ConnectMT Program

Performance Testing and As-built Requirements

This document details the ConnectMT program's performance testing and as-built requirements. It may not be inclusive of all closeout requirements specified in the subrecipient's Montana Department of Administration ARPA Broadband Service Grant Agreement; subrecipients should therefore review their agreements to ensure they meet all requirements.

1 PERFORMANCE TESTING

Performance testing: Subrecipients will conduct performance testing and submit test results to DOA according to the following process:

- DOA will select locations within the subrecipient's project area for performance testing. DOA will identify a minimum of ten (10) locations within the project area where the applicant has confirmed **active subscribers**.
- The subrecipient will conduct speed and latency tests for each location selected by DOA
- Tests will be conducted, at a minimum, once per hour from 6:00 PM to 12:00 AM, for a minimum total of six tests per location
- Tests will be conducted from the premises of the selected **active subscribers** to a remote test server located at, or reached by passing through, an FCC-designated Internet exchange point (IXP), which is any building, facility, or location housing a public Internet gateway that has an active interface to a qualifying Internet Autonomous System (ASN)[1]
- Subrecipients must notify DOA in writing of the completion of testing on the same day testing is completed. Subrecipients must submit test results to DOA as soon as possible, but no later than three calendar days after testing is completed.

[1] More information about acceptable test paths and remote server locations is available at https://www.usac.org/wp-content/uploads/high-cost/documents/Tools/PMM-Test-Paths-and-Remote-Server-Locations-1.pdf. Qualifying ASNs are listed in Appendix B of *Connect America Fund*, WC Docket No. 10-19, Order on Reconsideration, 34 FCC Rcd 10109 (2019), which can be found at https://docs.fcc.gov/public/attachments/FCC-19-104A1.pdf.

- Test results must conform to the following Performance Testing Specifications:
  - At least 80% of the speed test results must be at a minimum of 80% of the speed tiers committed to in the subaward agreement for upload and download
  - At least 95% of latency measurements must be at or below 100 milliseconds round-trip time
  - If none of the locations selected by DOA subscribes to a top-tier speed offering, the subrecipient will include testing at a location that does subscribe to a top-tier speed offering. If there are no locations within the project area that subscribe to the top-tier service offering, the subrecipient will upgrade one of the locations selected by DOA temporarily to allow for testing at the top-tier speed.

2 "AS-BUILT" TECHNICAL DOCUMENTATION

"As-built" technical documentation that verifies project completion and demonstrates that the deployed infrastructure, service area, and equipment match those in the subaward agreement and are capable of delivering the minimum proposed speeds as described in the application and the subaward agreement consistently to all potential customers in the project area. ConnectMT subrecipients will perform field markups of engineering/as-built drawings during construction or repairs. All such documentation shall be provided to DOA and any designated engineering personnel so that DOA's as-built documentation may be accurately maintained. Subrecipients must identify any differences between the network design in the application and the subaward agreement and the "as-builts," and explain the reasons for the differences and any impacts or changes to the project budget in the subaward agreement as a result of these differences. Subrecipients must also validate the performance characteristics of any deployed infrastructure and equipment that differs from the specifications in the application and subaward agreement.

- As applicable, the as-built drawings, documentation, and GIS data shall identify the location of any underground plant attributes on the engineering drawings. For all handholes, provide precise latitudinal and longitudinal coordinates and offset measurements (relative to the edge of the pavement, curb, landmarks, etc.). For underground conduit, provide depth and offset measurements validated at intervals of no greater than 50 feet.

- As applicable, the as-built drawings, documentation, and GIS data shall identify any aerial plant attributes necessary to validate that all cable attachment heights adhere to the applicable pole attachment agreement and licenses as well as ensuring that the installation has followed the engineering drawings. Sequential cable footages shall be documented for all fiber optic cable installed. These footage markings shall be documented at the “beginning” and “ending” points for each pole, handhole, and slack loop throughout the entirety of the cable segment.
- As applicable, the as-built drawings, documentation, and GIS data shall identify any wireless network attributes necessary to validate that the network adheres to the design. These attributes include base station locations, antenna heights, make and model of base station equipment, antenna gain, frequency bands used, RF signal maps in GIS format in each frequency band, locations able to be served, backhaul configuration, and calculations of available upstream and downstream capacity taking into account line-of-sight and oversubscription.
- As applicable, the as-built drawings, documentation, and GIS data shall identify all fiber routes that the Subrecipient has made available for open access. Total strand count made available for open access shall be identified and documented throughout the entirety of each cable segment. Network access points shall be identified.
- As applicable, the as-built drawings, documentation, and GIS data shall identify all locations where the subrecipient offers colocation of existing and new facilities for public safety communication networks. Provide the building or telecom hut footprint along with an estimated quantity of available colocation space (i.e., number of equipment rack RUs).
- As applicable, the as-built drawings, documentation, and GIS data shall identify all locations where the subrecipient offers new internet access or a connection increase to an unserved or underserved health care facility location or community anchor institution that provides telehealth services. Provide the building footprint along the official name of the facility offered new internet access.
- As applicable, the as-built drawings, documentation, and GIS data shall identify all locations where the subrecipient offers to provide a community center to with free new internet access. Provide the building footprint along the official name of the facility offered free new internet access.