

BACKGROUND

The Ely Shoshone Indian Reservation is an Indian reservation for the Ely Shoshone Tribe of Nevada, Shoshone people, in and near the south side of the city of Ely in south-central White Pine County, Nevada. In 2005 it had a population of around 500, a textile business, and its own court system. The reservation has a land area of 104.99 acres (0.4249 km²).

The Ely Shoshone Newe Health Clinic is located at 400-B Newe View in Ely, NV - White Pine County. The center serves the healthcare needs of the residents of the Ely Shoshone Indian Reservation.

This RFP will seek enhanced broadband Internet Access for the Ely Shoshone Newe Health Clinic to meet the growing need for healthcare delivery that is enhanced by robust Internet access. A contract for fiber-based Internet Access and Transport Service was recently awarded for the Ely Shoshone Tribal Library which is approximately 400' southeast of the Ely Shoshone Newe Health Clinic.

TIMELINE

- April 17, 2019 – FCC Form 461/RFP Release
- April 22, 2019: Questions must be submitted on or before this date to (e-mail) and cc: Nevada@e-ratecentral.com
- April 23, 2019: Answers to questions
- May 22, 2019: RFP responses are due to (e-mail) and cc: Nevada@e-ratecentral.com **NOTE THAT THE PRICING SHEET IN EXCEL MUST BE USED AND COMPLETED AS REQUESTED. INCOMPLETE BIDS MAY BE REJECTED AT THE APPLICANT'S SOLE DISCRETION**
- May 24, 2019: Bid evaluations complete

SITES OF SERVICES

Service is required between the following sites:

Location	Healthcare Provider Number	Street Address	Latitude, Longitude
Ely Shoshone Newe Health Clinic	12238	400-B Newe Drive, Ely, NV 89301	39.236936, -114.869878

An aerial photograph related to the service point is as follows:



SCOPE OF SERVICES

Section 1: Introduction

The Ely Shoshone Newe Health Clinic hereinafter known as the applicant, is seeking a Leased Lit Fiber with Internet Access connection that is delivered fiber or other transport medium that originates at an interconnect facility of the service provider's choice be delivered to the eligible service location.

Please note that if an award results from this RFP, the applicant will choose the solution that best fits the evaluation criteria for the facility. The applicant is under no obligation to make an award based on this RFP and the applicant may accept or reject bids at its sole discretion.

The service location, with address and demarcation point, is listed in the attached pricing sheet. The new service is being planned to begin on July 1, 2019 which represents the expiration of the current service.

Section 2: Bid Options

1. Applicant is seeking bids for one service option:
 - a. The service is a fully managed, leased lit fiber solution including Internet access.
 - b. The applicant will seek reimbursement under the FCC's Rural Healthcare Program (RHP) for this connection. The applicant will determine the scope and type of reimbursement sought at its sole discretion.
2. Network Design and Construction Routes
 - a. Respondents should clearly illustrate proposed network design and any new fiber construction routes.

- b. Applicant is not advocating or mandating any preconceived network design or construction route and leaves this decision up to the vendor to present their best solution while recognizing the cited termination locations.
3. Special Construction
- a. In Rural Healthcare Program terminology, **special construction** refers to the upfront, non-recurring costs associated with the installation of new fiber to or between eligible entities.
 - b. **One time special construction charges are eligible for support under the Healthcare Connect Fund but not under the RHP Telecommunications Program. Because the applicant is considering both programs for reimbursement, respondents should bid monthly costs with and without special construction charges.**
 - c. If no new fiber is being installed, then any installation costs are considered standard **non-recurring costs (NRC)**.
 - i. For leased lit fiber solutions requiring special construction, this means that the costs associated with building the fiber are considered special construction and the costs associated with the equipment required to activate the service are a standard NRC.

Section 3: Solution Specifications

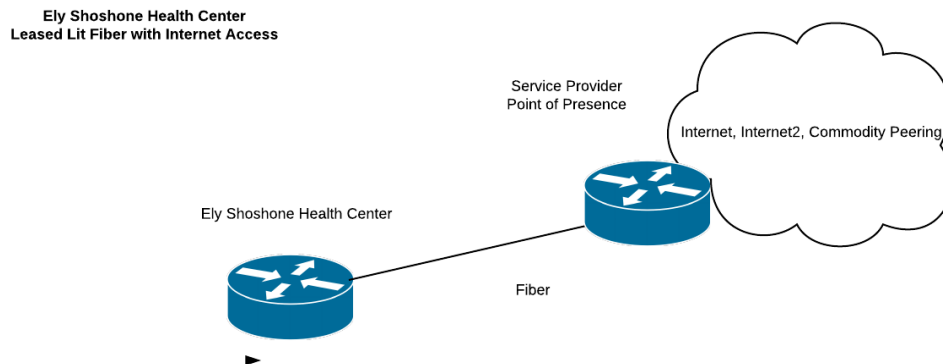
1. Leased Lit Fiber with Internet Access
- a. Applicant must have dedicated, symmetrical transport and ISP service of 300 Mbps, 500 Mbps and 1 Gbps symmetrical connections
 - b. Contract options are requested for 12 month, 36 month and 60 month terms of service.
 - c. Service Provider, if awarded a contract under this RFP, will include in its agreement with the applicant the right of the applicant to request and be granted site and service substitutions for the term of the agreement. The contract term will not extend if sites are added, moved or if service is upgraded.
 - d. **Each respondent is required to complete the attached pricing sheet with this RFP. Incomplete Pricing Sheets may be rejected at the applicant's sole discretion.**
 - i. Special construction, monthly recurring cost, and any additional non-recurring costs are **required** to be broken out and listed separately.
 - ii. Respondents are free to propose alternate pricing terms provided they have also included pricing in the requested format.
 - iii. No increased pricing will be allowed during the term of the quoted special construction, NRC, and MRC rate in each pricing cell of the matrix.
 - e. If an increase in bandwidth is requested during the contract period the contract does not renew.
 - f. All solutions must adhere to the following Service Level Agreement (SLA) terms and the terms found in Section 4:
 - i. The provider will make all reasonable efforts to ensure 99.95% network availability of each circuit.
 - ii. .50% frame/packet loss commitment
 - iii. 30ms or less roundtrip network latency commitment for the transport portion of the connection
 - iv. 60ms or less roundtrip network latency commitment for transport and Internet portion of the connection
 - v. 5ms network jitter commitment
 - vi. There is no right of provider to limit or throttle the capacity of the circuit at any time for any reason

- vii. Vendor stated commitment is to respond to any outage within two (2) hours and a four (4) hour restoration of service (see schedule of service credits below).

Service credits for a greater than 2-hour response will accumulate as follows:

Length of Service Outage	Credit is the follow percentage of Monthly Fiber Maintenance Fee
Less than 2 hours	No Credit
Two (2) hours to four (4) hours	5%
Greater than four (4) hours and less than eight (8) hours	10%
Greater than eight (8) hours and less than twelve (12) hours	15%
Greater than twelve (12) hours and less than sixteen (16) hours	20%
Greater than sixteen (16) hours and less than twenty-four (24) hours	35%
Greater than twenty-four (24) hours	50%

Sample Network Diagram:



Section 4: Service Level Agreement for Leased Lit Fiber with Internet Access

For all proposals, the respondent must agree to the following service specifications:

- a. Network operations center: Solution will provide customer support functions including problem tracking, resolution and escalation support management on a 24x7x365 basis. Customer has the right and is encouraged to call concerning any problems that

- may arise relative to its connection with vendor provided services.
- b. Trouble reporting and response: Upon interruption, degradation or loss of service, Customer may contact Vendor by defined method with a response based on trouble level. Upon contact from the Customer, the Vendor support team will initiate an immediate response to resolve any Customer issue. Customer will receive rapid feedback on trouble resolution, including potential resolution time.
 - c. Escalation: In the event that service has not been restored in a timely manner, or the Customer does not feel that adequate attention has been allocated, the Customer can escalate the trouble resolution by request. A list of escalation contacts will be provided when implementation schedule is completed.
 - d. Resolution: The Customer will be notified immediately once the problem is resolved and will be asked for verbal closure of the incident.
 - e. Trouble reporting, escalation and resolution: A detail trouble reporting, escalation and resolution plan will be provided to the Rural Healthcare Program applicant.
 - f. Measurement: for leased lit fiber the outage time starts from the time the Customer contacts vendor and identifies the problem. Credits for outages of shortage will be identified.
 - g. Reports: Upon request, an incident report will be made available to the Customer within five (5) working days of resolution of the trouble.
 - h. Link performance per segment: The service will maintain the proposed link performance throughout the term of the contract.
 - i. Historical uptime: Provide aggregate uptime statistics for your proposed service in the geographic area encompassing Applicant.

Section 5: General Terms for All Proposals

- a. Failure to include any requested information noted as required by the respondent is grounds for disqualification.
- b. Description of Proposal
 - i. Respondent will provide a description of their proposal for all services and solutions.
 - ii. Description will include an overview of the proposal, any deviations from the requested architecture, design or requirements, assumptions made, and other detail Applicant may find useful or necessary (or could differentiate the solution from a competing proposal).
- c. Timeline
 - i. For each response, respondents must include a timeline for all bringing all sites online.
 - ii. Proposals requiring little to no special construction should be able to bring all sites online by the July 1, 2019 date
 - iii. For solutions requiring special construction, a schedule of bringing sites online should be included with an explanation of how this timeline shifts if the date of the Rural Healthcare Program funding commitment shifts.
- d. Demarcation
 - i. All solutions must terminate service or infrastructure in the demarcation point at the address specified in the pricing sheet.
 - ii. Solutions bringing service to the property line but not to the demarcation point are not acceptable.
 - iii. Respondent must specify specific demarcation setup included in base fees, e.g. wall mounted CPE and CAT6a handoff, rack mount patch panel, etc.
- e. Network Diagram
 - i. For each response, respondents must include a network diagram

- displaying the paths to be used to serve each endpoint.
- f. References
 - i. For each response, respondent must provide 2 references from current or recent customers
 - g. Required Notice to Proceed and Funding Availability
 - i. Applicant will follow the purchasing policies of the Applicant Board and requirements and procedures of the FCC's Rural Healthcare Program as administered by the Universal Service Administrative Company to be eligible for all available funding.
 - ii. The implementation of any associated contracts resulting from this competitive bid process will be dependent on the applicant's issuance of a written Notice to Proceed.
 - iii. Rural Healthcare Program funding notification alone will not signify Notice to Proceed. The applicant will have the right to allow the contract to expire without implementation if appropriate funding (including any state matching funds for special construction projects) does not come available.
 - h. Invoice Procedures – Service Provider, by submitting a response to this FCC Form 461 and RFP, agrees to follow USAC procedures to obtain reimbursement for any service the service provider is awarded under this FCC Form 461 and RFP. These steps include:
 - i. Verification and approval of the FCC Form 463 after receipt
 - ii. Annual update of FCC Form 498
 - iii. Please review the following to make certain if these procedures are followed: <https://www.usac.org/res/documents/RHC/training/2014/HCF-Program-Form-463-Webinar-SP.pdf>
 - i. Future Orders-The Service Provider agrees, by submitting a response to the FCC Form 461 and RFP, that it will act in compliance with will all Rural Healthcare Program rules and FCC Orders.

Section 6: Evaluation Criteria

1. Leased Lit Fiber with or without Internet Access

% Weight	Criteria
20%	Cost
15%	Bandwidth
10%	Contract Modification Provisions
5%	Leverage Existing Resources
10%	Management Capabilities including solicitation compliance
15%	One Vendor Solution
5%	Personnel Qualifications including technical experience

5%	Project Management Plan
5%	Quality of Transmission
5%	Reliability of Service
5%	Technical Support

2. Criteria Explanation

1. **Cost:** the total cost of ownership for the eligible components of the proposed service. Total cost of ownership takes into account all one-time and recurring costs. Note that Rural Healthcare Program eligible costs refers to the pre-discount cost of the solution, not the post-discount portion of costs that are the responsibility of the Applicant. This criterion must be the highest weighted per Rural Healthcare Program program rules.
2. **Bandwidth:** The ability of the respondent to meet the bandwidth needs as outlined in the applicant's RFP. This includes all tiers of bandwidth requested.
3. **Contract Modification Provisions:** The ability of the respondent to meet or exceed the provisions of service outlined in the RFP. Suggested modifications to the applicant's stated criteria will result in the reduction of the respondent's score in this criteria
4. **Leverage Existing Resources:** Ability of respondent to leverage existing applicant facilities (such as existing demarc rooms; existing demarc racks; existing building conduit entry points) in their proposed solution.
5. **Management Capabilities and Solicitation Compliance:** Ability of senior management of respondent to execute on the delivery of service and the ability of management to comply with applicant service requirements as demonstrated by the completeness of the respondents proposal.
6. **Personnel Qualifications and Technical Expertise:** An assessment of the experience and technical expertise of the personnel the vendor proposes to install, test and provide on-going support for the respondent's proposed solution to the applicant.
7. **Project Management Plan:** An assessment of the completeness of the respondent's step by step plan that will lead to the initial provisioning of service to the applicant. The plan should be comprehensive with the estimated time to completion for each step and the outline of applicant assistance required to complete each step.
8. **Quality of Transmission –** Ability of the respondent to meet or exceed the latency, packet loss and jitter requirements of the applicant's proposed service level agreement (SLA).
9. **Reliability of Service-** Ability of the respondent to meet or exceed the uptime requirement of the applicant's proposed service level agreement (SLA).

10. Technical Support-Ability of the respondent to meet or exceed the mean-time-to-respond and mean time-to-repair standards of the applicant's proposed service level agreement (SLA).

Appendix A: OSP Installation Specifications for new fiber builds, if any.

These are minimum specifications that new fiber builds required to deliver service under this procurement should meet.

Material Requirements

- Material will comply with those standards as established by UL or NEMA and shall be commercial grade. All materials will be new and free from defects.
- Selected contractor and its subcontractors will provide all material management to ensure that the project remains on track according to the project milestones,
- All due caution will be exercised in transporting and off-loading all materials to prevent any damage during shipping or placement. Any damage to any materials after their initial receipt and inspection by the respondent will be the sole responsibility of the respondent, who will replace such damaged hand holes at no additional expense to the Rural Healthcare Program applicant.
- If a buried proposal all buried conduit shall be EMT (Electrical Metallic Tubing) multi-duct with at least three innerducts. EMT fitting shall be gland or set screw type, and each conduit shall be equipped with a graduated pull tape or rope.
- If a buried proposal, unless specified by right-of-way owner, crossings will be two conduits, PVC-Sch 40 or better.
- If a buried proposal, the exact requirements for location and type of conduit within the building shall be verified with building owner.
- If a buried proposal, all Hand Holes shall be Nevada DOT approved, 45,000 lb. load rated CDR or comparable enclosures on roadways and railways, and pedestrian rated hand holes for non-roadways and railways.
- If a buried proposal, large-radius sweeps shall be provided where required for offset or change in direction of conduit. Bend radius rating of the cable must be adhered to for all conduit bends, pull boxes, and hand holes.
- 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
- Connector types should be LC unless otherwise specified by the Rural Healthcare Program applicant.

Specifications

Survey

- Comply with all ordinances and regulations. Where required, secure permits before placing or excavating on private property, crossing streams, pushing pipe or boring under streets and railways. Pre-survey shall be done prior to each job.
- If a buried proposal, respondent will locate underground lines of third parties in cable route area

Right-of-Way

- 25 CFR Part 169 – Rights-of-Way over Indian Land
 - Telecommunication, Broadband, and Fiber Optic Lines (§169.5 (a) (10)
 - Legal Entity who is not an owner of Indian Land (§169.4)
 - What must an application for Right-of-Way include? (§169.102)

Permits and Traffic Control

- The respondent must adhere to all applicable laws, rules and requirements and must apply for permits to place infrastructure per specification per county or city ordinance applicable to where the infrastructure is being placed.
- All traffic control, in accordance with local, state, county, or permitting agency laws, regulations, and requirements, will be the respondent's responsibility. The respondent's construction schedule will take into consideration sufficient time for the development and approval of a traffic control plan.

Tracer Wire Installation

- If a buried proposal, tracer wire shall be placed with all conduit installed unless armored or traceable cable is used. The respondent will provide the tracer wire and shall install, splice and test (for continuity) the tracer wire. If the tracer wire is broken during installation, the wire should be repaired and tested for continuity after repair.
- If a buried proposal, for multi-duct installation, install a 5/8" X 8" copper clad ground rod in the hand-hole located on public right-of-way. Place a #12 insulated copper locate wire from the ground rod to the fiber optic termination room or to the outside of the building directly below the pull box and terminate on one side of an insulated indoor/outdoor terminal block to the master ground bar in the fiber optic termination room or place a ground rod on the outside of the building. Locate block in an accessible location. This is for "locate purposes only," not for grounding purposes. Note on as-built where ground is placed and tag located wire as "locate wire."

Depth of Burial (If a buried proposal)

- Except where otherwise specified, the cable shall be placed to a minimum depth of 36" along roadways and 24" on private property. Greater cable depth will be required at the following locations:
 - Where cable route crosses roads, the cable shall be placed at a minimum depth of 48" below the pavement or 36" below the parallel drainage ditch, whichever is greater, unless the controlling authority required additional depth, in which case the greatest depth will be maintained.
 - Where cable crosses existing sub-surface pipes, cables, or other structures: at foreign object crossings, the cable will be placed to maintain a minimum of 12" clearance from the object or the minimum clearance required by the object's owner, whichever is greater.

Highway, Railroad, and Other Bored Crossings (If a buried proposal)

- All crossings of state or federal highways and railroads right-of-way shall be made by boring and placing a pipe casing. The cable shall be placed through the pipe casing. Country road and other roadways shall be bored, trenched, or plowed as approved by the appropriate local authority.
- All work performed on public right-of-way or railroad right-of-way shall be done in accordance with requirements and regulations of the authority having jurisdiction there under.
- Respondent shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn.
- Where the cable route crosses railroad right-of-way, the cable shall be placed at a minimum depth of 60" below the railroad surface or 36" below the parallel drainage ditch,

whichever is greater, unless the controlling authority requires additional depth, in which case the greatest depth will be maintained.

Cable Markers (If a buried proposal)

- Cable markers shall be placed within 48 hours of cable installation. Unless the right-of-way or property owner specifies otherwise, cable markers shall be placed at all change in directions, splices, fence line crossings, at road and stream crossings, and other points on the route not more than 1,000 feet apart.
- In addition, on highway right-of-way, the markers shall be located at the highway right-of-way line. Markers shall always be located so that they can be seen from the location of the cable.

Hand Holes (If a buried proposal)

- Hand holes will be placed in accordance with standard industry practice following the specifications provided in the construction plans, typical drawings, and detail drawings. Special attention and planning must be exercised to ensure accessibility by other groups after construction has been completed.
- All hand holes unless otherwise stipulated by the drawings will be buried with 12" to 18" of cover at final grade.
- Immediately after placement, the soil around and over the hand hole will be tamped and compacted. Should any washouts occur, the respondent will be responsible for correcting the problem immediately without additional cost to the applicant.
- After cable placement, all ducts will be sealed.
- All splice hand holes/manholes will be grounded
- A minimum of 100' coil of cable shall be left in each hand hole/building for splicing use.

Splicing (both buried and aerial)

- Fiber to fiber fusion splicing of optical fibers at each point including head ends is required.
- Complete testing services, such as end to end, reel testing, and splice loss testing, ORL, power meter/laser source testing and WDM testing is required.
- 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.
- All cables to buildings shall be fusion spliced within a minimum of 50' of entering a building at a location to be determined by the owner with an existing single mode fiber and terminated at customer's rack.

Aerial Plant

- Applicant is open to aerial fiber runs using existing utility poles, but respondent must adhere to pole owners' requirements for clearances, spans, grounding, guys and attachments.

Testing Cable (both buried and aerial)

- The respondent shall be responsible for on-reel verification of cable quality prior to placement.
- Completed test forms on each reel shall be submitted to the applicant.
- Respondent assumes responsibility for the cable after testing. This responsibility covers all fibers in the cable.

- The respondent shall supply all tools, test equipment, consumables, and incidentals necessary to perform quality testing.
- The cable ends shall be sealed upon completion of testing.
- In addition to splice loss testing, selected respondent 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.

Restoration (both buried and aerial)

- All work sites will be restored to as near their original undisturbed condition as possible, all cleanup will be to the satisfaction of the applicant and any permitting agencies.
- Respondent shall provide a brief description of restoration plan in the response, with the expectation that a more detailed restoration plan will be delivered prior to construction begins.
- Work site restoration will include the placement of seed, mulch, sod, water, gravel, soil, sand, and all other materials as warranted.
- Backfill material will consist of clean fill. Backfilling, tamping, and compaction will be performed to the satisfaction of the applicant, the representative of any interested permitting agency, and/or the railroad representative.
- Respondent will be responsible for any restoration complaints arising within one year after the applicant's final acceptance.
- Excess material will be disposed of properly.
- Debris from clearing operations will be properly disposed of by the respondent/subcontractors as required by permitting agencies or the railroad. Railroad ties, trees, stumps or any foreign debris will be removed, stacked, or disposed of by the respondent as per requirements by other interested permitting agencies, and/or the applicant.
- Road shoulders, roadbeds, and railroad property will be dressed up at the end of each day. No payment for installation will be permitted until cleanup has been completed to the satisfaction of the any permitting agencies, and/or the applicant.
- Site clean-up will include the restoration of all concrete, asphalt, or other paving materials to the satisfaction of the other interested permitting agencies, and/or the applicant.

Documentation (both buried and aerial)

As-built drawings will include:

- Fiber cable routes
- Drawings, site drawings, permit drawings, and computerized design maps and electronically stored consolidated field notes for the entire route must include:
 - Verification of as-built and computerized maps
 - Splicing locations
 - Optical fiber assignments at patch panels
 - Optical fiber assignments at splice locations
 - Installed cable length
 - Date of installation
 - Aerial installation documents should include
 - Pole attachment inventories
 - Pole attachment applications
 - Pole attachment agreements between respondent and other utilities
 - GPS points of reference for utility poles

- Photo images of poles to which fiber is attached
 - Underground installation documents should include
 - Conduit design and detailing
 - Manhole detailing
 - Preparation of all forms and documentation for approval of conduit construction and/or installation,
- Fiber details will include:
 - Manufacturer
 - Cable type and diameter
 - Jacket type: singlemode
 - Fiber core and cladding diameter
 - Fiber attenuation per kilometer
 - Fiber bandwidth and dispersion
 - Index of refraction
- OTDR documentation will include:
 - Each span shall be tested bi-directionally from endpoint to endpoint.
 - Each span's traces shall be recorded and mapped. Each splice loss from each direction and the optical length between splices as well as any of the information required by Span Map.
 - Reel acceptance
 - Individual fiber traces for complete fiber length
 - Paper and computer disk records of all traces
 - Losses of individual splices
 - Anomalies
 - Wavelength tests and measurement directions
 - Manufacturer, model, serial number, and date of last calibration of OTDR
- Power Meter documentation will include:
 - Total link loss of each fiber
 - Wavelengths tested and measurement directions
 - Manufacturer, model, serial number, and date of last calibration for all equipment used

References, Standards, and Codes

Specifications in this document are not meant to supersede state law or industry standards. Respondents shall note in their response where their proposal does not follow the requested specification to comply with state law or industry standard. The following standards are based upon the *Customer-Owned Outside Plant Design Manual* (CO-OSP) produced by BICSI, the *Telecommunications Distribution Methods Manual* (TDMM) also produced by BICSI, ANSI/TIA/EIA and ISO/IEC standards, and NEC codes, among others.

It is required that the respondent be thoroughly familiar with the content and intent of these references, standards, and codes and that the respondent be capable of applying the content and intent of these references, standards, and codes to all outside plant communications system designs executed on the behalf of the applicant.

Listed in the table below are references, standards, and codes applicable to outside plant communications systems design. If questions arise as to which reference, standard, or code should apply in a given situation, the more stringent shall prevail. As each of these documents are modified over time, the latest edition and addenda to each of these documents is considered to be definitive.

Table 1 — References, Standards, and Codes

Standard/Reference	Name/Description
BICSI CO-OSP	BICSI Customer-Owned Outside Plant Design Manual
BICSI TDMM	BICSI Telecommunications Distribution Methods Manual
BICSI TCIM	BICSI Telecommunications Cabling Installation Manual
	Customer-Owned Outside Plant Telecommunications Cabling Standard
TIA/EIA – 568	Commercial Building Telecommunications Cabling Standard
TIA/EIA – 569	Commercial Building Standard for Telecommunication Pathways and Spaces
TIA/EIA – 606	The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
TIA/EIA – 607	Commercial Building Grounding and Bonding Requirements for Telecommunications
TIA/EIA - 455	Fiber Optic Test Standards
TIA/EIA - 526	Optical Fiber Systems Test Procedures
IEEE 802.3 (series)	Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet Standard
NEC	National Electric Code, NFPA
NESC	National Electrical Safety Code, IEEE
OSHA Codes	Occupational Safety and Health Administration, Code of Federal Regulations (CFR) Parts 1910 - General Industry, and 1926 - Construction Industry, et al.