to 380 CAIs.

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 provide open-access, middle mile broadband infrastructure to rural, unserved, and underserved areas of Hawaii. The Project will install, deploy, and enhance fiber optic cable to connect 380 CAIs, including schools (grades K-12), higher education facilities, libraries, healthcare facilities, courthouses, public safety entities, and other government facilities. These institutions currently lack access to broadband services or the existing broadband widths and speeds are not sufficient to meet existing needs. In addition, the middle mile infrastructure will provide connectivity throughout 6 Hawaiian Islands, providing opportunities associated with broadband technology to approximately 350,000 individuals, including 178,000 public school students, 115,000 public library users, and 60,000 higher education students.

Project Description

The proposed broadband network includes a total of 102 miles of fiber optic cable to be installed on 6 Hawaiian Islands, including: Hawaii, Kauai, Lanai, Maui, Molokai, and Oahu. Fiber will be installed on each island separately, totaling 102 miles, and will not be installed between the islands to interconnect them. University of Hawaii will install new fiber optic cable within

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existing roadway and utility ROW to complete the planned network. The project will leverage an existing institutional network (INET) fiber ring to connect 380 CAIs. Of the 380 CAIs, 180 will use existing aerial and underground cable lines to connect to the anchor institutions, while 200 will install new fiber co-located with existing aerial lines or in existing underground conduits. The Project does not require construction of any new structures and no new hardware or equipment will be installed at any of the CAIs.

Approximately 82 miles of new cable will be installed aerially, on existing utility poles, while approximately 20 miles will be installed underground in existing conduit and pull boxes. University of Hawaii will install the aerial fiber on existing, overhead utility poles. Cherry picker-type vehicles will be used to hang the new overhead lines and auger-mounted rigs and cranes will be used to replace utility poles, if necessary. Utility pole installation or replacements are not part of the proposed project; however, in the event that an existing pole is determined to be deteriorated or otherwise substandard, the pole will be replaced. An archaeological monitoring program will be implemented for any utility pole replacement located in archaeologically sensitive sediment layers, including: Jaucas Sand, Dune Land, and Fill Land. This program will be pre-approved by the State Historic Preservation Officer (SHPO) and implemented in accordance with Hawaii Administrative Rules 13-279 as well as the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

University of Hawaii will install a portion of the new fiber underground through existing conduits and pull boxes. All new fiber cables connected to and pulled through the CAI buildings will be run through existing aerial connections or existing underground ducts. Interior fiber optic patch panels will be installed in existing utility or communication rooms to terminate the new fiber cables. No exterior modifications to any building will occur.

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.

Hybrid Underground and Aerial Fiber Network Installation (Preferred Alternative). As presented in the Project Description, above, this effort will install 82 miles of aerial fiber and 20 miles of buried fiber. The new 102 mile network will directly connect to 380 CAIs.

Buried Cable Installation Alternative. In contrast to the Preferred Alternative, 102 miles of fiber would be installed as an extensive network of fiber optic cable buried in roadside trenches. This alternative requires construction work to dig the trenches and blasting where soil conditions are not conducive to traditional trenching methods. Due to the extent of the ground disturbing activities, this alternative would require greater permitting and consultation activity, and would have greater impacts on biological, historical, and cultural resources. It would also decrease any perceived visual or aesthetic effect associated with the addition of a cable on existing utility

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poles. The buried cable alternative would significantly extend the time and total cost of the project. Based on this, it was determined this alternative does not satisfactorily meet the purpose and need, specifically, the elements of affordability and reliability.

No Action Alternative. No action was also considered. This alternative represents conditions as they currently exist in the Project area. Under the no action alternative, the proposed broadband infrastructure would not be constructed, and most of the Project area would remain underserved. Sections of the network would remain susceptible to disruption of services if something malfunctioned (i.e., the ring design would not be completed). 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 meet the purpose and need of this Project were also evaluated. Alternative routes were assessed, but the preferred route was selected based on the need for broadband services, cost, distance, availability of existing roadway ROW or utility easements, and ease of construction. An all-aerial network was considered but eliminated from further consideration. This alternative was eliminated due to the lack of existing aerial infrastructure and subsequent need to install new utility poles on the six Hawaiian Islands within the Project area, which would also increase the total cost of the Project. An all-wireless telecommunications network was also considered, but University of Hawaii determined this alternative was not a viable alternative due to lack of broadband delivery, significant ground disturbance, visual impacts, and overall infrastructure costs.

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, Infrastructure, Socioeconomic Resources, and Human Health and Safety. Cumulative impacts were also evaluated.

Noise

The Project will generate temporary noise during construction and minimal noise during network operation. Construction of the network requires the use of machinery, such as cherry picker-type vehicles, auger-mounted rigs, and cranes. However, noise associated with construction equipment will be localized and limited to brief periods along any particular section of the Project route. Construction will occur during daylight hours. In the long-term, noise associated with maintenance of the network will be similar to existing noise conditions for utility maintenance. Based on these assessments, no significant noise impacts are expected to occur as a result of this Project.

Air Quality

This Project requires the use of construction equipment and, thus, will result in emissions of ozone precursors and other air pollutants. Because aerial fiber installation techniques (i.e. pole

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replacement) result in only minor disturbance of the ground surface, fiber optic cable installation will generate negligible fugitive dust emissions.

The Project will constitute a short-term minor increase in the use of fossil fuel and associated greenhouse gas (GHG) emissions during construction. It is estimated that this Project will result in the release of approximately 0.66 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.

Additional air pollutant emissions generated during the network's operational lifetime are not expected to be significant. Based on these assessments, no significant impacts to air quality are expected to result from this Project.

Geology and Soils

The Project will be installed in previously disturbed public ROWs. The cable will be deployed and installed in these locations to, among other considerations, minimize impacts on geologic and soil resources. Aerial installation of cable that might require pole replacement and use of construction equipment will result in minor, temporary disruption of the soils. To minimize any potential impacts, University of Hawaii will implement BMPs for erosion control and soil disturbance before, during, and after construction activities. Exposed soils will be covered with straw or fabric and by seeding and mulching. Consequently, the Project is not expected to result in significant impacts on geology or soils.

Water Resources

The Project will result in minimal disturbance of water resources because the majority of fiber optic cable will be affixed to existing utility poles and placed within existing underground conduit. In the event that utility poles need replacement, appropriate BMPs, such as sediment barriers (e.g. silt fences and straw bales) will be used to prevent soil mobilization to wetlands or other waterbodies. The Project will cross four streams at four CAIs: the Kaelepulu, Wailupe, Nuupia, and an unnamed stream. Per a discussion on January 20, 2011 with the U.S. Army Corps of Engineers (USACE), a Section 10 permit will be required prior to implementation of new fiber at these sites. Additional BMPs, such as sand bags or aggregate pouches located downslope of the work areas will be implemented.

University of Hawaii contacted the Hawaii State Office of Planning (SOP) via phone on January 20, 2011. The SOP concluded that the project does not require a Coastal Zone Management Act (CZMA) review. However, a CZM consistency certification will be required in conjunction with the USACE Section 10 Nationwide Permit.

Based on these considerations, and through implementation of appropriate construction methods and BMPs, the Project is not expected to have significant impacts on water resources in the region.

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Biological Resources

The majority of fiber optic cable will be deployed and installed aerially within existing highway and utility ROW in urban and rural areas on existing utility poles. Impacts to species that may inhabit ROWs will not be significant and will only take place during construction. Aerial fiber may affect some wildlife, including three federal and state-listed threatened and endangered (T&E) avian species or species protected under the Migratory Bird Treaty Act (MBTA), including the Hawaiian Petrel, Newell's Shearwater, and Band-rumped Storm-Petrel. According to Avian Protection Plan (APP) Guidelines prepared jointly by the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service (USFWS), on single phase structures, the minimal vertical separation of 36 inches from phase to ground is needed to safely accommodate migratory birds. Therefore, because all aerial cabling will be hung on utility poles between 21 and 23 feet above ground, this Project does not represent a threat to these species. Noise and human activity associated with aerial fiber installation are expected to disturb some wildlife species, but these effects will be minor and temporary, occurring during construction only. There is no federally designated critical habitat for these three seabirds; therefore the Project will have no impact on their critical habitat.

Based on these conclusions, NTIA issued a 'no effect' determination for the Project and no further USFWS consultation was initiated.

The Project will not adversely impact Federal- or State-listed threatened or endangered species, and therefore, will have no significant impacts on biological resources.

Historic and Cultural Resources

The Project will run new fiber through existing conduit and hang new aerial fiber on existing utility infrastructure along existing utility ROWs with connections to 380 CAIs. Ground disturbance will be minimal, if at all necessary, to replace substandard or damaged utility poles. Where new wiring connections are required, they will either be lashed to existing utility poles or new connections will be pulled through existing subsurface duct systems and conduit lines. The project will be implemented with little potential to affect historic, archaeological, and cultural resources.

In October 2010, NTIA initiated consultations with the Hawaii SHPO and with the Office of Hawaiian Affairs (OHA) and Historic Hawaii Foundation (HHF); meetings were conducted with the SHPO on April 8, 2011 and with OHA and HHP on April 16, 2011. The consultations were conducted to inform the consulting parties about the project and receive input regarding the project's potential to affect historic, archaeological, and cultural resources that are eligible for the Hawaii and National Registers. As a result of these consultations, NTIA determined that the project would have 'no adverse effect' on archaeological, historic, and cultural resources. On April 28, the State of Hawaii-Office of Hawaiian Affairs responded in a letter concurring with NTIA's determination that the project will have No Adverse Effect on historic properties.

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In addition, the project will implement an archaeological monitoring program for any utility pole replacement located in archaeologically sensitive sediment layers including, U.S. Department of Agriculture soil series Jaucas Sand, Dune Land, and Fill Land. This program will be pre-approved by the State Historic Preservation Officer (SHPO) and implemented in accordance with Hawaii Administrative Rules 13-279, as well as the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The program will include preparation of an archaeological monitoring plan, which will specify where archaeological monitoring will be required at any sites that require pole replacement. The program will be submitted for SHPO review and approval, and ready for implementation prior to any project-related pole replacements.

The Project will also follow NTIA's "Best Management Practices for Attaching Equipment to Historic Buildings." These BMPs will be implemented for all buildings that are 45 years old or older, with the assumption that such buildings are potentially eligible for the National or Hawaii Register. Implementation of these BMPs will help the project installation result in no adverse effect on significant historic architecture.

On October 22, 2010, NTIA notified The Office of Hawaiian Affairs (OHA), Honolulu, HI, of the Project through the Tower Construction Notification System (TCNS). To date, the OHA has not responded.

If Project construction activities uncover cultural materials (e.g., structural remains, historic artifacts, or prehistoric artifacts), University of Hawaii will stop all construction work and will immediately notify interested Native Hawaiian groups, interested Tribes or Nations, the SHPO, and NTIA. If earth-disturbing activities uncover human remains, all work will cease immediately, in accordance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and relevant State statutes. The area around the discovery will be secured and appropriate law enforcement personnel and NTIA will be notified immediately.

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

Aesthetic and Visual Resources

The Project will involve construction within a number of different surroundings including roadways and utility ROWs adjacent to natural areas, urban streetscapes, and commercial districts. The Project will have no significant impact on the Mamalahoa Kona Heritage Corridor on Hawaii Island, as the new fiber will be co-located on an existing utility line along the highway. In general, aesthetic disruptions for most areas will be limited to the duration of construction and primarily in the form of the short-term presence of construction equipment. CAIs will use existing lines within the conduits and aerial systems, thereby precluding the need for new cable lines. All new fiber cables into the building will be run through existing aerial connections or existing underground ducts. The resulting co-located fiber will be virtually imperceptible. No exterior modifications to any buildings will occur. Because cable will be

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placed on existing utility poles with existing wires, the additional cable is expected to blend into the visual landscape and will not adversely impact area aesthetics. Based on these assessments, this Project will have no significant impact on aesthetic or visual resources.

Land Use

Land use along the proposed route includes mostly residential, commercial, agricultural, and community facilities. The infrastructure necessary to complete this Project will be deployed and installed within existing roadway ROWs and existing utility easements. These improvements are consistent with normal uses of ROWs and easements. The potential replacement of poles would be permitted in all State Land Use Districts under the respective State and County authorities. The project is therefore considered work within an existing utility corridor, or repair and maintenance work, and would be exempt from the respective Counties' Special Management Areas (SMA) permit process. Based on these provisions, the Project will have no significant impact on land uses.

Infrastructure

Fiber optic cable will be installed aerially on existing utility poles or run through existing buried conduit. The Project is not expected to damage existing utilities and electric power service is not expected to be disrupted during construction of the Project. Because the Project will provide equipment and connections to enable enhanced internet connectivity, this Project is expected to have a positive overall impact on infrastructure in Hawaii. Based on these assessments, the Project is not expected to have significant impacts on infrastructure.

Socioeconomic Resources

This Project will allow rural residents, businesses, and institutions in Hawaii to access high-speed internet, communications, and other broadband applications. The Project will have positive direct and indirect economic benefits. University of Hawaii estimates that the Project will create employment, including direct opportunities in the engineering, construction, and fiber optic supply industries. Indirect economic benefits include new jobs for last-mile providers; new jobs for rural industries that need broadband infrastructure to remain competitive; enhanced opportunities for telecommuting and online collaboration; and educational opportunities via online education and connected classrooms. Overall, the Project will have a positive impact on socioeconomic resources in the region, and is not expected to result in significant impacts on socioeconomic resources.

Human Health and Safety

It is not anticipated that hazardous materials will be encountered during construction of either aerial or buried fiber. However, if hazardous or potentially hazardous materials are encountered, University of Hawaii will contact the Hawaii State Department of Health (DOH) Office of Hazard Evaluation and Emergency Response (HEER) Office of Solid and Hazardous Waste Branch (SHWB). If no cleanup is necessary, the DOH HEER SHWB will issue a No Further Action letter; however in the event contaminated media is encountered, the HEER Office will

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issue a No Further Action letter with institutional controls specifying land use, property controls, or conditions required to support the No Further Action determination.

By adopting the safety and coordination efforts described above, it is anticipated that the Project can be constructed with no significant impacts on human health and safety.

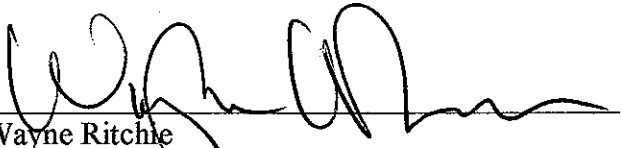
Cumulative Impacts

As described above, the Project will not have significant adverse impacts on any of the environmental resource areas evaluated in the EA. As such, no cumulative impacts on the environment are anticipated.

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:



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