OMB CONTROL NUMBER: 0660-0037
EXPIRATION DATE: 6/30/2015

ANNUAL PERFORMANCE PROGRESS REPORT FOR BROADBAND INFRASTRUCTURE PROJECTS

General Information

1. Federal Agency and Organizational Element to Which Report is Submitted	2. Award Identification Number	3. DUNS Number
Department of Commerce, National Telecommunications and Information Administration	NT10BIX5570011	018946590

4. Recipient Organization

MCNC 3021 Cornwallis Road, Research Triangle Park, NC 27709-2889

5. Current Reporting Period End Date (MM/DD/YYYY)	6. Is this the last Annual Report of the Award Period?
12-31-2013	◉ Yes ○ No

7. Certification: I certify to the best of my knowledge and belief that this report is correct and complete for performance of activities for the purposes set forth in the award documents.

7a. Typed or Printed Name and Title of Certifying Official	7c. Telephone (area code, number and extension)
Patricia Moody	9192481820
Chief Financial Officer	7d. Email Address: pmoody@mcnc.org
7b. Signature of Certifying Official: Submitted Electronically	7e. Date Report Submitted (MM/DD/YYYY): 12-03-2013

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OVERALL PROJECT PERFORMANCE INDICATORS

1. Please provide the following average cost figures for your project. Please review the instructions to determine how to calculate these figures. Write "0" in the second column and "N/A" in the third column if your project does not yet have this information. Depending on whether your project contains Middle Mile and/or Last Mile components, some metrics may not apply. Please provide a narrative description if the total is different from the target provided in your baseline plan (600 words or less).

Cost Indicator	Average Cost / Speed	Narrative (describe your reasons for any variance from the baseline plan or any other relevant information)
Average cost per new mile (Middle Mile)	65,440.23	New miles built and deployed is 444. Total cost of engineering, construction, and relevant permits for this fiber is $29,055,463. We are less than what was forecasted in our baseline due to lower than expected construction costs.
Average cost per household passed (Last Mile)	0	N/A to our project
Average cost per subscriber (Last Mile)	0	N/A to our project
Maximum broadband speed advertised (Middle Mile)	100Gbps	10Gbps is the maximum current speed realized on our network for CAI connections, however the equipment deployed has the ability to scale to 100G as user needs would dictate. In addition we have deployed 100G core upgrades for the North Carolina Research and Education (NCREN) backbone as approved by NTIA this past year.
Maximum broadband speed advertised (Last Mile)	0	N/A to our project
Average broadband speed provided (Middle Mile)	5Gbps	This project focused on middle mile access and backbone services were the focus until directly connected CAI's were funded through savings. As a result of all work, thirty-six 10Gbps backbone services and 19 100M customer connections have been provisioned on the MCNC portions of the network and 17 100Mbps services have been provisioned on the FRC portions of the network.
Average broadband speed provided (Last Mile)	0	N/A to our project

2. Please provide each facility name and type, the county where the facility is located, and census tract information for any facilities funded by your project during this annual reporting period. Report only facilities for which construction has been completed.

Facility Identifier / Name	Facility Type	County	Census Tracts
N/A	N/A	N/A	N/A

Add Facility Remove Facility

3. Please identify (1) the total number of interconnection, peering, and/or transit agreements entered into during this annual reporting period; (2) the total number of agreements of each type that you are currently negotiating; and (3) whether you have denied any request for interconnection and if so, why. If you have not entered into any agreements, please write "N/A."

Interconnection Agreements (600 words or less)

FRC has executed agreements with Pangea and Morris Broadband related to fibers built with BTOP awards. MCNC has executed agreements with FRC, Broadplex, RST Communications, Earthlink, MOX networks and ERC related to fibers in the project. There are an additional four agreements being considered and discussed that are at various stages of completeness as of writing of this report. No request for interconnection has been denied to any interested provider.

Peering and Transit Agreements (600 words or less)

There have been no peering and/or transit related agreements negotiated as part of the new infrastructure.

CAPACITY, UTILIZATION, AND CAPABILITY INDICATORS

4. Community Anchor Institutions: In the chart below, please provide information on the types of community anchor institutions capable of receiving service (i.e., anchor institutions connected to your network plus those passed by your network) as a result of BTOP funds.

Type of Community Anchor Institution	Total Number Within Service Area	Type of Community Anchor Institution	Total Number Within Service Area
Schools (K-12)	1,799	**Public Housing**	0
Libraries	0	**Other Institutions of Higher Education**	27
Medical and Healthcare Providers	6	**Other Community Support Organizations**	5
Public Safety Entities	5	**Other Government Facilities**	8
Community Colleges	16	**Total Community Anchor Institutions**	1,866

5. Please indicate the average increase in broadband speed provided to the community anchor institution customers as a result of your project, including a description of how this increase was calculated (600 words or less).

1847 of the community anchor institutions identified above received improved access to the NCREN backbone. They all currently have access to the North Carolina Research and Education network through third party providers. This access is enabled through regional points of presence that before the BTOP awarded infrastructure operated at a maximum sustained speed of 1Gbps. After the implementation of the BTOP network, all the POP's operated at 10Gbps. Their ability to access internet based resources prior was limited to the capacity of this 1Gbps backbone, which was oversubscribed. 19 CAI's have now had direct fiber built to them as a result of the project with minimum connectivity of 100Mbps scalable to 100Gbps in the future now that fiber as been deployed.

6. What retail services are being provided by this project? Please describe below. (600 words or less). As an attachment to this report, please provide pricing plans (in $ per month) associated with each retail service. Retail services description:

FRC is providing point to point services for cell towers along the footprint of the network for Verizon wireless. They have not yet had demand for other wholesale lit services related to these areas. Their marketing strategy enables them to provide services from 50M-10Gbps as required by customers. Each opportunity has to be priced on a case by case basis to offset additional capital costs (additional lateral builds and equipment) that were not funded by the BTOP program specifically. For the existing services they're providing to Verizon wireless, they are charging $1400/mo for 50M backhaul services from their towers to other locations off the BTOP route.

Earthlink has bought fibers along the footprint from MCNC and is providing lit services up to 100G to customers they serve.

MCNC is not providing wholesale services to carriers per our mission. We are providing transport, lambda, and internet services on the network for CAI's in these regions.

7a. What network management policies (e.g., bandwidth limitations, traffic prioritization) are in place for the services provided by your project? 7b. Have you ever limited or blocked consumers from accessing any lawful content, service, service provider, or application, or prevented any consumers from attaching any legal device to the network? If so, please explain why (300 words or less)?

The North Carolina Research and Education Network by policy does not limit/restrict access to the network. There is no prioritization of traffic placed on the backbone for IP based services. Lambda based circuits encompass their own payload, so by nature that traffic is prioritized within the circuit design. The only filtering policies on the IP backbone that are utilized relate to anti-spoofing related filters to protect our customers, and the IP based resources of the infrastructure itself. If a site is the target of or initiating a Denial of Service attack, from time to time network access will be limited to resolve those issues. We do have a content based filtering service that our K-12 community can subscribe to to meet CIPA (Children's Internet Protection Act) requirements that the districts may have, as well as firewall based service.

MCNC does not limit access to any lawful content.

8. If applicable, please provide the total number and the percentage of subscribers who have dropped the broadband service provided through this project (total number of households and/or businesses and the "churn rate") and the subscribers' reasons for discontinuing their service (600 words or less).

N/A - as no subscribers have dropped the service.

9. Please provide the following information regarding the number of fiber strand-miles:

Total Number of Strand-miles	Total Number of Active Fiber Strand-miles Used by Recipient	Total Number of Leased Fiber Strand-miles	Total Number of Dark Fiber Strand-miles	Total Number of Strand-miles Being Built		
				Active	Leased	Dark
49,676	2,610	5,258	41,808	0	0	0

10. If you wholesale dark fiber, please list your wholesale customers and the number of fiber miles you currently are leasing to those customers:

We have signed agreements with ERC for use of 6 fibers over 40 miles of the infrastructure, a separate agreement with ERC for the lease of 4 fibers over 31 miles of the infrastructure, Pangea for 6 fibers over 7.6 miles of the infrastructure, Morris Broadband for 2 fibers over 37.2 miles of the infrastructure, Earthlink for 2 fibers over 186 miles of the infrastructure, Broadplex for 1 fiber over 502 miles of the infrastructure, RST for 6 fibers over 472 miles of the infrastructure, and MOX networks for 12 fibers over 89 miles of the infrastructure yielding the 5258 miles referenced above.

11. Please provide the following information regarding the facility collocation capacity:

Total Facility (total square feet for all facilities)	Number of Square Feet Used by Recipient	Number of Square Feet Leased	Number of Square Feet Available
600	96	0	504

12. If you do not own collocation space, please describe how and where other network providers and/or customers interconnect with your network (600 words or less).

North Carolina Research and Education (NCREN) POP's for this project are facilitated out of existing space with providers that MCNC leases space from or at CAI facilities in the regions the network goes through, generally university or county government facilities. These facilities allow for other carriers/customers to interconnect to us at those locations. In addition, hand holds along the route, placed at a minimum of 1 mile apart, allow for interconnect to other carriers or CAI's that would build fiber to those meet points.

In addition we built three colocation facilities in this reporting period that were included as part of the project at the end of 2012 with a portion of the original project savings that yields the figures in the tables above.

13. To the extent that you have made any subcontracts or sub grants, please provide the number of subcontracts or sub grants that have been made to socially and economically disadvantaged small business (SDB) concerns as defined by section 8(a) of the Small Business Act, 15 U.S.C. 647, as modified by NTIA's adoption of an alternative small business size standard for use in BTOP. Please also provide the names of these SDB entities (150 words or less).

MCNC's efforts for socially and economically disadvantaged small (SDB) business involvement has resulted in MCNC's contractors subcontracting with nine SDB concerns:

Indepth Utility Resources, LLC - WBE
T&B Drilling & Electric, LLC - MBE
North Star International Group - MBE
Coastline Cable Construction - WBE
Blackshear Corporation - MBE
DKL & Associates - WBE
Keller Environmental - WBE
Edwards Telecommunication, Inc VBE
HK&L, LLC WBE applied for

14. Please describe any best practices/lessons learned that can be shared with other similar BTOP projects (900 words or less).

Work through your permitting process as quickly as possible. Issues will undoubtedly surface that will take additional time.

1) Do not allow your contractors that you award work to only focus on the easy elements of construction first without also addressing some of the difficult elements. We had a situation where they did all the easy construction, left the remainder and our prime contractor had difficulty finding someone to complete the segment they were awarded.
2) Award RFP's early.
3) Implement stringent contracts for material delivery and construction delivery.
4) Expect your legal bills to be more than you anticipated.
5) Celebrate your successes and always look at the big picture.

15. Using the Excel spreadsheet template titled "Annual PPR CCI Addendum", please provide an updated list of Community Anchor Institutions (CAIs) that you have connected and plan to connect to your network.

16. Using the Excel spreadsheet template titled "Annual PPR CCI Addendum", please provide a list of community pairs that are receiving new or improved broadband service as a result of BTOP grant funds.

17. Please provide up-to-date network route maps in a single file, in a Google Earth compatible format (e.g., KMZ file).