The 'Transforming NE Ohio: From Rust Belt to Economic Powerhouse' project is one of three (3) projects submitted by the Ohio Middle Mile Consortium (OMMC). The public-private partners of the OMMC joined forces to design a comprehensive, seamless, open and neutral network that optimizes middle mile services and coverage for the entire State of Ohio. It has been strongly endorsed by multijurisdictional political and civic leaders. Once completed, it will be one of the fastest, most reliable, and tightly integrated network platforms for health care, education, public safety, R&D, government and last mile carrier traffic in the country. The three regional applications forming and single integrated whole from the OMMC are: - Transforming NE Ohio (OneCommunity ' non-profit Middle Mile Carrier); - Connecting Appalachian Ohio (Horizon Telcom, Commercial Last Mile Carrier); - GigEPAC (ComNet ' Commercial Middle Mile Carrier). Zayo (Commercial Middle Mile Carrier) and OARnet (State Agency) are also founding members of the coalition and sub-recipients under the OMMC applications. All consortium members are currently owners and operators of high speed broadband networks. All three BTOP-CCI Middle Mile applications were developed in collaboration with the Ohio's Office of Information Technology, Department of Administrative Services, and OARnet, the State's Academic and Research network. The synergies and benefits for the schools, hospitals, public safety agencies, libraries, government agencies and last mile providers in Ohio are immense: - A state-wide open and neutral middle mile network will be available to all community anchor institutions, government agencies and commercial carriers. - It creates a state-wide WAN to be used for secure traffic between community anchor institutions and government agencies, while allowing open traffic and Internet access. - Advanced traffic routing creates virtual point-to-point synchronous connections for use by health care, research, and other band-width intensive users at up to 40 Gbps. - Maximizes taxpayer investment through a reduction in overbuild. - Solves many of the severe interlata problems plaguing Ohio by providing ample 'off-ramps' to service communities across the entire State footprint. - Opens markets statewide to new competition and expanded last-mile investment by carriers. OneCommunity’s Transforming NE Ohio: From Rust Belt to Tech Powerhouse project ($44,794,046 grant, $69,982,479 total budget, 30% match) is fully 'shovel-ready,' including a set of contractors and equipment vendors that are currently executing a deployment of fiber under a prior award by the FCC Rural Health Care Pilot Program. The project meets or exceeds four (4) of (5) BTOP statutory goals. OneCommunity is one of the few organizations in the US that currently owns and operates an open and carrier-neutral network that is fully compliant with the letter, spirit and intent of all provisions of the FCC Broadband Policy Statement and the nondiscrimination and interconnection obligations in the NOFA. The OMMC
members worked in collaboration in all phases of planning, design and integration of the network assets being contributed as part of this unified platform. In areas of existing fiber overlap, fiber swaps to avoid overbuild, peering agreements, capacity IRUs, or discounted access to dark fiber were negotiated to ensure the seamless transport of traffic between the networks. The middle mile connection capacity achieved through this design for the State is significant:
- Expands OARnet's capacity from 14 counties to 88;
- Expands OneCommunity's capacity from 22 counties to 88;
- Expands ComNet's capacity from 20 counties to 88;
- Expands Horizon's capacity from 20 counties to 88.
- ‘Stitches together’ nearly 5000 route miles of fiber As this network literally covers every county in Ohio, leveraging significant existing assets in all regions, the number of institutions, businesses and residents served is nearly synonymous with those of the State: roughly 11.5 million people, 425,000 businesses and over 15000 community anchor institutions. Between the partners, roughly 15% - 20% of all community anchor institutions are already on the network, representing a powerful platform for driving efficiencies, collaboration, service delivery capacity and institutional reach. The geographic area covered by this proposal from OneCommunity is a 20-county area in NE Ohio plus Franklin county, representing the State's population (5.4 million), over 200,000 businesses and nearly 9000 community anchor institutions. The OneCommunity network already has 1500 community anchor institution sites on its network, and has dedicated 20% of this project's funding for fiber laterals for community anchor institution subscribers. This unified statewide network goes far beyond providing basic access, literally transforming the service delivery capabilities for health care, educational, public safety and government. It collapses the geographic digital divides between rural and urban marketplaces for both community anchor institutions and local last mile providers currently held captive by expensive interlata tariffs. Key impacts:
- Health Care: Speeds of 100 Mbps to 40 Gbps - Expansion of the existing high speed broadband interconnectivity on a single network platform for over 200 hospitals and critical care facilities to thousands of facilities located across the State; - Real-time Electronic Medical Record (EMR) exchange enablement; - Advanced telemedicine and remote diagnostic service capabilities and capacity; - Collapsed costs for regional and state-wide health care operations and provisioning; - Improved emergency care and access to equivalent health care regardless of location; - A powerful network asset representing the one of the largest interconnected test labs for telehealth, electronic medical records and telemedicine applications in the U.S. Education: Speeds of 100 Mbps to 40 Gbps - 21st century learning environments in K-12 and community colleges across the State; - Distance learning program platforms for direct community outreach and collapsed education costs; - Seamless voice/data connectivity to campus and metropolitan fire, safety and medical transport forces for enhanced communications and emergency response; - Enhanced science, technology, education and math (STEM) opportunities for students through immersive learning environments, and real-time collaborations with leading institutions; - Connections to Internet 2 and the National LambdaRail for advanced R&D. Public Safety: Speeds of 5 Mbps to 40 Gbps - Creation and extension of Enhanced Public Safety (EPS) systems through shared platforms and interoperability; - Seamless collaboration across jurisdictional boundaries for police, fire, EMS, utility companies, NGOs and state and federal agencies; - Collapsed government expenditures on infrastructure, systems and applications. 3rd Party Last Mile Provider Impact: Speeds of 10Gbps - 100 Gbps The interlata boundary issues in Ohio are a major impediment to high speed broadband adoption by businesses and residents. An open and neutral middle mile network of this scale fully addresses this issue, increasing market competition and the ability for carriers to directly invest in
local last mile infrastructure while reducing the price point for high speed connectivity. The unified network is built on redundant, fiber optic rings, using both existing and new build assets. It 'stitches together' existing assets, while extending reach and capacity in mission critical areas for community anchor institution interconnection. Between the three (3) regional networks, over 40 carriers already use the regional backbones for middle-mile transport. OneCommunity's transport layer consists of a DWDM backbone using the Fujitsu FW9500 series. This unit has the ability to deliver 88 lambdas at 40Gbps for a backbone throughput of 2.4Tbps. The FW9500 Chassis is certified for 100 Gbps backplane for future bandwidth growth to 8.8Tbps. With the use of the 9500's ROADM capabilities, it allows traffic to be cross-connected from any ring to any other ring. The FW9500 supports 1 to 40Gbps Ethernet and all SONET services to meet any customer's interface or bandwidth needs. The routed layer uses Juniper MX960's. These state of the art routers supports both MPLS and VPLS services for the highest reliability. MPLS allows differentiation of customer traffic at Layer 3, providing secure and robust routing. This provides the network the maximum diversity in the case of hardware failures or fiber cuts. The Juniper MX series also supports QoS to ensure real time packets are delivered as a priority making voice and video traffic seamless. OneCommunity used the methodology suggested by the Council of Economic Advisors to estimate job-ye