

ALLEGHENY INTERMEDIATE UNIT
ALLEGHENY CONNECT REGIONAL WIDE AREA NETWORK CONSORTIUM RFP
APPENDIX B
SPECIAL CONSTRUCTION TECHNICAL SPECIFICATIONS
TESTING PLAN SPECIFICATIONS

The Vendor must adhere to the following construction requirements if their proposal includes special construction costs.

Project Management

- Selected Vendor and its subcontractors will provide all project management to accomplish the installation of all project work as outlined in the Statement of Work.
- Provide engineer(s), with a vendor-neutral certification such as BICSI on selected fiber system specifications and procedures to manage all phases of the project as outlined in this proposal. This includes ordering and managing the bill of materials as outlined below, directing and managing cable placement and restoration, directing and managing splicing crews and providing detailed documentation at the end of the project.
- Awarded Vendor, in conjunction with subcontractors, will develop a project management plan, which will include a milestone chart. The milestone chart will outline any critical path events and then track these with the appropriate agency/organization whether; selected Vendor, a selected Vendor, sub-Vendor or Allegheny Intermediate Unit on behalf of the Consortium. The documents must be available electronically to Allegheny Intermediate Unit technical staff.

Material Management

- Selected Vendor and its subcontractors will provide all material management to ensure that the project remains on track according to the project milestones.
- Selected Vendor and its subcontractors will develop in conjunction with selected Vendor plants and other suppliers a material management plan.

Property Restoration

- All cable routes, which are plowed or bored, will be restored to as near to original condition as possible.

Install Overhead and Underground Fiber Optic Cable

- Bores will be approximately 3' deep
- Plows will be approximately 3' deep
- Respondent will be solely responsible for applying for and obtaining pole attachment permits and rights for aerial fiber installations.
- For buried installs, Vendor will procure and install customer approved hand-holes and place marker/locator posts.
- Allegheny Intermediate Unit on behalf of the Consortium will provide entry/exit holes into buildings where they exist. Respondent should provide a quote for entry/exit holes/conduit construction where entry/exit does not exist.

Install and Splice Hardware at Head Ends and in the Field

- Install optical hardware and splice field cable to equipment tail at head ends and splice tail to pre-stubbed hardware with SC pigtails.
- Prep closures, cables, fibers and splice fibers at all field locations
- Fiber to fiber fusion splicing of optical fibers at each point including head ends.
- Individual splice loss will be ≤ 0.10 dB for single mode unless after 3 attempts these values cannot be achieved, then the fibers will be re-spliced until a splice loss within 0.05 dB of the lowest previous

attempts is achieved. Splice loss acceptance testing will be based on the fusion splicer's splice loss estimator.

Total Project Splices: Respondent should supply estimate of number of splices

Final Testing

- In addition to splice loss testing, selected Vendor will perform end-to-end insertion loss testing of single-mode fibers at 1310 nm and 1550 nm from one direction for each terminated fiber span in accordance with TIA/EIA-526-7 (OFSTP 7). For spans greater than 300 feet, each tested span must test to a value less than or equal to the value determined by calculating a link loss budget.
- Inspect each terminated single-mode fiber span for continuity and anomalies with an OTDR at 1550 nm from one direction in accordance with OTDR operating manual.

Required Documentation

- Route "As-Built" Maps/Diagrams including all equipment connected to the RWAN. The maps/diagrams shall include the name and address of each location, and the associated IP addresses. The document shall be made available in electronic format.
- End-to-End Insertion Loss Data
- OTDR Traces
- Individual Splice Loss Data

Other Technical Requirements

- All splicing shall be by the fusion method.
- All splicing enclosures and Hand Holes shall be of a type to be determined by Allegheny Intermediate Unit on behalf of the Consortium.
- All Hand Holes shall be (State) DOT approved, 45,000 lb. load rated CDR or comparable enclosures.
- All plowed cables shall be placed at a depth of 36" along roadways and 24" on private property.
- All road and driveway bores shall be at a depth of 36" and will have a 2" innerduct placed within.
- All buried splice locations will be marked with a locator post and a copper ground wire shall be attached to the splice closure/cable sheath.
- Buried marker posts shall be placed every 1500'.
- A warning tape shall be placed 12" above the buried cable.
- All highway shoulders, schoolyards, and ditch lines will be compacted and restored to satisfactory condition.
- All DOT encroachment permits, railroad encroachment permits, and National Park Service permits shall be submitted by the respondent in accordance with the permitting agency requirements.
- Vendor shall be responsible for the payment of any permitting fees.
- Vendor shall furnish an as-built drawing to Allegheny Intermediate Unit on behalf of the Consortium. The drawing shall include the name and address of each location, and the associated IP addresses. The document shall be made available in electronic format.
- Vendor shall perform an end-to-end continuity and loss test on each spliced fiber segment and provide Allegheny Intermediate Unit on behalf of the Consortium with the db loss of each fiber segment.
- Vendor shall be responsible for submitting the appropriate ULOCO locate requests.
- Allegheny Intermediate Unit on behalf of the Consortium shall grant Vendor right of way permission for local government-owned properties and roadways.
- All cables to buildings shall be fusion spliced within a minimum of 50' of entering a building at a location to be determined by Allegheny Intermediate Unit on behalf of the Consortium with an existing single mode fiber and terminated at customer's rack.
- A minimum of 100' coil of cable shall be left in each Hand Hole/Building for splicing use.
- Allegheny Intermediate Unit on behalf of the Consortium shall provide the Vendor with secured space to store materials and equipment if needed.

Right-of-Way Acquisition & Permitting

- Vendor is responsible to ensure that all cable routes have approved access & rights-of-way for all proposed cables installations.
- Vendor will provide any information or points of contact to allow selected Vendor and its subcontractors to facilitate the route prep “Make-ready” and actual cable installation
- Vendor is responsible for pulling all required construction permits.
- Selected Vendor and its subcontractors will provide officials at Allegheny Intermediate Unit on behalf of the Consortium with any information necessary to pull these permits in a timely fashion.

Route Maps

- Vendor is responsible for providing; maps, drawings or aerial photographs of the route.

Termination and Splicing Locations

- Vendor will in conjunction with officials of Allegheny Intermediate Unit on behalf of the Consortium designate/decide on all termination locations, whether in-building, outside plant or in customer premises. This will include all hand-hole or manhole locations
- Vendor will in conjunction with officials of Allegheny Intermediate Unit on behalf of the Consortium designate/decide on all field splice locations, in-building splice locations (if applicable), or other splice locations necessary to connect the network.
- Refer to RFP Section 2.5.2 that requires the use of existing facilities to the extent possible.

Cable and Hardware Approval

- Allegheny Intermediate Unit on behalf of the Consortium will approve all cable and hardware prior to ordering or installation.
- Allegheny Intermediate Unit on behalf of the Consortium will approve all hand-hole or building entrance hardware prior to ordering or installation.

Fiber Specification

Fiber must be single mode with the following specifications:

- TU-T G.652.C/D compliant
- Maximum Attenuation @ 1310nm: 0.34 dB/km
- Maximum Attenuation @ 1385nm: 0.31 dB/km
- Maximum Attenuation @ 1550nm: 0.22 dB/km

Material Delivery, Receipt & Storage

- Vendor will provide warehouse or yard space to accommodate all materials provided by selected Vendor to accomplish this project. Vendor will inspect, receive and issue any materials to provide accountability. This will reduce the overall cost to Allegheny Intermediate Unit on behalf of the Consortium with no added costs being placed into the proposal to cover the receipt and storage.

Final Inspection

- Allegheny Intermediate Unit on behalf of the Consortium will provide at their discretion a person(s) to witness any final testing or construction verification. The person designated by Allegheny Intermediate Unit on behalf of the Consortium will be required to initial/provide acceptance of any results. This person(s) will represent Allegheny Intermediate Unit on behalf of the Consortium during any and all acceptance testing. This does not relieve the selected Vendor from providing agreed upon documentation or absolve the selected Vendor of any warranty support.

Communications

- Allegheny Intermediate Unit on behalf of the Consortium is responsible for all communications with affected property owners or other interested parties concerning the proposed construction. Notification of any person(s) affected by this construction is the responsibility of Allegheny Intermediate Unit on behalf of the Consortium. Selected Vendor will work directly with any persons designated to handle project communications to facilitate awareness and reduce turmoil in Allegheny Intermediate Unit on behalf of the Consortium. Selected Vendor will provide consultation to assist in the development of a communications plan as required.