BROADBAND ACCELERATION GRANT OPPORTUNITY

TECHNICAL PLANNING GUIDE

Application Window: Dec. 7, 2020 - Jan. 7, 2021
Intent to apply due: Dec. 11, 2020

Kansas
Office of Broadband Development

The Technical Planning Guide is intended as a resource for potential applicants to develop grant submissions for the Kansas Broadband Acceleration Grant opportunity.

The Broadband Acceleration Grant application includes three primary sections: Project Proposal, Technical Project Plan and Financial/Budget components. This document was developed based on the Broadband Acceleration Grant Guidelines and follows the flow of the online application submission portal which opened on Dec 7, 2020. The application submission portal will close at NOON on January 7, 2021.

The guide outlines required information and documents requested as part of the grant application process, including documents that WILL be posted for a Public Comment period. As with any complex project application, ***applicants should pay close attention to submit the FILE TYPES requested as well as the NAMING CONVENTIONS for submitted files***. Ensuring these conventions are followed will help ensure project documents requested are received correctly and a succinct project evaluation and review process is conducted. Applicants are encouraged to use the templates provided for submission, although they are not required, applicants should ensure that ***all*** of the requested information is submitted in a concise, redistributable manner.

Thank you in advance for the commitment to engineer, document and submit these technical project documents that provide a clear scope for each project and elicit confidence in the broadband investment the state of Kansas is making.

SECTION ONE: GENERAL PROJECT INFORMATION

- Project contact information
- Project Name (Organization Name + Geographic Identifier)
- Proposed Target Reach
    - Unserved area: Defined as a designated geographic area in which households or businesses are without a fixed, terrestrial connection supporting at least 25 Mbps download and 3 Mbps upload speeds.
    - Economically Distressed area: An area is economically distressed if it has a per capita income of 80 percent or less of the national average, or if it has an unemployment rate that is, for the most recent 24-month period for which data are available, at least 1 percent greater than the national average unemployment rate. View: StatsAmerica.org (http://www.statsamerica.org/distress/)
- Request Grant Amount
- Total Project Amount
- Counties in the Proposed Service Area
- Cities in the Proposed Service Area
- Proposed Infrastructure Type
- Proposed Download/Upload Speed
- Number and Type of Locations Proposed to be Served
    - Households
    - Education Institutions
    - Healthcare Organizations
    - Businesses
    - Municipal Organizations
    - Libraries
    - Total Community Anchor Institutions

SECTION TWO: PROJECT PROPOSAL

Project Proposal *PUBLICLY POSTED*

- Upload fillable PDF provided. NAMING CONVENTION: OrgName_GeographicIdentifier_PublicProposal

Please include responses:

1. An executive summary of the project.
2. A description of the location (City(s), County(s), etc.), proposed service areas, partners involved and anticipated improvements.
3. Goals of the project and community need to address including whether the proposed area is unserved or economically distressed or what the compelling need is, if served.
4. The proposed infrastructure and access improvements planned, including the number of proposed connected premises and community anchor institutions, businesses, or other organizations and the recipients to be served by the project.
5. The short and long-term investment benefit to the community and service area proposed.

GIS Map of Proposed Service Area *PUBLICLY POSTED* An annotated map including routing and if wireless, RF prediction map depicting the location of transmitter, its footprint and a map legend.

Acceptable file types: .ZIP

IMPORTANT: This file MUST be in KMZ or KML format and UPLOADED AS A ZIP File.

1. FIBER Public Map (KMZ or KML): Provide a public facing map that only depicts the proposed hardline routing (coax or fiber) to be funded by the grant.

   NAMING CONVENTION: OrgName_GeographicIdentifier_PUBLIC_FIBERMap

2. FIXED WIRELESS PUBLIC MAP (KMZ or KML): Provide an RF prediction map depicting the location of the transmitter and its footprint. The map should only indicate coverage areas where -78dBm or better is met.

   NAMING CONVENTION: OrgName_GeographicIdentifier_PUBLIC_FixedWirelessMap

3. MOBILE WIRELESS Public Map (KMZ or KML): Provide an RF prediction map depicting the location of the transmitter and its footprint as follows. Map should only indicate coverage areas where -102dBm or better is met.

   NAMING CONVENTION: OrgName_GeographicIdentifier_MobileWirelessMap

PROJECT JUSTIFICATION & EVIDENCE OF NEED

Project Justification [Text Box]

Provide a narrative to justify the need for this project and relevant data indicators to support the effort. Provide evidence to make a compelling case for project relative to the proposed service area. This information should include:

1. A description of the proposed service area, including whether the area is unserved or economically distressed, or if a specific compelling need exists.
2. A description of the evidence that demonstrates the need for the project.

Evidence of Need [Upload]

Please upload evidence that demonstrates the proposed service area lacks minimally adequate access. Combine multiple files into one PDF or ZIP file. Eligible evidence includes, but is not limited to:

a. Survey data for a majority of consumers in the designated area

b. Documentation of existing infrastructure attributes indicating eligibility

c. Documentation from website of reported service provider stating that service is not available in proposed project area

d. Data from the most recent FCC Form 477 data set

e. Letters from residents, community representatives and other stakeholders that attest to a lack of minimally adequate broadband service (for residential areas, at least 25/3 Mbps).

f. Data may be in .pdf, .doc, .xls or other commonly available format. Multiple documents should be combined into a single .zip or .pdf file

NAMING CONVENTION: OrgName_GeographicIdentifier_EvidenceData

Economic and Community Impact [Text Box]

Please describe any community partners associated with the projects' planning, promotion, adoption, or use. Describe each party's commitment and role in the project. Include any community anchor institutions (CAI) such as municipalities, chambers of commerce, economic development organizations, educational institutions, healthcare organizations, libraries, public safety or other CAIs along with business, non-profits and other community stakeholders.

Community Partners: Letters of Support [Upload]

Please provide letters of support from Community Partners. For multiple partners, pleasecconsolidate into a single PDF or .zip file.

NAMING CONVENTION: OrgName_GeographicIdentifier_CommPartners

Adoption [Text Box]

Please describe any activities planned to increase adoption awareness. Please describe any resources the applicant will be contributing to the adoption efforts. Include digital literacy training, marketing campaigns, surveys, low-cost service options, etc.

SECTION THREE: TECHNICAL PROJECT PLAN

Proposed service area include non-contiguous areas more than 10 miles apart [Y/N]

If Yes, provide an explanation of how the economic and community impact is the same for the proposed areas. [Text Box]

Technical Project Summary [Upload Template Provided]

Provide a technical summary of the proposed project.

To include:

1. An overview of the proposed improvements and scope of the project that clearly demonstrates preliminary plan completion, outlines a comprehensive understanding of the project and a solution capable of addressing the need.
2. In terms of infrastructure installation, explain why this area was chosen for the project and is unlikely to be served without grant funding.
3. Include an explanation of terrain, population density or other factors contributing to the overall cost of the project.
4. Include the service level options, including latency the project is intended to provide.

NAMING CONVENTION: OrgName_GeographicIdentifier_TechProjectSummary

Density per square mile of the proposed service area [Drop Down]

Project Partners [Text Box]

Describe any partners or subcontractors associated with the project's deliverables related to deployment and service delivery, including each partner's role in the project. (Text Box, limit characters).

Project Partners: Letters of Support [Upload]

Please upload letters of commitment or support from each project partner and subcontractor, if available. Please combine multiple letters into a single .pdf or .zip file.

NAMING CONVENTION: OrgName_GeographicIdentifier_ServicePartnerLetters

Internet Access & Affordability [Text Box for each of the following]

1. Provide details relative to the proposed service offerings, fees and subscriber assistance.
2. Provide the service and pricing levels to be offered in the proposed project area (service level/tier, monthly pricing).
3. Outline any limitations on data usage (e.g. data caps, reduced speeds, etc.)
4. Detail one-time fees for subscribers (including installation costs, equipment, etc)
5. What low-income subscriber assistance is available?

Note: Grantee is expected to offer service at the pricing levels indicated in the proposed areas for a minimum of three (3) years following close of the contract.

Existing service provider information, current service provider [Y/N]

If Yes, list the current service provider(s) in the proposed area, the type of service offered and upload/download speeds available.

If No, have you operated in or near the geographic area proposed to be served? [Y/N]

If Yes or No, list the current service provider(s) in the proposed area, the type of service offered and upload/download speeds available.

Network Architecture Plan [Upload]

Please provide a comprehensive high-level, network architecture plan for the project and upload a single PDF or ZIP file. Applicants may include engineering sign off, or additional supporting documents. Please combine multiple files into a single PDF file or a ZIP file.

NAMING CONVENTION: OrgName_GeographicIdentifier_NetworkArchitecture

Project Plan - Milestones [Upload]

Please upload a project plan in XLS or PDF format that includes details relevant to each stage of the project and milestones for each phase of the project, cover the entire project period and align to the proposed project budget. Though not an exhaustive list, the plan should incorporate the following:

1. Preconstruction Planning - Engineering
2. Permitting - Leasing - Licensing
3. Construction
4. Equipment Installation
5. Project Implementation
6. Adoption and Marketing Outreach
7. Operational Validation Plan

Consolidate multiple files into a single PDF or ZIP file. A template is posted online if desired.

NAMING CONVENTION: OrgName_GeographicIdentifier_ProjectPlan

Technical Infrastructure Proposed: [Select One]

A. Fiber to Curb
B. Fiber to Premise
C. Fixed Wireless
    - Backhaul
D. Mobile Wireless
    - Backhaul

If option A. Fiber to Curb or B. Fiber to Premise Is chosen above:

TECHNICAL INFRASTRUCTURE PROPOSED: FIBER

1. Provide a detailed description of the proposed fiber project as proposed [Text Box]
2. In addition to the PUBLIC MAP provided earlier, provide a detailed PRIVATE/PROPRIETARY map in KMZ or KML UPLOADED AS A .ZIP file. Please provide a KMZ or KML map of the project (UPLOAD AS ZIP) to include:
    - o Routes of all new plant to be funded by the grant
    - o Existing plant (coax or fiber) feeding the proposed build out
    - o On the map, please delineate which portions are new or existing
    - o Point connections
    - o Delineate routing between types: coax and fiber
    - o Please identify the map is private/proprietary

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_FIBERMap

PROVIDE A FIBER EQUIPMENT SPREADSHEET (XLS) to include the following: [Upload]

- o Typical equipment used: include manufacture and model number
- o Head end
- o Access gear
- o Cabinets

NAMING CONVENTION: OrgName_GeographicIdentifier_FIBEREQUIP

IF OPTION C. Fixed Wireless Is chosen above:

TECHNICAL INFRASTRUCTURE PROPOSED: FIXED WIRELESS

1. Provide a technical overview of the fixed wireless solution proposed [Text Box]
2. FIXED WIRELESS PROJECT MAPS: [Upload] In addition to the PUBLIC Project Map uploaded earlier, please provide the following KMZ or KML project maps for the fixed wireless project proposed. These PRIVATE/PROPRIETARY maps should be labeled as such.
    1. FIXED WIRELESS PROJECT MAPS *PROPRIETARY* Internal Review only (KMZ or KML):
        i. SERVICE AREA MAP: Provide a polygon of the desired geography to be covered by the project. The map should only include areas where -78dBm or better is met. Map should also include:
            - Points inside the polygon of all CPE locations for fixed wireless connectivity
            - Points for the locations of base station equipment.

        NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_ServArea

ii. RF PREDICTION MAP: Provide an RF prediction map depicting the location of the transmitter, its footprint, and a map legend. Use an RSSI scale of -70dBm, -80dBm, -90dBm. Map should also include:

- Base stations
- Where CBEs are located in RF coverage
- Basic antenna orientation

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_RFPredict

iii. BACKHAUL MAP (KMZ or KML)

A. Point-to-Point (PTP) Backhaul: In Google Earth, draw in the points of each PTP link for review.

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_BackhaulPTP

B. FIBER Backhaul map should include:

- Routes of all new plant to be funded by the grant
- Point connections
- Delineate routing between types if needed: coax and fiber

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_BackhaulFiber

Please provide a FIXED WIRELESS Equipment Spreadsheet (XLS) with worksheets for the RF Equipment, Customer Premise Equipment (CPE) and Backhaul equipment relative to the proposed project to include the details outlined below.

NAMING CONVENTION: OrgName_GeographicIdentifier_FixedWirelessEQUIP

1. Please provide a RF data worksheet to include:
   a. Base station equipment
      i. Manufacturer
      ii. Model Number
      iii. EIRP
   b. Base station antenna information
      i. Manufacturer
      ii. Model number
      iii. Azimuth
      iv. Down tilt
      v. Center Line
2. Please provide a Customer Premise Equipment (CPE) worksheet to include:
   a. A standard CPE configuration to be used in the project. Include manufacturer and model numbers.
   b. CPE antenna information including:
      i. Manufacturer
      ii. Model number
      iii. Center line
      iv. Gain of antenna

3. Backhaul Equipment worksheet to include equipment appropriate to the backhaul. Please identify the type of Backhaul by the worksheet label (BackhaulPTP or Backhaul).
    a. Backhaul- Point To Point (PTP) Equipment worksheet to include every PTP link location
        i. PTP Radio Equipment
            1. Manufacturer
            2. Model number
        ii. PTP Antenna information
            1. Manufacturer
            2. Model number
            3. Azimuth
            4. Down tilt
            5. Center line
    b. Backhaul-Fiber Equipment worksheet to include
        i. Typical equipment used including manufacturer and model number
        ii. Head end
        iii. Access Gear
        iv. Cabinets
4. Please define the clutter terrain resolution utilized in the RF predictions: (Select option)
    - 30m
    - 10m
    - 1m
    - 3D
    - Other
5. Provide projected capacity per base station expectations (Text box)
6. Provide projected/designed subscription throughputs (Text box)
7. Provide oversubscription ratios (Text Box)
8. Describe the Mimo allocation (Drop down)
    - 2x2
    - 2x4
    - 4x4
    - Other

IF OPTION D. Mobile Wireless Is chosen above:

TECHNICAL INFRASTRUCTURE PROPOSED: MOBILE WIRELESS

Please provide a technical summary of the mobile wireless solution proposed:

MOBILE WIRELESS MAPS: PROJECT MAPS REQUIRED (Private/Proprietary) (KMZ or KML format). Please upload a Service Area Map, an RF Prediction Map and a Backhaul Map as outlined. Upload these as a SINGLE ZIP FILE using the naming convention provided.

a. SERVICE AREA MAP: Provide a polygon of the desired geography to be covered by the project. The map should only include areas where -102dBm or better is met. Map should be noted as proprietary and include:

   i. Points inside the polygon of all CPE locations for fixed wireless household connectivity

   ii. Points for the locations of base station equipment.

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_ServiceArea

b. RF PREDICATION MAP: Provide an RF prediction map depicting the location of the transmitter, its footprint, and a map legend. Use an RSRP scale of -92dBm, -102dBm, -106dBm. Identify this map as proprietary. Please include:

   i. Base stations

   ii. Where CBEs are located in RF coverage

   iii. Basic antenna orientation

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_RFPrediction

c. BACKHAUL MAP

   i. If Point to Point Backhaul (KMZ or KML):

      • In Google Earth, draw in the points of each PTP link for review. Format must be .kmz or .kml.

NAMING CONVENTION: OrgName_GeographicIdentifier_PRIVATE_BackhaulPTP

MOBILE WIRELESS Equipment Spreadsheet (XLS)

Provide a Mobile Wireless Equipment Spreadsheet File with the following worksheets: RF Base station equipment and the Backhaul equipment. Upload as a single spreadsheet.

NAMING CONVENTION: OrgName_GeographicIdentifier_MobileWirelessEQUIP

RF data worksheet should include:

A. Base station equipment

- Manufacturer
- Model number
- EIRP

B. Base station antenna information

1. Manufacturer
2. Model number
3. Azimuth
4. Down tilt
5. Center line

Backhaul Equipment worksheet to include equipment appropriate to the backhaul proposed:

A. Backhaul- PTP Equipment worksheet to include every PTP link location

- PTP radio equipment
  - Manufacturer
  - Model number
- PTP Antenna information
  - Manufacturer
  - Model number
  - Azimuth
  - Down tilt
  - Center line

B. Backhaul-Fiber Equipment worksheet to include

- Typical equipment used including manufacturer and model number
- Head end
- Access Gear
- Cabinets

NAMING CONVENTION: OrgName_GeographicIdentifier_MobileWirelessEQUIP

Provide description of engineered hand-off levels in RSRP. (Text box)

Please describe channel size (5-80) (Text box)

Provide projected capacity per base station expectations (Text box)

Provide oversubscription ratios (Text box)

Describe the Mimo allocation (Drop Down)

d. 2x2

e. 2x4

f. 4x4

g. Other

Please upload any additional technical reports, predictions, or documents relative to the project important to technical consideration or the review process. If multiple files, please consolidate into a single PDF or ZIP.

NAMING CONVENTION: OrgName_GeographicIdentifier_TechnicalAttachments

Scalability [Upload]

Please upload evidence to demonstrate scalability and capabilities of the proposed project's technology. Include current technology levels, ability to upgrade and latency levels.

NAMING CONVENTION: OrgName_GeographicIdentifier_Scalability

SECTION FOUR: FINANCIAL - LEGAL

Budget Narrative Summary (Text Box)

Please provide a budget summary for the proposed project.

Project Budget and Bill of Materials [Upload]

Upload a project budget and bill of materials per the appropriate infrastructure template (Fiber or Wireless) . A fillable .pdf template is available online. All applicants must complete and submit a Budget Template, which includes the associated bill of materials and incorporates the 50% matching requirement. The 50% budget match is a requirement for receiving a grant award. Submissions that do not have a minimum of 50% match may not be reviewed.

NAMING CONVENTION: OrgName_GeographicIdentifier_Budget

Profit & Loss Statement [Upload]

Potential grantees are required to upload a current profit-loss statement.

NAMING CONVENTION: OrgName_GeographicIdentifier_FinancialStatement

50% Match Requirement Verification [Upload]

Applicants must provide a letter from their financial institution that verifies the 50% match requirement can be met.

Matching funding include In-Kind Match (Y/N)

If Yes, Upload documentation that validates the in-kind match being submitted with the project. Please combine multiple files into one PDF or .zip file.

NAMING CONVENTION: OrgName_GeographicIdentifier_In-Kind.

NOTE: In-kind match valuations must not exceed 50% of the 50% required project match.

All claims for reimbursement for in-kind contributions will be analyzed using criteria similar to the program descriptions available here, and that claims for in-kind contributions should be reasonable. Kansas Office of Broadband Development and Kansas Department of Commerce will ultimately have the discretion to determine if an in-kind contribution is acceptable or not.

Acknowledgements (Check each)

- The proposed project adheres to federal and state rules and regulations including NESC
- The proposed project meets the 50% Matching Requirement
- The proposed In-Kind match is subject to KDC and OBD approval
- Applicant acknowledges the final grant payment of 25% requires operational project validation
- Applicant agrees to provide required Kansas Department of Commerce legal agreements
- Applicant commits to agency reporting, audit, evaluation and on-site monitoring requirements
- Applicant acknowledges the proposed project will be constructed, installed and operational by February 28, 2022.
- Applicant acknowledges the grantee is expected to offer service at the pricing levels proposed for the project area for a minimum of 3 years following project closeout.
- Applicant commits to provide service data for state of Kansas mapping analytics

All information, additional resources, upload templates, contact information, and the application link for the Broadband Acceleration Grant program may be found at kansascommerce.gov/program/community-programs/broadband-acceleration-grant/.

STATE OF KANSAS COLLABORATION

For projects along Kansas Highways, we recommend applicants pursuit coordination with the Kansas Department of Transportation's DigOnce Initiative by contacting Mike Floberg, KDOT Director of Innovative Technologies at Mike.floberg@ks.gov