NTUA ABDG-Rural Project Narrative

1. Project Description and Timeline

The nature of the improvements

The Navajo Tribal Utility Authority proposes to serve six (6) currently unserved community anchor institutions in Coconino County, Arizona. NTUA would extend its existing middle mile fiber network to four (4) community anchor institutions in Tuba City, Arizona, on Navajo lands. The community anchor institutions include the Coconino County Office Building, the Tuba City Public Library, the Navajo Nation Veterans Services Building and courthouse (police) building. For these four locations, NTUA would splice into their existing middle mile fiber network and construct last mile fiber laterals to these community anchor institutions. The last mile fiber laterals would be constructed underground, using NTUA's existing gas utility easements, modified to allow the placement of fiber cable.

In addition, NTUA and its majority owned subsidiary, NTUA Choice Wireless, will connect an additional two (2) community anchor institutions in Moenkopi on Hopi lands using point to point microwave connections from two existing towers in Tuba City, the Tuba City District Office tower and the Tuba City South tower. The Upper Hopi Administration building will receive a single hop connection directly from the Tuba City District Office tower, and the Lower Hopi Administration building will receive a two hop connection from the Tuba City District Office tower to the Tuba City South tower to the Lower Hopi Administration building. These point to point microwave connections will use licensed 18 GHz spectrum.

How the proposed project addresses the broadband needs of the area(s) that it serves

The proposed project will extend last mile fiber connections off of NTUA's existing middle mile network into four (4) Navajo community anchor institutions, and point to point microwave connections into two (2) Hopi community anchor institutions, all of which serve critical needs of the community. These community anchor institutions currently are unserved without access to reliable wireline broadband service. Currently wireline service is available only using DSL service delivered over obsolete twisted pair copper lines. Locally, DSL service is unreliable, oversubscribed, over reported and severely underperforming advertised speeds.

The proposed project will provide the Navajo connected community anchor institutions a fiber infrastructure capable of symmetrical Gbps service, with affordable and subsidized service tiers available. The Hopi community anchor institutions connected using point to point microwave will also be capable of receiving symmetrical gigabit service, with affordable and subsidized service tiers also available.

The effects of the coronavirus pandemic have been especially severe in the Tuba City and Moenkopi communities due to the housing density and reliance on an economy partly based on tourist traffic traveling throughout the Four Corners area, and the availability of improved broadband infrastructure at publicly accessible community anchor institutions will help provide improved community services such

as remote learning, telehealth and remote work opportunities. These community anchor institutions also provide public Wi-Fi hotspots using their underlying Internet service and these hotspots have been very heavily utilized since the onset of the pandemic and the broadband infrastructure will allow the capacity needed for those community members without Internet access due to lack of availability or affordability.

Number of community anchor institutions served

Six (6) community anchor institutions would be served.

Coconino County Board of Supervisor

[redacted]

Services Provided:

- Vital Records
  - Birth certificates
  - Death certificates (currently getting trained to provide)
- Income & Property Tax Support
  - Answer tax questions
  - Help understand county tax bills
- County Courts Support
  - Organize court hearings in Tuba City and do intake for that court session
  - Answer inquiries about court cases
  - Employment opportunities-
    - DES unemployment job search forms and submissions to DES
- Probation client support– help probation clients fax / email / scan documentation for proof of health classes to probation officer

Tuba City Community Library

[redacted]

10,000 visitors a month on a non-pandemic year.
Services Provided:

- Library Services
  - GED classes
  - Toddler time / story time
  - Adult Craft night - socialization
- Voting & Election Services
  - Polling Site
- Public Access to internet and PC use
  - Provide technical access: scanning, faxing,

    - Building resumes
    - Wi-Fi service outside the building
    - General access for the Public

Navajo Nation Western Agency Veterans Administration

[redacted]

Services Provided:

- Veteran's Services – open to all veterans (not just Navajo Nation)
    - Financial Assistance Programs
    - Housing Assistance
- Veterans' Computer Center –
    - Used primarily for job search
    - Command officers come in to prepare minutes / agendas,
- Working to set up Telehealth services before the start of the pandemic
    - Needed for reduced travel, access to patient care, etc.

Tuba City Judicial District

[redacted]

Services Provided:

- Judicial services
- Criminal and family court
- Peacemaking services and probation services to the communities of Bodaway-Gap, Cameron, Coalmine Canyon, Coppermine, Kaibeto, Lechee, Tuba City, and Tonalea
- Coconino County and Federal courts also utilize building for probation services

Upper Village of Moenkopi Administration

[redacted]

Local tribal government and council for the Upper Village of Moenkopi (Hopi Tribe).

Services Provided:

- Water utilities, waste management, and council support
- The administrative offices also provide public notary, fax and copy services

Lower Village of Moenkopi Administration

[redacted]

Local tribal government without a council. The Lower Village of Moenkopi practices the old ways of Hopi tradition and teachings and limits many outside influences. Many village residents live in old abode homes with no running water or electricity.

Services Provided:

- The Lower Village of Moenkopi administration building provides water for residents, community and cultural support and also serves as a communication hub for residents.

Number of households served

This proposed project is to connect six (6) community anchor institutions, four (4) on Navajo lands and two (2) on Hopi lands. The six (6) community anchor institutions together serve the entire communities of Tuba City and Moenkopi Arizona. As of the 2019 American Community Survey 5-year estimates there were 8,609 people and 2,674 households in the Tuba City census designated place.[1] As of the 2019 American Community Survey 5-year estimates there were 1,252 people and 379 households in the Moenkopi census designated place.[2] Directly and indirectly almost 3,000 households will be served by this project.

Number of businesses served

This proposed project is to connect six (6) community anchor institutions, four (4) on Navajo lands and two (2) on Hopi lands.

Total population served

This proposed project is to connect six (6) community anchor institutions, four (4) on Navajo lands and two (2) on Hopi lands. The six (6) community anchor institutions together serve the entire communities of Tuba City and Moenkopi Arizona. As of the 2019 American Community Survey 5-year estimates there were 8,609 people and 2,674 households in the Tuba City census designated place.[3] As of the 2019 American Community Survey 5-year estimates 1,252 people and 379 households in the Moenkopi census designated place.[4] The total population directly and indirectly served by the community anchor institutions is almost 10,000.

The anticipated economic development benefit achieved by construction of such improvements

Economic development benefit achieved by construction of improvements are anticipated to be primarily improved education opportunities, job training and access to telehealth services. The potential economic development benefits from improved job training and education can be very significant.

[1] https://data.census.gov/cedsci/table?q=tuba%20city&tid=ACSDP5Y2019.DP05
[2] https://data.census.gov/cedsci/table?q=monekopi&tid=ACSDP5Y2019.DP05
[3] https://data.census.gov/cedsci/table?q=tuba%20city&tid=ACSDP5Y2019.DP05
[4] https://data.census.gov/cedsci/table?q=monekopi&tid=ACSDP5Y2019.DP05

Total miles of fiber to be installed (if applicable)

Total miles of fiber to be installed is almost exactly two miles of last mile fiber laterals installed underground and spliced into existing middle mile fiber.

Location of new fiber (aerial, underground or both?)

Fiber will be installed underground in existing NTUA gas utility easements. Using existing easements, modified to allow the placement of fiber cable, will allow the construction to proceed in a timely manner and be completed within 24 months.

Stated commitment to operate and maintain the network for a minimum of five (5) years upon completion of the improvements

The Navajo Tribal Utility Authority commits to operate and maintain the network for at least five (5) years upon completion of improvements. NTUA will operate and maintain the network in perpetuity.

The party or parties that will perform the infrastructure construction (if known)

The underground construction and related tasks will be performed by NTUA employees.

The intended uses of the ABDG Rural/Urban funds in respect to the construction or planning

The intended use of ABDG funds for construction will include detailed engineering and construction ready drawings; underground construction using horizontal directional drilling, trenching with restoration, plowing and other means suitable for local conditions; materials including but not limited to conduit, fiber cable, hand holes, splice enclosures and customer premise equipment; conduit installation, fiber pulling or blowing, splicing, network test and turn up.

The specific information required under Section 1.4 (to the extent relevant)

- Providing 100/100 speeds

Broadband service to unserved areas will be achieved by the proposed project by connecting community anchor institutions directly by fiber to NTUA's existing middle mile network. The resulting fiber connections will allow the community anchor institutions to receive up to symmetrical 10 Gbps connections (depending on CPE), well above the baseline of symmetrical 100 Mbps service. The resulting point to point microwave connections will allow symmetrical gigabit speeds. Currently, the only available wireline service at the community anchor institutions is provided by Frontier Communications DSL service which is unreliable, oversubscribed, over reported and severely underperforming advertised speeds.

- Increase speeds to 100/100

The proposed infrastructure will provide new fiber infrastructure as an alternative to existing, unreliable DSL service. The new fiber infrastructure will be capable of providing service up to symmetrical 10 Gbps. The new point to point microwave connections will utilize the licensed 18 GHz spectrum and will be capable of providing symmetrical 100 Mbps service.

- Middle Mile Redundancy

The community anchor institutions will receive last mile extensions from NTUA's existing middle mile network. While this will greatly benefit the connected community anchor institutions, and will also benefit additional community anchor institutions and businesses passed as they will be able to receive low cost connections, these local last mile extensions won't contribute to increasing middle mile redundancy.

2. <u>Timeline for completion of the infrastructure improvements</u>

[redacted]

<u>Matching Funds</u>

- The timing of such match

NTUA will [redacted] for the project. Matching funds are available and approved for use on this project upon grant award.

- The intended uses of the match

Matching funds will be used to offset the cost of allowable project expenses such as detailed engineering, construction labor and materials.

- The identity of any sources other than the applicant who are responsible for such match or portions thereof

All of the matching funds will come from NTUA.

- The nature of the commitment by the Applicant or other parties to deliver the match including whether such commitment is in writing and binding in all circumstances

NTUA has attached to this application a signed Documentation of Commitment of matching funds.

Due to the rural nature of Tuba City and Moenkopi, and the limited operating budgets of the community anchor institutions included in the proposed project, in the absence of ABDG-Rural funding, the proposed project would not proceed within the same time frame or would not otherwise be as effective in advancing the objectives of the Program. In fact, without subsidy funding the proposed project would

likely not proceed at all. Community anchor institutions on Navajo lands and Hopi lands generally need subsidy funding for broadband infrastructure improvement projects.

3. <u>Project Description and Timeline – Development</u>

The proposed project will allow the connected community anchor institutions to offer improved online services to their communities. Many of the community anchor institutions offer computer access and Internet access and serve as a critical resource for online services unavailable at locations without Internet access, due to either service availability or affordability. The development and implementation of online programs for job training, education and telehealth will follow the deployment of broadband infrastructure.

The new broadband infrastructure will allow community anchor institutions to participate in and implement programs such as those provided by the Navajo Department of Workforce Development including their Occupational Skills Training (OST), Work Experience (WEX) program and Adult Basic Education (ABE) program[5], programs from the Navajo Nation Division of Economic Development including their Job Training Partnership Act (JTPA) program and Job Opportunity Basic Skills (JOBS) program,[6] and programs such as Coconino Community College's Career and Technical Education program as the community college offers certain training at the Tuba City Public Library.[7]

Connected Hopi lands community anchor institutions can offer improved access to the Hopi Tribe Adult Vocational Training Program, Vocational Rehabilitation Program and Workforce Innovation Opportunity Act Program.[8] All community anchor institutions can also offer improved public Wi-Fi access via hotspots located at these buildings based on the building's underlying Internet access service.

The improved infrastructure will also allow community anchor institutions to offer residents access to telehealth services available from the Indian Health Service (IHS) including two-way audiovisual links between patients and a health care provider as well as other telehealth services such as the IHS Teleophthalmology Program and Telebehaviorial program.[9]

- The nature and scope of the project

The Navajo Tribal Utility Authority proposes to extend its existing middle mile fiber network to four (4) community anchor institutions in Tuba City, Arizona, Coconino County, on Navajo lands. The community anchor institutions include the Coconino County Office Building, the Tuba City Public Library, the Navajo Nation Veterans Services Building and courthouse building. For these four locations, NTUA would splice into their existing middle mile fiber network and construct last mile fiber laterals to these community anchor institutions. The last mile fiber laterals would be constructed underground, using NTUA's existing gas utility easements, modified to allow the placement of fiber cable.

[5] https://www.ndwd.org/
[6] https://navajoeconomy.org/employment-and-training-programs/
[7] https://www.coconino.edu/ccc2work
[8] https://www.hopi-nsn.gov/tribal-services/department-of-education/hopiavtp/
[9] https://www.ihs.gov/telehealth/telehealthprograms/

In addition, NTUA will connect two (2) community anchor institutions in Moenkopi on Hopi lands using point to point microwave connections from two existing towers in Tuba City, the Tuba City District Office tower and the Tuba City South tower. The Upper Hopi Administration building will receive a single hop connection directly from the Tuba City District Office tower, and the Lower Hopi Administration building will receive a two hop connection from the Tuba City District Office tower to the Tuba City South tower to the Lower Hopi Administration building. The point to point microwave connections will use licensed 18 GHz spectrum.

- Type of technology to be utilized

Four (4) of the community anchor institutions will be connected to NTUA's existing fiber middle mile network with last mile fiber laterals and will utilize point to point carrier Ethernet technology. Two (2) of the community anchor institutions will receive point to point microwave connections using the 18 GHz licensed spectrum.

- Type of construction to be undertaken (aerial or underground)

The four (4) community anchor institutions receiving fiber connections will be connected using underground construction. NTUA would install underground fiber in their existing gas utility easements after the easements are modified to allow the placement of fiber cable. The two (2) community anchor institutions to receive point to point microwave connections would have microwave transceivers mounted to their rooftop or sidewall and corresponding microwave transceivers would be installed on three towers in Tuba City to deliver service.

- Qualifications of the vendors/contractors

NTUA will self-perform the underground construction and related tasks using their own employees. Microwave equipment installation will be coordinated with NTUA's majority owned subsidiary, NTUA Choice Wireless, which has vast experience with the installation of wireless equipment on towers and buildings.

Vendors for electronics and materials will be industry leading vendors of industry leading manufactures and materials will be procured soon after grant award with respect to the current supply chain issues and expanded lead times.

- Engineering analysis

NTUA has done a preliminary engineering analysis for both the underground construction and microwave installations including site visits to the four Tuba City community anchor institutions and a line of sight survey for the point to point microwave connections at the two Moenkopi community anchor institutions. This preliminary engineering analysis was necessary to accurately estimate project costs. Upon grant award NTUA will proceed with field engineering of the underground construction locations to determine best practices of installation method for each underground segment and to produce construction ready drawings.

- Project approach

NTUA would install underground last mile fiber laterals using their existing underground gas utility easements, modified to allow the placement of fiber cable. The time frame estimated for easement

modification is [redacted], which will allow ample time to complete the required construction including test and turn up. The microwave transceivers will be installed on existing vertical assets in Tuba City and on the Moenkopi community anchor institution buildings.

- Background of the project

Unserved Community anchor institutions in Tuba City and Moenkopi have long suffered with insufficient broadband capacity to serve their communities. Each of the six (6) community anchor institutions proposed to be served in this application have experienced insufficient Internet access to provide for the needs of their communities. While the public library offers access to computers and the Internet, in addition to many other online services such as job training in association with Coconino Community College, many of the other community anchor institutions also offer public Wi-Fi access using their underlying Internet connections. These public Wi-Fi hot spots have been very heavily utilized since the onset of the pandemic and the current service levels available at these locations, based on DSL service delivered on ancient, twisted pair copper lines, is not adequate for the demand or critical nature of the service.

- Population to be served

This proposed project is to connect six (6) community anchor institutions, four (4) on Navajo lands and two (2) on Hopi lands. The six (6) community anchor institutions together serve the entire communities of Tuba City and Moenkopi Arizona. As of the 2019 American Community Survey 5-year estimates there were 8,609 people and 2,674 households in the Tuba City census designated place.[10] As of the 2019 American Community Survey 5-year estimates 1,252 people and 379 households in the Moenkopi census designated place.[11] The total population directly and indirectly served by the community anchor institutions is almost 10,000.

- Number of households served

This proposed project is to connect six (6) community anchor institutions, four (4) on Navajo lands and two (2) on Hopi lands. The six (6) community anchor institutions together serve the entire communities of Tuba City and Moenkopi Arizona. As of the 2019 American Community Survey 5-year estimates there were 8,609 people and 2,674 households in the Tuba City census designated place.[12] As of the 2019 American Community Survey 5-year estimates 1,252 people and 379 households in the Moenkopi census designated place.[13] Directly and indirectly almost 3,000 households will be served by this project.

- Number of anchor institutions served

This project would serve six (6) currently unserved community anchor institutions.

- Number of businesses served

[10] https://data.census.gov/cedsci/table?q=tuba%20city&tid=ACSDP5Y2019.DP05
[11] https://data.census.gov/cedsci/table?q=monekopi&tid=ACSDP5Y2019.DP05
[12] https://data.census.gov/cedsci/table?q=tuba%20city&tid=ACSDP5Y2019.DP05
[13] https://data.census.gov/cedsci/table?q=monekopi&tid=ACSDP5Y2019.DP05

This project would serve six (6) currently unserved community anchor institutions and will not directly connect business. However, some businesses may be able to receive fiber connections at reduced cost based on their proximity to the new last mile fiber laterals.

- Ways in which the project will improve redundancy and reliability

The unserved community anchor institutions proposed to be served by this project can, if they choose to, keep their existing though inadequate Internet access service to improve network redundancy. The network reliability of both a fiber based network and a point to point microwave network will be an improvement over the network reliability of a DSL network using ancient twisted pair telephone wires.

[redacted]

3. <u>Other Project Outcomes</u>

The proposed project to connect six (6) currently unserved community anchor institutions, four (4) by connecting them with about two miles of underground fiber and two (2) with point to point microwave connections, will benefit not only the particular community anchor institutions but the community at large due to the fact that many of the community anchor institutions use their underlying Internet connection to power Wi-Fi hotspots located at the community anchor institution buildings. These Wi-Fi hotspots have been very heavily utilized since the onset of the coronavirus pandemic and have provided poor performance due to the insufficient bandwidth of the underlying Internet connection and heavy utilization. Utilization has included distance learning as students attempt to participate in remote programs and practice social distancing, telecommuting as remote workers have been unable to work from their normal office locations, and telehealth appointments which have become increasingly available since the onset of the pandemic.

The current capacity of these community anchor institution based Wi-Fi hotspots is inadequate for the current and anticipated future demand.

Type	Project	Applicant	GEOID
Rural	Coconino County CAIs	NTUA	04005944900
Rural	Coconino County CAIs	NTUA	04005945200