

Comprehensive Community Infrastructure **Budget Narrative Template**

WORKING DRAFT ONLY

Applicant Name: Executive Office State of West Virginia

EasyGrants Number: NT10BIX5570031

Organization Type: State Agency

Proposed Period of Performance: 3 Years

Total Project Costs: \$159,823,296

Total Federal Grant Request: \$126,323,296

Total Matching Funds (Cash): \$5,181,488

Total Matching Funds (In-Kind): \$28,318,512

Total Matching Funds (Cash + In-Kind): \$33,500,000

Total Matching Funds (Cash + In-Kind) as Percentage of Total Project Costs: 20.96%

1. Administrative and legal expenses - \$3,980,000

- Provide a breakout of position(s), time commitment(s) such as hours or level-of-effort, and salary information/rates with a detailed explanation, and additional information as needed.

To execute the grant, from an engineering, construction, and customer support perspective, the following positions are or will be in place.

- Two Customer Support Personnel @ \$75,000 for a total of \$150,000 will be employed during the height of the build. Office of Technology will employ these two employees.

*Cost for Support Personnel - \$150,000.

- Five Customer Support Personnel, accounting, LCR processing/tracking at \$40,000 for a total of \$200,000 will be employed during the height of the build. Office of Technology will employ these two employees.

*Cost for Accounting Support Personnel - \$200,000.

- Payroll for the above individuals is calculated by existing State of West Virginia position descriptions and salary amounts.
- Under customer care, noted as Field Support, is a single unit of 1 for a cost of \$275,000. This includes a pre-bid contract for work performed meeting the support of the grant such as engineers, technicians, etc.
 - Up to six (6) electronics technicians hired by Department of Health and Human Resources (DHHR) at approximately \$46,000 each for a total of \$275,000 that will work with programming, installation, etc.

*Cost for Field Support is - \$275,000.

Total cost for above personnel support is: \$625,000

At inception, the West Virginia (WV) grant was to incorporate a 3rd party validation process; however, the estimated cost as provided on a formal Expression of Interest review was expected to be between \$5,000,000 and \$7,000,000. The Grant Implementation Team, Office of Technology, and the Tower team agreed that we can accomplish this task and meet the intent for a significantly reduced cost. Although, in mid planning stage, following is anticipated cost associated with this effort. Some of the work may be via contract, some via new temporary hires, and some via in-house. Following are specifics relating to this “other” support. A grant compliance review may be included in the following schedule. The entire process may be from in-house, external, or a combination of resources.

- General Audit/Grant Validation (app 20% of sites) 1 @ \$175,000.
*Cost for this - \$175,000.
- High level engineering audit/validation/review (including tower, CAI, NRAO, and tower fiber to buildings): \$944,000 (likely via contract, either of individuals or a single company).
*Cost for this - \$944,000.
- Geospatial Information Systems (GIS) will be used to document the final project in areas such as miles of fiber, tower locations, placement of poles, underground cable and interconnect points. This effort requires two (2) individuals either by contract or temporary hires, at \$135,000 each for a total of \$270,000.

*Cost for this - \$270,000

Total for environmental audit, high level engineering and GIS (as noted above) is \$1,389,000.

External Evaluation/Compliance Review - \$ 1,861,000

- It is important to note that all personnel costs are either via existing contract or via new hires on State of WV payroll.
- All benefits incurred with this effort will be directly attributable to the grant. There will be no indirect cost associated with any contract, contractor, or employees paid by BTOP grant funds.

*Total cost in this area - \$3,250,000

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

One single source of cash match is applied at 100% in this area. Specifically it is power fees paid by the State of WV and will have detail in the form of invoices and pay documents to validate the amount paid.

*Total cost in this area - \$105,000.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

2. Land, structure, rights-of-way, appraisals, etc. – \$463,200

- Provide description of estimated costs, proposed activities, and additional information as needed.

* This cost is directly associated with the purchase of twelve (12) Firebond masonry buildings one each required at each tower site. (12 at \$38,600)

*Total cost in this area - \$463,200.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

3. Relocation expenses and payment - \$0

- Provide explanation for the relocation, description of the person involved in the relocation, method used to calculate costs, and additional information as needed.

*There is no cost in this area.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

4. Architectural and engineering fees - \$11,170,236

- Provide description of estimated fees, rates, explanation of proposed services, and additional information as needed.

* The cost associated with engineering include the twelve (12) tower engineering, including the microwave/antennae solution for the new and existing (95) towers, the interface between the towers and the overall IP network, design of the NRAO/WVU link, and the Community Anchor Institute connectivity.

- Specifically,

- The microwave tower engineering is directly associated with the two antennae and microwave dishes at each tower (existing and new [BTOP]).

*Cost in this area - \$267,500.

- The noted fiber engineering directly ties to the Community Anchor Institutes, the NRAO/WVU link, redundancy and interconnects.

*Cost in this area - \$909,720.

- The AVIAT cost is the actual cost directly relating to the tower design, and interconnectivity with the full network.

*Cost in this area - \$3,410,516.

- The cost associated with the project associates with fiber and micro wave tower build out, AUE costs, and general engineering oversight.

*Cost in this area – \$1,937,500

- Alexander Utility Engineering (AUE) received a bid State of WV contract that facilitates engineering of towers, connectivity, broadband/microwave interface, and environmental considerations. This company, via the state contract provides direct project engineering management, oversight, construction and environmental requirements. AUE receives \$4,645,000 for project management, oversight, construction, and environmental requirements.

*Cost in this area - \$4,645,000.

*Total cost in this area - \$11,170,236.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

5. Other architectural and engineering fees – \$7,407,800

- Provide description of estimated fees, rates, explanation of proposed services, and additional information as needed.

By nature, the execution of this grant requires significant architecture and engineering efforts. Incorporated in this portion of the funding are the design fees for each of the middle mile broadband nodes supporting the identified anchor tenants. Embodied within the overall system design (for the entire state) is the build out of twelve (12) additional towers, radios, microwave and additional related items that facilitate the operation of the microwave backbone. It must be noted that each tower site will have two associated microwave hops (incoming and outgoing) with related equipment. Safety requirements are also inherent within the architectural phase. This involves design of towers and related networks. Further, the grant requires an open architecture – effectively causing additional design and architectural fees to ensure compliance with the actual intent of the middle mile – that is to afford connection to all last mile requirements. Fiber build out is inherent with this middle mile grant and the design of fiber is especially difficult in West Virginia due to the mountainous terrain and geography. The State of West Virginia is continuing construction of its system as funds are available. Associated costs relating in Architectural and Engineering are for design, including architecture of towers, sizing, grounding, license of associated peripherals associated with towers and engineering efforts directly associated with the MPLS middle mile solution – to ensure the optimum success. For instance, an overall statewide architecture will dictate priority order (based on BTOP guidance) of both associated tower services and middle mile fiber solutions.

*This area includes professional service fees for:

| | |
|----------------------------------|--------------|
| General Engineering Support | \$3,750,000 |
| Fiber Build Out Oversight | \$ 825,000 |
| Environmental Assessment/Review | \$1,832,800 |
| Environmental Audit & Compliance | \$ 1,000,000 |

*Total cost in this area - \$7,407,800.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

6. Project inspection fees – \$0

- Provide description of estimated fees, rates, explanation of proposed services, and additional information as needed.

*There is no cost in this area.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

7. Site work – \$625,000

- Provide description of estimated fees, rates, explanation of proposed services, and additional information as needed.

This area (\$625,000) is estimated cost that may be necessary for any infra structure improvements that might be necessary due to the use of existing towers, existing buildings, and other improvements that often occur during this type of effort.

*Total cost this area - \$625,000.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

8. Demolition and removal – \$0

- Provide description of estimated fees, rates explanation of proposed services, and additional information as needed.

*There is no cost in this area.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

9. Construction - \$82,322,630

- Provide description of estimated fees, rates, explanation of proposed services, state whether the work is being completed by the applicant or an outside contractor, and additional information as needed.

* This category is for construction of the NRAO/WVU link, twelve towers, 1064 Community Anchors and fiber in selected sites.

This construction is the physical build out of the telecommunications portion using the MPLS contract of the overall statewide design. The microwave portion of the backbone requires construction of twelve (12) 300plus foot towers with sufficient grounding, concrete, support wiring, electrical connectivity, and so forth. Each tower has gigantic holes dug with concrete supports poured in each of the holes. Typically, the noted holes are five (5) ft in diameter and thirty-five (35) foot deep. Occasionally, the hole size may change depending on tower height, ground type (rock, shale, etc.), and terrain. This provides the foundational support for the towers. Portions of these costs are derived on experience from construction of previous microwave systems, towers, and MPLS build out. Many portions of the State's tower and microwave network that are either build or under construction are essential to the successful completion of the network.

* Corporate in this funding is 900 CAIs at \$35,500 per site (note some sites will have improved service with no cost in this area).
Total – \$31,950,000.

* The NRAO/WVU link cost estimate prepared by the sub-contractor is \$6,610,000.

* Directly related to the tower construction are cumulative costs of \$1,216,740.

Under Testing:

- The fiber buildout for CAI will be \$2,686,600.
- The Tower associated testing will be \$1,380,000.
- The NRAO/WVU testing will be \$125,000.
- The Redundant Switch testing/Eval will be \$225,000.
- Patch Cables will be \$10,875.
- As indicated on the Detail of Project Costs, under Testing – Lab is \$1,170,680
- Inside fiber connectivity at re-routing/tower sites will be approximately \$ 9,740 per site 7 sites at a total value of \$68,180.
- Special DMAC construction will be approximately 650 sites @ approximately \$9750 for a total of approximately \$6,337,500.

*Total cost in this area - \$51,780,575

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

The original budget submission indicated cash match from State of West Virginia in the form of 9-1-1 annual funding. This funding stream is expected to continue at \$1,500,000 annual for cash match (specifically tower section) to this grant. Using three years as a base for cash qualification, this provides \$4,500,000 as a cash match to construction.

It is important to note that this cash match amount may increase based on the following factors. . As disbursements are validated, documented, verified that the full amount is applicable to BTOP cash match, we expect the amount to increase. However, we will not show that amount until applicable spreadsheets and reasonable accounting and documentation so dictates.

The \$156,000 cash match (fees paid by tenants) is for three years (\$52,000 per year) funding from cash received for rental of tower space. This amount is not expected to decrease, in fact, most likely it will increase. As noted above, as we complete our CPA/accountant review, this number will change.

*Total cash match in this area - \$4,656,000.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

The in-kind match in this area is \$25,886,055 for existing 65 towers. We believe the full fair market value of the towers will exceed \$25,886,055. Based solely on age, a technical expert in the tower field conservatively estimated that the 65 towers will have a fair market value of \$398,247.00 each. A contract is under way that will provide a certified fair market value of the towers. After that review and subsequent documentation is provided, we will specifically match towers to the match with appraisal detail, GPS coordinates, etc. All towers are constructed to standards of high wind, FCC rules, etc. After the exact tower match is documented via the fair market value review, we will provide and place in the grant budget file exact specifications of the tower and provide same to NTIA. We fully expect the fair market value as determined by a qualified appraiser to be higher than the stated amounts; however, we chose to take a conservative approach in this area.

The noted towers are 340' self support, include a communications building, 20 kw generator (minimum), and 1,000 gallon propane tank w electronic tank monitor. None of the towers were purchased with federal funds.

The towers are an integral part of the state wide Interoperable Radio System and are in daily use supporting the system.

*Total in-kind match in this area - \$25,886,055.

*Total cost in this area – 82,322,630

10. Equipment - \$53,236,719

- Provide a list of equipment in the form of a table with description, number of units, unit cost, state whether it is being purchased or leased, and additional information as needed.

- Equipment cost is expected to be approximately \$53,236,719. This cost is based on actual contracts with minimal inflation cost built in. The routing and switching equipment provides the hardware and software solutions that ensure appropriate levels of broadband are distributed to the noted middle-mile pipes. The routing is necessary to ensure the proper network paths. Dependent upon the volume of traffic on a middle mile line, both structured and multi-path routing techniques are necessary. As this middle mile solution parlays to the last mile solutions (not included in this request), business processes of the anchor tenants becomes vastly dependent upon the broadband services; therefore correct routing is essential to ensure adequate performance while minimizing downtime.

The detail of project costs shows switches/routers for use at the NRAO/Greenbank line, the tower connectivity, and the community anchors. The separate item numbers are noted on the detailed sheet. Note that \$24,050,656 for CAI routers has been paid to the vendor. Following is a detail breakdown.

.....Microwave Tower Cisco 3560 switches Layer 3 Fast Ethernet Switches facilitating the Microwave connectivity broadband connectivity. (118 ea @ \$ 5,372 = \$ 633,896)

.....Microwave Tower Aggregation Services Router (WAN services) (ASR) (30 @ \$53,800 – \$ 1,614,000)

.....Greenbank/WVU ASR for WAN services (2 @ 226,000 = \$452,000)

.....Cisco 6513 routers for Greenbank/WVU (2 @ \$163,000 – \$326,000)

.....Cisco 3945 routers for CAIs (1064 @ 22,604.00 = \$ 24,050,656.00)

In the other (under network & access equipment category) we also show BTIC data connectors and essential UPS at a cost of \$51,516.

Radios for tower to tower connectivity will be approximately \$19,844,103.

Compatibility cards 4 per switch will be approximately \$210,000.

Each tower requires a single generator for a total of 12 generators @ 27,064.28= \$324,771.

Inherent within the confines of equipment are BTIC Data connectors (28) at a unit cost of 267.00 for a total cost of \$7,476.00.

For protection of the tower Microwave radios are UPS Battery Back Ups (120) at a unit cost of \$367 or a total cost of 44,040.

Peripherals and critical repair parts are shown under category other (under outside plant) for a total of \$2,739,320.

Hardware includes racks, surge protectors, etc. for an approximate total of \$540,000.

This category includes 1064 Cisco 3945 Routers at a total cost of \$24,050,656. This cost represents a significant cost avoidance to the overall grant in that, we were able to purchase top end switches at a cost comparable to a base line (suitable for today's use, but not future) with five (5) year warranty. Although, the overall funding impact is minimal, the realization is that the Cisco 3945 router will meet every need for the Community Anchors for the foreseeable future.

Hardware for generators, including electrical switching, electric cables, etc., is approximately \$18,000

*Total cost in this area - \$50,804,262

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

*There is no cash match in this area.

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

- This section includes \$2,432,457 for an interoperable switch used in the interoperable radio system in WV. This switch and the host radio system fully intertwine with the BTOP grant. The switch is being brought on line during the execution phase of the grant. Funding for the switch is from the WV State Police. The cash purchase price of the switch exceeded \$3 mil, and using depreciation of 10% for one year, the value of the switch now becomes a more than the \$2,432,457. To validate this as a fair consideration of value for the switch, we are having a fair market appraisal to be included in the budget package.

*Total in-kind cost in this area - \$2,432,457.

*Total cost in this area - \$ 53,236,719

11. Miscellaneous – \$617,711

- Provide additional information as needed.

This area indicates a requirement for a total of five vehicles, specifically during the height (12 – 14 months) of the construction/testing/environmental assessment portion of grant implementation. The following indicates primary use of the vehicles. Please note that the only use for these vehicles is direct BTOP efforts.

All vehicles will be 4 wheel drive.

Four vehicles will be field and tower support for direct construction efforts. These vehicles will be shared among DHHR grant employees for installation, testing, validation, and programming directly essential and included as construction.

One vehicle will be shared among Office of Technology direct grant employees used for field validation, testing, and validation of Community Anchor Institutions efforts directly related to construction.

The noted vehicles will be via a request for bid through local dealerships or via existing State of West Virginia vehicle lease policy and procedures.

Based on current date, the five vehicles will cost approximately a total of \$133,000.

Total cost for vehicles is \$133,000.

Noted in the category of miscellaneous are funds for travel and per diem. This is direct support to construction and constructed related and/or BTOP efforts.

.....Travel is calculated at 59750 miles at .51 per mile (as grant progresses, the miles and the mileage rate are subject to change) for a total for mileage of \$30,473.

.....Per diem is calculated at a total of 150 days at an average rate of \$75 per day (as grant progresses the number of days will likely change and the average rate will be adjusted) for a total for per diem of \$11,250.

Total cost for mileage and per diem is \$41,723.

Up to five employees may require purchase of new computers, cellular phones, printers, shared copier, etc for a total cost of \$22,500 All noted items will be exclusively for this BTOP grant operations and considered as direct cost.

*Cost for this - \$22,500.

Total cost for Miscellaneous - \$617,711.

- Provide detailed description, calculation, and basis of evaluation for each Cash Matching Funds source.

The original grant submission showed \$5,000,000 from the WV Legislature as cash.

1) Of that original stated \$5,000,000, \$420,488 was used for cash match.

2) This cash match now shows in Area 11 "Miscellaneous."

3) After the Broadband Council writes the rules (next 90 days) for last mile grant awards (of the original \$5,000,000), we will submit via formal correspondence to NTIA a request to ascertain if those rules are allowable for cash match on this grant. In the event that they are allowable, the cash portion of match will increase and we will take a reduction in in-kind.

- The cash match is for use of Kimball to assist in writing of the grant. This funding was provided by an allotment via the State of West Virginia.

*Total cash match this area - \$

- Provide detailed description, calculation, and basis of evaluation for each In-Kind Matching Funds source.

*There is no in-kind match in this area.

*Total cost in this area - \$.

13. Contingencies - \$0

- Contingencies are an unallowable expenditure under BTOP.

15. Project (program) income - \$0

- The value for this line-item on the SF-424C is \$0. Please do not provide an estimated Project (program income) on the SF-424C.

Addendum

- Very few indirect costs are allowable through BTOP. If any allowable indirect costs and/or fringe benefits are included in the budget, please provide a copy of your existing Negotiated Indirect Cost Recovery Agreement (NICRA), if available. If the NICRA is applied accordingly in the budget, there is no need to justify the costs. If a NICRA is not available or is not consistent with the rates/calculations in the budget, please provide an explanation of how the amounts were calculated. Please clearly list the manner in which indirect costs are calculated in the budget.

Note: Verify that indirects are calculated correctly and are eligible BTOP costs. To clarify, reasonable indirect costs under BTOP are only allowable for Full Time Employees (FTEs) associated with the construction, deployment, or installation of facilities or equipment used to provide broadband service.

N/A