

# FINAL ENVIRONMENTAL ASSESSMENT

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## BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM (BTOP)

### COM NET GIGEPLUS AVAILABILITY COALITION PROJECT

PREPARED FOR:

NATIONAL TELECOMMUNICATION AND  
INFORMATION ADMINISTRATION  
BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM  
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ON BEHALF OF

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## EXECUTIVE SUMMARY

In November, 1993, Com Net, Inc., based in Wapakoneta, Ohio was formed through the collaborative efforts of 17 Independent Operating Companies (IOCs) across Ohio to provide shared telecommunications services for the member companies. As the services provided by Com Net have expanded, so too has the roster of participating IOCs. At this time, there are 22 members, or primary equity investors which make up Com Net, Inc., with 60 companies using Com Net's back-office services.

In March 2010, Com Net formed the GigEPAC in partnership with the Ohio Academic Resources Network (OARnet) and Zayo Bandwidth to apply for American Recovery and Reinvestment Act (ARRA) funding under the Department of Commerce (DOC) National Telecommunications and Information Administration's (NTIA's) Broadband Technology Opportunities Program (BTOP). With this funding, Com Net will construct approximately 700 new miles of high-capacity fiber to expand an existing network throughout 24 western Ohio counties, two southeast Michigan counties and one Indiana county. Once constructed, this enhanced network will provide speeds of up to 40 Gbps to as many as 880 community anchor institutions and middle mile network speeds up to 100 Gbps to the region's 33 last-mile service providers.

The purpose of the Com Net GigEPAC project is to expand the region's existing fiber networks to fill gaping, persistent holes in broadband coverage across the Project area. The project will provide a replicable national model of broadband's ability to create jobs, open critical educational avenues, upgrade public safety infrastructure and advance health care innovation in rural, impoverished areas with low population densities.

The project plans to provide for new or upgraded connectivity to:

- 212 K-12 schools
- 173 state and local government offices
- 112 public safety facilities
- 84 health care facilities
- 12 community colleges
- 4 universities
- 43 libraries
- 92 public housing facilities
- 151 community support organizations, and
- 5 state parks.

The GigEPAC project service area has long had a major difficulty with regard to broadband, in that carriers could not justify building the broadband infrastructure because of low population densities and a limited number of business customers. The lack of broadband thwarts business development, hinders public safety improvements, eliminates critical educational connections, hampers health care innovation and cripples tourism.

The Com Net GigEPAC project will address the compelling problem of the digital divide between urban (20%) and rural (80%) communities and the subsequent inequality of economic development and quality-of-life opportunities resulting from inadequate residential, commercial, medical, public safety and educational access to high-speed broadband services. The GigEPAC project will allow access to broadband in rural Ohio, enabling rural communities to enhance local economies, better manage natural resources and improve access to education and health services. The need for the GigEPAC project is clear because the broadband gap in the area perpetuates and exacerbates historic economic disadvantages.

Nearly 20 percent of the households in the GigEPAC's service delivery area lack broadband access and 23 of the counties have child poverty rates of 10% or higher. The area also has a higher than average unemployment rate. For community anchor institutions in the GigEPAC service area, the existing broadband options consist primarily of expensive legacy services (T-1s) delivered over an aging and increasingly unreliable copper distribution plant. High-speed connectivity to rural health care providers will allow for the expansion of HD telemedicine programs and will also make it possible for rural health care providers to transition to electronic health records (EHRs) and participate in health information exchanges.

The lack of widespread fiber connectivity also hampers community colleges in the drive to share IT services and resources to enrich course offerings and streamline operations. The community colleges and universities need metro-Ethernet services that typically offer up to ten times the bandwidth at the same cost as the existing legacy connections.

The GigEPAC area still has hundreds of schools without fiber connectivity. The special construction charges to extend lateral runs to remote buildings exceed what the rural schools can absorb. With this project, numerous K-12 schools will be able to take advantage of distance learning opportunities for advanced placement and special needs classes, leveling the playing field with suburban schools.

The GigEPAC service area has higher than average concentrations of veterans, aged, disabled, medically underserved and unemployed citizens. The metropolitan-class broadband delivered by the GigEPAC will expand

services to these vulnerable population groups in our region.

A total of five alternatives were evaluated for this project. They include the following

### **1. Proposed Action**

The Proposed Action for the Com Net GigEPAC takes into account the location of existing infrastructure and anchor institutions, minimizing the length of lateral runs necessary to reach these assets. To make the Proposed Action as cost-effective as possible, it leverages the assets of networks in the region that support open network standards. This alternative involves the underground installation of the vast majority of the fiber optic cable by plowing, open trenching or by use of directional boring techniques. Fiber optic cable will be installed across streams and rivers either by use of directional boring techniques or by hanging the cable on existing bridges, either through existing or newly installed conduit. In urban areas, aerial installation will be used where underground installation is not feasible and existing poles are in place to accommodate the new fiber optic cable.

### **2. No Action Alternative**

The No Action Alternative, which involves doing nothing to enhance broadband internet service in the 27-county GigEPAC project area, serves as a baseline for comparison of impacts associated with the Proposed Action and other Alternatives that were considered for this project.

### **3. Use of Alternative Routes**

The use of alternative routes for the Com Net GigEPAC project would result in longer fiber optic cable runs. Therefore, the use of alternate routes was determined to be unfeasible, and was dropped from further evaluation of environmental impacts.

### **4. All-buried Cable Alternative**

This alternative involves the installation of the entire fiber optic cable system underground to provide broadband to the service area. This alternative would require additional underground construction work and would potentially include some blasting in areas where the depth to bedrock is near the ground surface. This alternative would likely require greater permitting and agency consultation activity and have a greater affect on air and noise quality. Additionally, this alternative would not make use of the existing aerial poles. Although this alternative would meet the Purpose and Need of the project, it does not offer any advantages over the Proposed Action and exhibits several disadvantages. Therefore, it was determined that the All-Buried Cable Alternative would not represent a viable alternative for this project.

### **5. All-Aerial Cable Alternative**

This alternative consisted of the aerial installation of the entire fiber optic cable system. System reliability is a key to providing the emergency 911 services, which were identified as part of the purpose and need for this project. Aerial cable is susceptible to outages during storm events due to falling tree limbs and branches, excessive ice build-up or high-speed wind gusts. Therefore it was determined that the All-Aerial Cable Alternative did not represent a viable alternative for this project.

### **5. Wireless Alternative**

This alternative would require the use of non-fiber based technologies to address the purpose and need of the project. The internet connection speeds which can be provided utilizing existing wireless technologies is insufficient to meet the existing data demands of these institutions and therefore does not represent a viable alternative for further consideration. As a result, this alternative was also dropped from consideration for this project.

This EA evaluates the Proposed Action and No Action alternatives for this project. Table ES-1 provides a comparative matrix that summarizes environmental impacts among the three alternatives. Overall, the results of the EA indicate that the Proposed Action for the GigEPAC project would not cause significant or otherwise detrimental impacts to the environmental resources examined in this EA. While the Proposed Action extends through largely rural areas that are home to low-income populations, this project will bring broadband access to these regions at reasonable, competitive prices. As a result, this project will provide significant benefits to these economically distressed areas without any substantial environmental impacts.

**Table ES-1  
Summary of Environmental Impacts for Horizon CAO-MMC Fiber Optic Cable Project**

Resource	Alternatives	
	Proposed Action	No Action
<b>Noise</b>	Minor, temporary, localized noise will occur from construction equipment during installation and periodic maintenance. No effects during operation.	None
<b>Air</b>	Temporary increase to priority pollutants (particulate matter and ozone-related pollutants) due to emissions from construction vehicles used during installation and occasional maintenance activities. No effects during operation.	None
<b>Climate, Greenhouse Gases and Global Warming</b>	Greenhouse Gas Emissions from the Proposed Action are well below the CEQ threshold. Greenhouse Gas Emissions from the Proposed Action will not contribute appreciably to climate change and global warming.	None
<b>Geology/Soils</b>	Minimal to no impacts to geology or soils, where underground installation will have to occur.	None
<b>Water</b>	Minimal to no effect on surface waters due to installation of fiber-optic cable beneath stream using directional boring techniques. Surface water impacts from minor soil disturbance in small areas of underground installation will be minimized using best management practices (BMPs).	None
<b>Biological</b>	Minor, temporary, localized impacts to wildlife due to noise and cutting of vegetation to access overgrown areas during construction and routine maintenance activities.  No effect or not likely to affect threatened or endangered species.	None
<b>Historical/Cultural</b>	Com Net has proposed a number of strategies for avoiding or minimizing impacts to cultural resources. Assuming these commitments are met, and that any changes in the scope of work are coordinated with the NTIA and OHPO prior to construction, there will be no adverse effect on archaeological or architectural resources	None
<b>Aesthetic/Visual</b>	Negligible impact from the addition of aerial fiber -optic cable on existing utility line at limited locations along ROW or in utility corridor.	None
<b>Land Use</b>	None	None
<b>Infrastructure</b>	Minimal, temporary increase in nonhazardous construction waste	None
<b>Socioeconomic</b>	Substantial positive impacts by providing broadband access to unserved and underserved areas in the project area.	Substantial negative impact to unserved and underserved communities and areas due to the loss of the opportunity to have broadband access.

**Table ES-1 (Continued)**  
**Summary of Environmental Impacts for Horizon CAO-MMC Fiber Optic Cable Project**

Resource	Alternatives	
	Proposed Action	No Action
<b>Human Health and Safety</b>	Potential positive effects due to increased opportunities for electronic medical consultations, better communications among healthcare and emergency service providers and other safety-related services (law enforcement, fire, and emergency management agencies)	None
<b>Cumulative Impacts</b>	<p>Potential positive cumulative impacts, as the Proposed Action will help communities:</p> <ul style="list-style-type: none"> <li>• attract and retain businesses</li> <li>• increase opportunities to learn outside of the classroom</li> <li>• provide additional access to government services</li> <li>• promote tourism</li> </ul> <p>Private residents will be able to:</p> <ul style="list-style-type: none"> <li>• More easily accomplish everyday tasks</li> <li>• Access a wider variety of entertainment opportunities</li> <li>• Access and research a wider range of employment opportunities</li> <li>• Gain additional means to communicate with friends and family</li> <li>• Access educational opportunities from home</li> </ul> <p>Businesses will benefit from:</p> <ul style="list-style-type: none"> <li>• Greater access to the global marketplace</li> <li>• Increased options to compare prices and shop for supplies</li> <li>• More efficient purchasing of supplies online</li> <li>• Increased marketing and advertising opportunities</li> <li>• Exposure to a wider customer base</li> </ul> <p>Increased attraction of job seekers to an area</p>	None