MMG Budget Narrative Template

Applicant Name: MCNC

Applicant Type: 501c3

Proposed Period of Performance: 3/1/23-2/28/25

Total Project Costs: $18,959,598

Total Federal Grant Request: $11,186,163

Total Matching Funds (Cash): $4,450,058

Total Matching Funds (In-Kind): $3,323,377

Total Matching Funds (Cash + In-Kind): $7,773,435

Total Matching Funds (Cash + In-Kind) as Percentage of Total Project Costs: 41.00%

1. Administrative and Legal Expenses: Total $167,844, $117,844 In kind

Post NOFO Pre Award Fees ($50,000) – MCNC solicited a contract w/ [redacted] for grant guidance and consultation services related to our application after release of the NOFO on May 13, 2002 for the duration of the application period.

Accounting Compliance Software ($20,000, $20,000 In kind) –Expenses for [redacted] Compliance Software over the project period to enable full program compliance of the grant award.

Indirect Costs for Administrative and General ($97,844, $97,844 In kind):

MCNC does not have negotiated indirect costs rates so the allowable 10% de minimis rate was used for allowable costs in the following categories:

Description	Unit Basis	Unit Cost	Number of Units	Total
Accounting Compliance Software	Each	$20,000	1	$20,000
Post NOFO Pre Award Fees	Each	$50,000	1	$50,000

De minimis Indirect Costs	Percentage	$978,443	10%	$97,844

Detail of de minimus indirect cost for administrative and general:

Area	Total Cost	10% De Minimus A & G Amount
#4 Architectural and Engineering Fees	$477,131	$47,713
#5 Other Architectural and Engineering Fees	$63,888	$6,389
#6 Project Inspection Fees	$275,808	$27,581
# 11 Internal Project Management only [redacted]	[redacted]	[redacted]
Total:	[redacted]	[redacted]

2. Land, structures, rights-of-way, appraisals, etc. - Total $306,100

Telecommunications/Interconnect Huts ($219,000) – In implementing the project, MCNC plans to deploy three pre-fabricated telecommunication shelters at Sampson Community College in Clinton, NC, Rowan-Cabarrus Community College in Salisbury, NC, and Stanly Community College in Albemarle, NC.

Land ($0) – MCNC intends to execute $0 perpetual easements with the institutions identified above for use of the land on which to erect the facility.

Right of way acquisition costs ($0) – North Carolina does not impose fees on the placement of telecommunication facilities in the public right of way.

Railroad crossing rights-of-way ($87,100) – There are 13 railroad crossings in the two proposed routes. Railroads require application and review of the proposed construction to grant right of way. Alternatives to go around the railroad do not exist or are more costly in nature. The cost to acquire these rights of ways is based on recent acquisition from these railroads on other project locations in North Carolina.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
12' by 20' Telecommunications/ Interconnect Hut	Each	$73,000	3	$219,000
Land associated with huts above	Each	$0	3	$0
North Carolina Department of Transportation Right of Way Fees	Each	$0	1,095,332	$0
Railroad Crossing Right of Way Fees	Each	$6,700	13	$87,100

3. Relocation expenses and payments - Total $0

MCNC does not forecast any relocation expenses as a part of this project.

4. Architectural and engineering fees -Total $477,131

Fiber Engineering Fees ($420,131) – It is our intention to consider third party telecommunication design engineers for formal route engineering and design services for the conduit and fiber system installation. Engineering services for fiber route design are charged on a per foot basis. Based on recent costs for these types of services for other projects MCNC is currently doing in North Carolina, we anticipate the costs to be at a rate of $0.38/foot, which would in turn be an anticipated cost of $420,131 for the project. Should we choose to use third party vendors for this work, we will reduce our Modified Total Direct Cost total for the $25,000 per contract limit used for our indirect costs in the proposal and increase our cash contribution to offset the difference. The net result would be a decrease in federally-funded costs and an increase in MCNC funded costs.

Telecommunications Hut/Interconnect Site Engineering and Site Plans ($57,000) – Site plans and design for the telecommunication huts/interconnect sites may be performed by a third party engineering firm selected after award. Based on similar services currently being provided to MCNC for other projects in the state of North Carolina that are comparable to the proposed project, we anticipate these services to be performed at $19,000/site, or $57,000 total. Should we choose to use third party vendors for this work, we will reduce our Modified Total Direct Cost total for the $25,000 per contract limit used for our indirect costs in the proposal and increase our cash contribution to offset the difference. The net result would be a decrease in federally-funded costs and an increase in MCNC funded costs.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Fiber Engineering Fees Sanford/Fayetteville/Jacksonville Path	Foot	$0.38	716,635	$272,321
Fiber Engineering Fees Albemarle/Winston-Salem Path	Foot	$0.38	388,973	$147,810
Telecommunications Hut/Interconnect Site Engineering and Site Plans	Each	$19,000	3	$57,000

5. Other architectural and engineering fees - Total $63,888, $43,888, In Kind

NEPA Compliance Assessment ($20,000) – MCNC anticipates the selected engineering companies chosen for route and site engineering to require a fee above and beyond normal design fees for environmental assessment work required of the project. We have been advised by external firms that on a project of our size to expect this expense to be $20,000.

Internal Project Labor [redacted] – Labor estimate for internal executive level staff to administer contractual elements of the project including development and review of requests for proposals, contract management, and complete project oversight. It is anticipated that over a two year period this work effort will amount to [redacted]

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
NEPA Compliance	Each	$20,000	1	$20,000
Internal Project Labor	Cost per hour	[redacted]	[redacted]	[redacted]

6. Project Inspection fees : Total $275,808, In kind $275,808

Internal Project Labor [redacted] – Labor estimate for internal fiber engineering staff to provide field oversight of the fiber construction process. Their responsibilities will include quality control, adherence to design plans, and inspection. It is anticipated that over a two year period this work effort will amount to [redacted]

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Internal Project Labor	Cost per hour	[redacted]	[redacted]	$275,808

7. Site work - Total $59,850

Grading/clearing ($10,950) – Grading and clearing of proposed telecommunications site to allow for concrete pad installation to support telecommunications hut. Cost is expected to be$3,650/site for $10,950 total.

Telecommunications Hut Foundation Work ($48,900) – 12'x20' Foundation work. Cost includes stone, concrete, forming, etc. required for placement of telecommunications hut. Estimates are for $16,300/site for $48,900 total.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Grading/Clearing	Per Site	$3,650	3	$10,950
12'x20' concrete pad	Per Site	$16,300	3	$48,900

8. Demolition and removal - Total $0

MCNC does not forecast any demolition and removal expenses as a part of this project.

9. Construction: Total $16,093,624, Cash match $4,450,058, In kind $2,724,221

Composite Construction ($10,569,954, Cash Match $4,450,058) – The project has an estimated amount of construction footage of 1,095,332 feet. We plan to release a Request for Proposal to gain pricing from construction vendors on an "all-in" per foot rate for complete construction and installation of the conduit, hand holds, fiber, and marking posts to build the system, as well as all relevant ground restoration to complete the project. "All-in" bids are defined such that the contractor will account for all of these elements, along with assuming any rock adder risk they deem appropriate to complete the project. The composite construction will be a mix of boring and plow installation that will be determined as a result of formal engineering done by the third party engineering firm as a part of the project. We anticipate that pricing proposals will not exceed $9.65/ft over the footprint of the project based on pricing MCNC received on a 50 mile plus project MCNC is currently executing in like terrain of North Carolina. Total construction fees are expected to be $10,569,954.

Composite Pull Through Fiber ($23,121) – In Fayetteville, NC there is a small amount of existing MCNC network facilities where existing conduit can be leveraged for the placement of fiber, thus not requiring additional conduit installation. This existing conduit is 10,276 feet in length. Placement of the fiber is expected to be $2.25/foot, resulting in $23,121 in expense. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Composite Splicing ($568,000) – Based on the proposed footage of the entire fiber system to be installed, and the number of feet of fiber per cable reel, an estimated 71 locations will require splicing along the fiber routes. A certified splicing contractor will be selected to perform this task at all of these locations on a cost per site basis. It is anticipated this will be $8,000/location for a total estimated cost for splicing of $568,000. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Materials ($4,793,199, $2,724,221 In Kind) – Materials for the 209 mile project (1,105,608 feet) include conduit, fiber, hand holds, conduit couplings, marker posts/test stations/placards, splicing materials (splice closures, trays, sleeves), and ground rods. Conduit is required for the project for the installation and future maintenance related needs of the fiber routes. 288 count fiber is allocated for the purposes of meeting current and future demand needs anticipated for a combined middle and last mile network. Handholes are estimated at approximately 1 per every 2,500 feet to facilitate installation, interconnection of future services, and required maintenance in the future. Marker posts and test stations are estimated based on one per every 2,000 feet. Grounding rods are required to protect the system from lighting strikes and are allocated at one per every 15,000 feet. The pre formal engineered estimated quantities of these materials along with anticipated costs are further outlined in the table below for each proposed route. The $2,724,221 of in kind match is made up of the fiber costs of $1,765,900 for Sanford/Fayetteville/Jacksonville - Fiber Optic Cable and $958,431 Albemarle/Winston Salem - Fiber Optic Cable in the table below. The valuation of the fiber contributed is based on fair market value at the time of the application. These estimates are based on rates MCNC is currently seeing in the marketplace for like materials.

Telecommunication Huts General Contractor Fees ($31,050) – Anticipated costs for a General Contractor to oversee construction of the telecommunications huts in Clinton, Salisbury, and Albemarle, NC. The cost includes their general fees, construction, site management, and closeout package. Costs are expected to be $10,350 per site for $31,050 total. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Telecommunication Huts Utility Construction ($85,500) – Required utility construction to facility electrical and gas utilities to operate at site. Estimate is for $28,500/site for a total of $85,500. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Telecommunication Huts Security Fence Construction ($22,800) – 6-foot chain link fencing with security gates estimated to be $7,600 per site that surrounds the telecommunications hut facility along the anticipated 20’x40’ site for a total of $22,800. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Composite Construction Sanford/Fayetteville/Jacksonville route	Foot	$9.65	706,359	$6,816,364
Composite Pull Fiber Through Existing Connector Duct Sanford/Fayetteville/Jacksonville route	Foot	$2.25	10,276	$23,121
Composite Splicing 46 Locations Sanford/Fayetteville/Jacksonville route	Locations	$8,000.00	46	$368,000
Composite Construction Winston-Salem/Albemarle Route	Foot	$9.65	388,973	$3,753,589
Composite Splicing 24 Locations Winston-Salem/Albemarle Route	Other	$8,000.00	25	$200,000
Sanford/Fayetteville/Jacksonville - Fiber Optic Cable	Foot	$2.24	788299	$1,765,790
Sanford/Fayetteville/Jacksonville - Conduit	Foot	$1.39	788299	$1,095,736
Sanford/Fayetteville/Jacksonville - Couplings	Item	$6.00	2628	$15,768
Sanford/Fayetteville/Jacksonville - Hand Holds	Item	$590.00	340	$200,600
Sanford/Fayetteville/Jacksonville - Identifiers	Item	$19.00	340	$6,460
Sanford/Fayetteville/Jacksonville - Splicing Material	Item	$573.96	46	$26,402
Sanford/Fayetteville/Jacksonville - Bonding Material	Item	$13.50	46	$621
Albemarle/Winston Salem - Fiber Optic Cable	Foot	$2.24	427871	$958,431
Albemarle/Winston Salem - Conduit	Foot	$1.39	427871	$594,741
Albemarle/Winston Salem - Couplings	Item	$6.00	1333	$7,998
Albemarle/Winston Salem - Hand Holds	Item	$590.00	174	$102,660
Albemarle/Winston Salem - Identifiers	Item	$19.00	174	$3,306

Albemarle/Winston Salem - Splicing Material	Item	$573.96	25	$14,349
Albemarle/Winston Salem - Bonding Material	Item	$13.50	25	$337.50
Telecommunications Hut General Contractor Fees	Item	$10,350	3	$31,050
Telecommunications Hut Utility Construction	Item	$28,500	3	$85,500
Telecommunications Hut Security Fencing Construction	Item	$7600	3	$22,800

10. Equipment - Total $975,000

New Optical Node Installations ($244,000) – MCNC uses optical nodes (Cisco Network Convergence System (NCS) 2000 Series Dense Wavelength-Division multiplexing (DWDM) based optical networking equipment) to light fiber routes which allows for high-capacity optical links to be built between network elements e.g., routers and switches, on its owned-and-operated North Carolina Research and Education Network (NCREN) and in addition, to deliver Layer 1 Transparent Lambda-based (with Ethernet handoffs) transport to last and middle mile service providers as well as to Community Anchor Institutions (CAIs). As these optical nodes are outfitted with Reconfigurable Optical Add/Drop Multiplexer (ROADM) equipment, we often refer to them as ROADM nodes. MCNC proposes to place new ROADM nodes on the proposed middle mile fiber routes (MMFRs) in order to integrate them into NCREN which will enable MCNC to deliver network connectivity services along the proposed MMFRs. Please see the table below for the per site breakdown. These estimates are based on rates MCNC is currently seeing in the marketplace for like equipment.

For additional details regarding the design, please see attachments “MCNC Proposed Service Offerings, MCNC Network Logical Diagrams and MCNC Technical Details Proposed Project.”

Existing Optical Node Upfits ($500,000) – MCNC proposes to upfit existing NCREN ROADM nodes with additional ROAMD equipment on the proposed MMFRs in order to seamlessly integrate them into NCREN. Post the installation, these upfit ROADM nodes will interoperate with the newly placed ROADM nodes on the proposed MMFRs enabling MCNC to deliver network connectivity services to last and middle mile service providers as well as to Community Anchor Institutions (CAIs) along new sections of the network. Please see the table below for the per site breakdown. These estimates are based on rates MCNC is currently seeing in the marketplace for like equipment.

For additional details regarding the design, please see attachments “MCNC Proposed Service Offerings, MCNC Network Logical Diagrams and MCNC Technical Details Proposed Project.”

EXFO Network Monitors ($60,000) – MCNC places fixed remote fiber monitoring stations (EXFO Fiber Guardian) with Optical Time Domain Reflectometer (OTDR) technology on its network to accurately detect and locate faults such as degradations or cuts. These critical units form a single fiber monitoring system that allows the NCREN Network Operations Center (NOC) to respond quickly to any issues with the fiber plant thus minimizing the potential impact to

MCNC's customers and ensuring continuity of operations. Three units ($20,000 each) will be required to effectively monitor the proposed fiber routes. These estimates are based on rates MCNC is currently seeing in the marketplace for like equipment.

Generators ($117,000) – The telecommunications huts require generators to allow for uninterrupted operations to occur for network users of the new routes. Three sites will be constructed with a cost of $39,000 per location for the generator. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

HVAC ($54,000) – The telecommunications huts require HVAC installations to maintain optimal operating conditions inside the facility. Three sites will be constructed with a cost of $18,000 per location for the HVAC systems. These estimates are based on rates MCNC is currently seeing in the marketplace for like installations.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Upfit Existing Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Sanford NC	Item	$120,000	1	$120,000
Upfit Existing Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Fayetteville NC	Item	$133,000	1	$133,000
Add New Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Clinton NC	Item	$84,000	1	$84,000
Upfit Existing Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Jacksonville NC	Item	$96,000	1	$96,000
Upfit Existing Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Winston-Salem NC	Item	$36,000	1	$36,000
Add New Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Salisbury NC	Item	$84,000	1	$84,000
Add New Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Albemarle NC	Item	$76,000	1	$76,000
Upfit Existing Reconfigurable Optical Add Drop Multiplexer (ROADM) Site, Polkton NC	Item	$115,000	1	$115,000

EXFO Network Monitoring System	Item	$60,000	1	$ 60,000
Generators to support Telecommunication Huts/Interconnect facilities in Clinton, Salisbury, and Albermarle	Item	$39,000	3	$117,000
HVAC to support Telecommunication Huts/Interconnect facilities in Clinton, Salisbury, and Albermarle	Item	$18,000	3	$54,000

11. Miscellaneous - Total $187,416, In kind $161,616

Internal Project Management Labor [redacted] – Labor estimate is for internal project management resources, who will provide overall support for project: timelines, milestones, meetings, resources, vendor management and reporting, utilizing Agile project management strategies.It is anticipated that over a two year period this work effort will amount to [redacted]

Internal Project Management Hut Construction Labor [redacted] – Labor estimate for internal facilities staff to provide oversight of the three telecommunications hut installations. Their responsibilities will include vendor selection, quality control, adherence to design plans, and inspection. It is anticipated that over a two year period this work effort will amount [redacted]

Crane Rental for Telecommunications Hut Placement ($25,800) – Crane rental fees for telecommunications hut delivered from factory to be placed on the sites in Clinton, Salisbury, and Albemarle, NC. Each site will have a separate crane rented at an estimate of $8,600/site for a total of $25,800.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Internal Project Management Labor	Cost per hour	[redacted]	[redacted]	[redacted]
Internal Project Management Hut Construction Labor	Cost per hour	[redacted]	[redacted]	[redacted]

Crane Rental for Telecommunications Hut Placement	Item	$8,600	3	$25,800

12. SUBTOTAL (sum of lines 1-11) - Total $18,606,660.90

13. Contingencies - Total $352,937

Construction Contingency ($352,937) – 3% of total estimated construction cost excluding the cost of fiber and conduit to allow for potential price increases as a result of inflation for other materials and contract labor.

Description	Unit Basis	Unit Cost	Number of Units	Total Cost
Construction Contingency	Item	$352,937	1	$352,937

14. SUBTOTAL (sum of lines 12-13) - Total $18,959,598

15. Project (program) income - $0

16. TOTAL PROJECT COSTS - Total $18,959,598