REQUEST
FOR
PROPOSAL

“THE SOUTHWEST TELEHEALTH ACCESS GRID”

FORT DEFIANCE INDIAN HOSPITAL BOARD, INC.

RURAL HEALTHCARE PILOT PROJECT

FUNDING YEAR 2009

SWTAG RFP 8

NETWORK INFRASTRUCTURE PROCUREMENT

FORT DEFIANCE INDIAN HOSPITAL BOARD, INC.
ATTN: PLANNING & LOGISTICS
PLANNING HOUSE UNIT 2109 CEDAR CIRCLE
PO BOX 649
FORT DEFIANCE, AZ

i. General Information

i.1. Introduction.

The Southwest Telehealth Access Grid (SWTAG) Project is one of the Federal Communication Commission's (FCC) Rural Healthcare Pilot Programs (RHCPP). It is an integrated interstate network of networks built upon the extensive experience of key participants in rural telemedicine and rural healthcare in New Mexico, Arizona and the Southwest Indian Health Service (IHS) Telehealth Consortium and associated Tribes. This Grid creates the platform to more effectively share, distribute and coordinate telemedicine clinical services, educational and training programs among the healthcare provider organizations across the region, along with their associated human resources, thus more easily and effectively filling the gaps in meeting the health care needs of the rural communities throughout the network. Through Internet2 (I2) and the National Lambda Rail (NLR), this regional TAG network of networks, which is greatly facilitated and enhanced by the current USF Rural Healthcare Pilot Program, will enable our participating hospitals, clinics, and educational institutions to partner with peers throughout the United States to improve healthcare delivery and education via telemedicine.

The Fort Defiance Indian Hospital Board, Inc. (FDIHB) was approved by the *Intergovernmental Relations Committee of the Navajo Nation Council* on August 3, 2009. As a Tribal organization, empowered by the Self-Determination Act (P.L.93-638) and recognized by the Internal Revenue Service as a 501(c)3 non-profit organization, the FDIHB began administration of all hospital programs, functions, services and activities (PFSA's) on March 28, 2010 in accordance with the scope of work defined in the FY2010 Annual Funding Agreement. Through the organizational development process, the community and the hospital elected to redefine its identity as a community based health center by returning to its traditional name FDIHB in development of a medical center that expands healthcare services beyond what a hospital can provide.

The FDIHB Service Unit consists of 16 local community groups, known as Chapters. Each Chapter has its own governing system and local community meeting house called a Chapter House. The 16 Chapters that make up the FDIHB service unit represent not only a large physical region, but a varied region as well in terms of poverty, elderly population, household income, and employment. The Telehealth project plans to utilize the existing infrastructure and system of governance found in the Chapter Houses to build a digital infrastructure dedicated to delivering community health services through Telehealth applications. This effort is to secure healthcare services and to ensure that the community has access to the best that modern medicine can offer. The application of Telehealth will help the community to gain a foothold in health improvement by using technology to reduce cost and increase availability and access to healthcare. As these systems are implemented and mature, the need for reliable, secure and robust broadband telecommunications connections becomes critical.

i.2. Project Funding.

The SWTAG, Fort Defiance Indian Hospital Board, Inc., and its membership will construct an interconnected broadband network that links providers in the aforementioned communities. Funding provided by the Federal Communications Commission (FCC) under the Commission's order 07-198 ('Rural Healthcare Support Mechanism') of 19 November 2007, as well as matching and participatory funds as defined in the Order and provided by the Partners and their member sites and organizations will be utilized to construct this network.

i.3. Project Overview.

The Fort Defiance Indian Hospital Board, Inc. FY2011 project is designed to augment and enhance the existing wide-area networks of its Fort Defiance Agency. Fort Defiance Indian Hospital Board, Inc. is soliciting bids from vendors, suppliers and service providers to provide the connectivity (carrier-based broadband, cable, and dedicated fiber optic cable installations) and any required edge network electronics and devices. "The Hospital lends itself to an extensive internal network that can provide Indian people a wide array of inpatient and outpatient healthcare services. As these network systems are implemented and mature, the need for reliable, secure and robust broadband telecommunications connections becomes critical. In order to assure no gaps in the delivery of information to support the delivery of health care we will be implementing an enhanced network to support increased capacity requirements.

FDIHB currently standardizes all network hardware on CISCO systems in the area of wireless, routing, switching, security, and fiber connectivity. All servers and desktops are set to Dell specifications. Any bids are encouraged to match these specifications.

FDIHB is the epicenter of Telehealth support/activity for the Fort Defiance Service Unit. Specific systems include:

- Picture Archiving Communication System (PACS) that support the archiving of the digital images from our Area hospitals/health facilities.
- VISTA IMAGING system currently hosts the hospital's /support to integrate digital files with the Resource Patient Management System (RPMS).
- Tele-video hardware and health and educational services are provided from the to patients and partners in remote locations.
- FDIHB is the corridor for digital images to be transmitted to Radiologists housed at the other institutions via a DS-3 circuit.
- Telecommunication support to hub locations and remote sites.
- Remote desktop services to provide primary production applications such as RPMS and EHR to the end point facilities.
- WAN Transport and Internet Access
    - Telecommunication Service Providers
    - Internet service
    - Bandwidth
- Hospital Applications
    - EHR Access
    - RPMS

    - VISTA
- Network and Infrastructure
    - Hub & Spoke Design
    - WAN
    - LAN
    - VOIP
    - Infrastructure
    - Network Monitoring
- Hardware
    - Data Storage
    - Computer Hardware
    - Video Conferencing
- Tele-monitoring devices: FDIHB will be implementing a system that will utilize devices for interoperability and communications through wireless enabled monitoring device for health related data collection of vitals, such as blood pressure, pulse, weight, etc.

i.4. Project Proposal Process

The RFP process will allow Fort Defiance Indian Hospital Board, Inc. to receive the competitive offers for network development from independent telecommunication companies, local exchange carriers, cable operators, hardware distributors and manufacturers, cabling and construction contractors, and others. These competitive offers will be judged by Fort Defiance Indian Hospital Board, Inc. according to the criteria set forth within Section 2.0, and its subcomponents, of this document. Bidders are asked to provide proposals based on the accompanying site, routing, security and technical information.

Although bids for connectivity, hardware, and services will be considered, vendors are encouraged to submit bids that encompass the followings segments of the project: consolidated, connectivity, and hardware. Thus, Fort Defiance Indian Hospital Board, Inc. will entertain one bid under this RFP to cover all services and applications. The awarded provider will not deviate from the primary design. Although, technical recommendations will be considered;

i.5. Consolidated – One inclusive price to provide connectivity, equipment and carrier services for any or all of the sites, areas, or regions according the specifications set forth in this RFP.

i.6. Connectivity – Price to provide connectivity and carrier services for any or all of the sites, area, or regions defined in this RFP.

i.7. Hardware – Price to provide additional hardware (logical network components, as defined herein) for any or all of the sites, area, or regions defined in this RFP will be accompanied by a 24/7 service plan to replace components and provide phone/technical support.

1.0 Administrative and Procedural Information

1.1. Administrative Authority:

The Rural Health Care Pilot Program (RHCPP) of the Universal Service Fund, which is administered by the Universal Service Administrative Company (USAC), is a support program authorized by Congress and designed by the Federal Communications Commission (FCC) to encourage the development of rural broadband networks to provide advanced healthcare telecommunications capabilities and services to rural health care providers (HCPs).

1.2. Procurement Notice:

This project is subject to the USAC procurement rules. Vendors must meet all USAC requirements. The SWTAG will submit a USAC Form 465 to USAC who will review the documentation and will post the RFP on the USAC website. More information on bidding and posting rules can be found at http://www.lifelinesupport.org/rhc-pilot-program/vendors.

1.3. Proposal Submission / Review Process:

1.3.1. Bidders may view Rural Health Care Pilot Participants FCC Form 465 and Project Scope Document postings at http://www.usac.org/rhc-pilot-program/tools/search-postings-2009.aspx. **This site shows the official RFP posting date and the allowable contract date**.

1.3.2. The SWTAG, in partnership with the University of New Mexico Purchasing Department, has established a website for the convenience of bidders. All RFP materials and associated documents will be posted on the UNM e-Procurement site, LoboSource. Note: While registration is suggested (via the Supplier Registration link), it is not required and SWTAG bidders may access information directly through the Current Bid Opportunities link. (Please note: LoboSource is not compatible with Internet Explorer 7 and above. You must use IE 6 or Mozilla Firefox.)

The LoboSource (SWTAG) bidder site may be reached at
http://www.unm.edu/~purch/lobosource.html

1.3.3. Questions from Bidders. It is the responsibility of the bidder to inquire about any condition of this RFP that is not understood. Queries from bidders will be accepted via e-mail only, as described herein. Questions to individual Fort Defiance Indian Hospital Board, Inc. or SWTAG staff members via telephone/facsimile, e-mail or postal mail, will not be entertained.

All communication and inquiries, unless otherwise noted, must be directed to Denise Dion, Associate Director at the University of New Mexico Center for Telehealth. Bidders wishing to submit questions or request technical clarifications concerning Fort Defiance Indian Hospital Board, Inc. RFP should send e-mail inquiries to Denise Dion at dmdion@salud.unm.edu with a copy to Tom Weeks at UNM Purchasing (tomweeks@unm.edu)

Responses to all questions submitted will receive written responses as soon as possible and will constitute official communications from the Fort Defiance Indian Hospital Board, Inc. project.

Note: any and all question submittals and requests for clarification must be provided in writing. Responses to inquiries, if they change or clarify the RFP in a substantial manner, will be posted/distributed as a written addendum to this RFP. Any communications with SWTAG or Fort Defiance Indian Hospital Board, Inc. staff members other than as noted above should not be considered authoritative, are not binding on SWTAG or Fort Defiance Indian Hospital Board, Inc., and may be disavowed without notice or explanation.

1.3.4. In the event it becomes necessary for Fort Defiance Indian Hospital Board, Inc. to amend, add to or delete any part of this RFP, the amendment will be posted on the USAC web site, as required by the Order and by the USAC-mandated bidding procedures, and will additionally be posted on the SWTAG bidder site.

1.3.5. Bid proposals must be received at the Fort Defiance Indian Hospital Board, Inc. office no later than 28 calendar days from the date of posting of this RFP on the USAC website. This receipt deadline requirement is a mandatory requirement and is not subject to waiver by SWTAG or Fort Defiance Indian Hospital Board, Inc. Accordingly, no bid proposals will be accepted after the date and time specified. A late bid proposal will be returned unopened to the bidder.

1.3.6. No bid proposal will be accepted by telephone, electronic mail or facsimile. The proposal receipt deadline is for actual receipt in the Fort Defiance Indian Hospital Board, Inc. delivery location shown in Section 1.3.7. Delivery, whether via postal mail of other service, must be arranged to assure arrival before the deadline set forth above.

1.3.7. Original hard copy bid and two CD copies of proposals must be mailed or otherwise physically delivered to the following addresses:

Fort Defiance Indian Hospital Board, Inc.
Attn: Telehealth Initiative
C/O Dr. Leland Leonard, CEO
Physical Address: 2109 Cedar Circle
Mailing Address: PO Box 649
Fort Defiance, AZ, 86504

UNM Center for Telehealth
Southwest Telehealth Access Grid Project
Attn: Denise Dion, Associate Director
1005 Columbia NE
Albuquerque, NM 87106

In addition, one hard copy of the proposal must be delivered to the:

University of New Mexico Purchasing Office
Attn: Tom Weeks

1700 Lomas NE, Suite 2600,
Albuquerque, NM 87131

It is strongly suggested that certified delivery services be used to verify the receipt of bids by Fort Defiance Indian Hospital Board, Inc.

1.3.8. The bid proposals and the evaluation documents created by Fort Defiance Indian Hospital Board, Inc. will remain confidential until Fort Defiance Indian Hospital Board, Inc. has evaluated all of the compliant bid proposals submitted in response to this RFP and the selection process is complete. Once the evaluation and selection process is complete, all information, except that classified as confidential, will become public information will be available for inspection on the SWTAG web site.

1.3.9. Award information will be posted electronically on the SWTAG web site, LoboSource through the Awarded Bid Information link.

1.4. Bid Proposal General Requirements:

1.4.1. Failure to comply with or supply any and all information requested to accompany bid proposals may be cause for rejection of the proposal as non-compliant.

1.4.2. Bidder assumes all costs of preparation of the bid. The University of New Mexico, SWTAG, and Fort Defiance Indian Hospital Board, Inc. and any of their employees or officers shall not be held liable for any expenses incurred by any bidder responding to this RFP for expenses to prepare, deliver the proposal, or to attend any mandatory pre-bid meeting or oral presentations.

1.4.3. All bid proposals must be valid for a period of 90 days from the date of submission.

1.4.4. By submitting a bid proposal the vendor agrees to the terms and conditions contained within this RFP.

1.5.0 Vendor Requirements:

1.5.1 Provide detailed responses to each section with concise description of the Vendor ability to meet all requirements of the RFP. Failure to meet any of the requirements may be cause for rejection of your proposal.

1.5.2 Vendor shall provide no less than manufacturer's warranty.

1.5.3 Vendor shall have an extensive knowledge of networking systems and products, deploying, maintaining, and upgrade path for the product line as well as ancillary products.

1.5.4 Vendor shall provide detailed prices/discounts for each section where prices/discounts may also apply.

1.5.5 Any proposed products and services offered must be compatible with IHS's current IT infrastructure. Additionally, it is the Vendor responsibility to make sure that all products and services offered are adequately described.

1.5.6 Vendor must be authorized to sell/resell the products and services being proposed. The products and services must be available for warranty without any required re-certification from another party. Vendor may be asked to provide certificates of authorization or verifications of such facts.

1.5.7 Vendor shall guarantee that the products and services offered will meet or exceed specifications identified in this RFP invitation. All items shall be newly manufactured, in first class condition, latest model and design, including, where applicable, containers suitable for shipment and storage, unless otherwise indicated in the RFP.

1.5.8 Vendor workmanship and material, that if sold by drawing, sample or specification, it will conform thereto and will serve the function for which it was furnished.

1.5.9 Vendor further guarantees that if the items furnished hereunder are to be installed by the Vendor items will function properly with installation.

1.5.10 The Vendor also guarantees that all applicable laws have been complied with relation to construction, packaging, labeling and registration.

2.0 Proposal Evaluation: Format of Response:

Proposers MUST submit their responses in the format sought in this Section 5 or risk penalties during the evaluation phase.

2.0.1 General Instructions:

Proposers shall address each numbered item in Sections 1, 2, 3 and 4. Valid responses are:
a) —_____ has read, understands, and will comply.‖
b) —_____ has read, understands, and will not comply.‖
c) A descriptive response articulating an understanding and appropriate response where necessary or where the above responses are not relevant to the question/statement.

Unless noted, no response to a specific numbered item shall be considered as agreeing with the RFP requirements. To respond, the proposer shall copy each numbered heading and respond to the stated requirement.

The numbering of all responses must be consistent with the numbering outlined in Sections 1, 2, 3 and 4 of the RFP Proposal. The recommended approach is to use this RFP in Word format and simply address the numbered paragraphs page-by-page.

2.0.2 Organization and Presentation of Proposal:

For consistency of Proposals, please submit all Proposals in the following format:

Letter of Transmittal - Include the proposer‘s contact information; Executive Summary - A concise overview of the Proposer‘s solution. Tab 1. General Information; Proposer‘s acknowledgement of each numbered paragraph in Section 1 of this RFP; Tab 2. Statement of Work – Proposer‘s response to each numbered paragraph identified in Section 2 of this RFP; Tab 3. Proposer‘s Qualifications – Proposer‘s response to each numbered paragraph identified in Section 3 of this RFP; Tab 4. Other Requirements - Proposer‘s response to each numbered paragraph identified in Section 3 of this RFP; Attachments – Please attach any additional information required to communicate your proposed solution.

2.0.3 Special Pricing Instructions:

Attachment 1: Pricing Spreadsheets needs to be submitted separately from the main body. For the paper submission, the pricing needs to be submitted in a separate sealed envelope with the identification of the proposer clearly marked on the outside (one envelope per provider is sufficient despite multiple proposals).

For the electronic submission, proposers simply can attach Attachment 1: Pricing Spreadsheet to the email containing the other submission documents provided that the pricing submission is separate and clearly marked. For the electronic submission, Attachment 1 must be in the proper Excel format.

2.1. Proposal and Contract Terms (10 possible points):

2.1.1. The primary objective of this RFP, and any subsequent contract, is to obtain the most feasible and cost-effective installation with the required standards for product and service delivery. Bidder proposals will be evaluated for compliance with all instructions, specifications, and the terms and conditions.

2.1.2. Vendor’s response to the RFP demonstrates a clear and complete understanding of the goals of the overall project and the context of FDIHB’s organization as a self-determined, community driven hospital.

2.1.3. Bidder’s proposition is for providing the consolidated project needs – i.e., proposals that combine connectivity, hardware, and services.

2.1.4. The above notwithstanding, vendors may bid for connectivity or network edge hardware exclusively.

2.1.5. Connectivity services – Bids are provided for 5-year duration (except where noted in the detail site listing).

2.1.6. Hardware service and maintenance – Bids are provided for 5-year duration.

2.1.7. Service Level Agreement and/or Performance guarantees are provided, including uptime and response time guarantees.

2.1.8. Proposed system testing and acceptance provisions will be required on all bid proposals. Fort Defiance Indian Hospital Board, Inc. reserves the right to work in concert with vendors to

develop appropriate testing and acceptance criteria for specific installations or configurations, to be defined and accepted by both parties prior to contract initiation.

2.1.9. Any contract resulting from this RFP will contain specific deliverable items acceptance provisions.

2.1.10. Bid proposals will contain acknowledgement of, and provisions for providing, USAC invoicing requirements and formats. Bidder will conform to invoicing procedures and processes as promulgated by USAC.

2.1.11. Bidder agrees to provide a project manager or other individual who will be the primary contact for all dealings with Fort Defiance Indian Hospital Board, Inc.

2.1.12. The successful Contractor will be required to provide full documentation upon completion.

2.2. Design Compatibility (20 possible points):

2.2.1. Offers will be evaluated and scored based upon how well the bidder describes/responds to the following:

2.2.2. Connectivity Services

2.2.2.1. Bidder's proposal accounts for existing network design within the Member network(s) to which its bid applies, and does not require re-grooming or reconfiguration of circuits or transports not directly impacted by the project. (This requirement does not include the decommissioning of existing circuits being replaced by new Fort Defiance Indian Hospital Board, Inc.–specified circuits.)

2.2.3. Hardware Components

2.2.3.1. Bidder's proposal for hardware meets the stated requirements of the RFP in all respects without substitution or alteration of required functionality.

2.2.3.2. Bidder's proposal accounts for existing hardware components and network logical and physical topology, and does not impose restrictions or reconfiguration requirements to accommodate specifications of proposed equipment that do not meet RFP requirements. (This requirement does not include the reconfiguration or decommissioning of existing equipment being replaced by new Fort Defiance Indian Hospital Board, Inc.-specified devices.)

2.2.3.3. Bidder's proposal includes maintenance and support contract options for the duration of the pilot program (5 years) and shall be evaluated annually. Evaluation reports will be communicated to USAC with the option of non-renewal for unsatisfactory evaluation results or failure to deliver quality service and support.

2.2.3.4. Bidder's proposal includes installation and configuration services requested in the RFP.

2.3. Implementation Timeframe (10 possible points):

2.3.1. Offers will be evaluated and scored based upon how well the bidder describes/responds to the following:

2.3.2. Implementation timeline to begin at FDIHB's choosing. Work is to begin within 30 days after the date notification. All Vendors must be compatible and capable of meeting Project requirements.

2.3.3. Bid proposals must include a project plan and timeline detailing milestones and overall schedule. Detailed contact information for assigned representative. Critical path items and potential delay circumstances or complications must be clearly identified with a contingency plan to overcome challenges that may arise in project development.

2.4. Provider / Vendor Qualifications (10 possible points):

2.4.1. Offers will be evaluated and scored based upon how well the bidder describes/responds to the following:

2.4.2. Bidder possesses the ability to provide services and/or products, equipment in the manner and within the timeline(s) specified, as determined by Fort Defiance Indian Hospital Board, Inc., based on:

2.4.2.1. The prior experience and qualifications related to accomplishing the work as requested. Detail project qualifications and highlight experience in working with Native American Tribes and Tribal organizations. Bidder must provide a current Service Provider Identification Number (SPIN) in their proposal.

2.4.2.2. References: provide a list of references that identifies services provided on contractors for similar work. Include telephone numbers and mailing addresses of individuals who can attest to the Bidder's experience and qualifications of the services requested.

2.4.2.3. Reputation in the industry. Provide background regarding the Bidder, including: length of time in business, other activities performed by the Bidder, and number of individuals on staff (including owners, partners, and employees).

2.4.2.4. Contractor's history of reliability and customer service based on past performance in the experience of digital infrastructure development and applications of telecommunication technology; and

2.4.2.5. Objective qualifications of key staff and proposed project personnel. Describe the experience and qualifications for the specific individuals who will provide the work or interactions with Fort Defiance Indian Hospital Board, Inc.

2.4.2.6 Provide detailed list of project personnel with contact information and details of the roles and responsibilities assigned to specific project personnel.

2.4.2.7 Provide proof of financial solvency as in a copy of annual financial report and a current organizational chart.

2.5. Cost (40 possible points):

2.5.1. Offers will be evaluated and scored based upon how well the bidder describes/responds to the following:

2.5.2. Fort Defiance Indian Hospital Board, Inc. will select the most cost effective bid or bids presented that can satisfy the service level of a professional provider, whether that is a consolidated bid for all sites in the Fort Defiance Indian Hospital Board, Inc. consortium, as defined herein, all sites or site-by-site bids for connectivity or hardware.

2.5.3. All costs may not qualify for RHCPP funding, so it is critical that accurate, detailed cost information be provided for all portions of the bid proposal. Please indicate on your proposal that this is understood.

2.5.4. Bid proposals must identify all costs associated with the proposed solution, including design, installation, configuration, maintenance, and monthly recurring costs.

<u>Specifically, for connectivity proposals include costs for:</u>

2.5.4.1. Implementation fees, including connection or provisioning charges and hardware costs.

2.5.4.2. Monthly recurring charges amortized over the period of the proposed contract, for transmission at the proposed bandwidth, port charges, transport charges, taxes, fees, and assessments.

2.5.4.3. Contract termination provisions, including specific penalties or fees, if any, associated with early of whole or particle termination by Fort Defiance Indian Hospital Board, Inc.

<u>Specifically, for hardware and fiber installation proposals include costs for:</u>

2.5.4.4. Purchase price for each unit. Bundled pricing may be cited, but individual components must be identified and detailed pricing provided.

2.5.4.5. Shipping costs for each unit or shipment.

2.5.4.6. Configuration and installation charges.

2.5.4.7. Taxes, permits, fees, licenses and what entity is receiving these payments.

2.5.4.8. Maintenance and/or support charges for the proposed contract period and what the cost of those charges covers.

2.6. Proposal Guidelines (10 possible points):

2.6.1. Bidders are to organize proposals in the order stated in this section. In responding to this RFP, Bidders are encouraged to provide additional information if Bidder believes that information to be relevant. Responses should provide the details required and not solely a statement of acknowledgment. The submission of proposals must be organized to include, but not be limited to the following information:

2.6.1.1. Name, address, e-mail address, telephone numbers, and facsimile number of the Bidder.

2.6.1.2. Name, title, e-mail address, and telephone number of the primary contact of the Bidder.

2.6.1.3. A signature of the Bidder or of an officer/employee who certifies that he/she has the authority to take the bid.

2.6.1.4. A statement of the Bidder, if awarded the contract, will comply with the contract Terms and Conditions as set forth in this RFP. USAC procedures and processes must be met. Please provide a statement containing acknowledgement of, and provisions for providing, USAC invoicing requirements and formats.

2.6.1.5. A detailed description of the work proposed in response to this RFP. The submission must include, but is not limited to, addressing all requirements and each question contained within Section 2.1, Section 2.2, and Section 3.0 and their subparagraphs.

2.6.1.6. The proposed implementation timeline and project plan, per Section 2.3 and its subparagraphs.

2.6.1.7. A detailed cost proposal for providing the services requested, per Section 2.5 and its subparagraphs.

2.6.1.8. Provide evidence of the vendor's prior experience and qualifications related to accomplishing the requested work. Address each item in Section 2.4 and its subparagraphs.

2.6.2. Provide a statement with the dates for which this offer is valid.

2.7. Evaluation and Decision:

2.7.1. The selection will be based on all factors indicated in this RFP, and may not go to the lowest bidder if cost is outweighed by a combination of other features in the winning vendor's bid

2.7.2. Fort Defiance Indian Hospital Board, Inc. reserves the right to select bid proposals which, in the sole judgment of Fort Defiance Indian Hospital Board, Inc., most nearly conform to the specifications set forth herein, will best serve the needs of Fort Defiance Indian Hospital Board,

Inc. and its Members and participants, and provide the most cost-effective means for producing those results.

2.7.3. Fort Defiance Indian Hospital Board, Inc. reserves the right to waive any and all issues of form or presentation in considering bid presentations for acceptance or rejection, if, in the sole opinion of Fort Defiance Indian Hospital Board, Inc., such waiver is in the best interests of the project.

2.7.4. Fort Defiance Indian Hospital Board, Inc. is not responsible for any costs incurred by a vendor related to the preparation or delivery of the bid proposal, or any other activities carried out by the vendor, as it relates to this RFP.

2.7.5. Fort Defiance Indian Hospital Board, Inc. is not obligated to accept any proposal received in response to this RFP. In particular, Fort Defiance Indian Hospital Board, Inc. may accept received proposals in whole or in part, or it may reject all proposals received.

2.7.6. Changes in applicable laws and rules may affect the award process or any resulting contracts. Vendors are responsible for ascertaining pertinent legal requirements and restrictions. Vendors are encouraged to visit the official Federal websites pertaining to the Pilot Project, at http://www.lifelinesupport.org/rhc-pilot-program/ and http://www.fcc.gov/cgb/rural/rhcp.html.

2.7.7. The selection decisions made by Fort Defiance Indian Hospital Board, Inc. and reported to SWTAG and USAC under this RFP are final, and appeals or re-submissions will not be considered.

3.0 Site, Routing, and Technical Information:

3.1. The Fort Defiance Indian Hospital Board, Inc. project consists of the addition and enhancement of broadband connectivity and concomitant hardware 9 remote sites (Chapter Houses) and 2 data hubs in the Fort Defiance Agency of the Navajo Nation in support of its participation in the SWTAG and that project's selection as a participant on the FCC Rural Healthcare Pilot Program.

3.2. The project requires broadband connectivity, fiber optic cable installation and site-based network routing hardware. The requirements for this RFP are grouped by hubs sites and chapter facilities to enable vendors to most effectively evaluate the site(s) for which to submit proposal(s).

3.3. Bidders are cautioned that most sites in the hub / chapter regions are currently utilizing circuits funded in part by the Rural Health Care Program, administered by USAC. All connectivity bids solicited under this RFP are for newly-provisioned circuits. No bid may include any change, updating, or "re-grooming" of any circuit currently being funded by the Rural Health Care Program. Further, installation timing of new circuit installations must be coordinated such

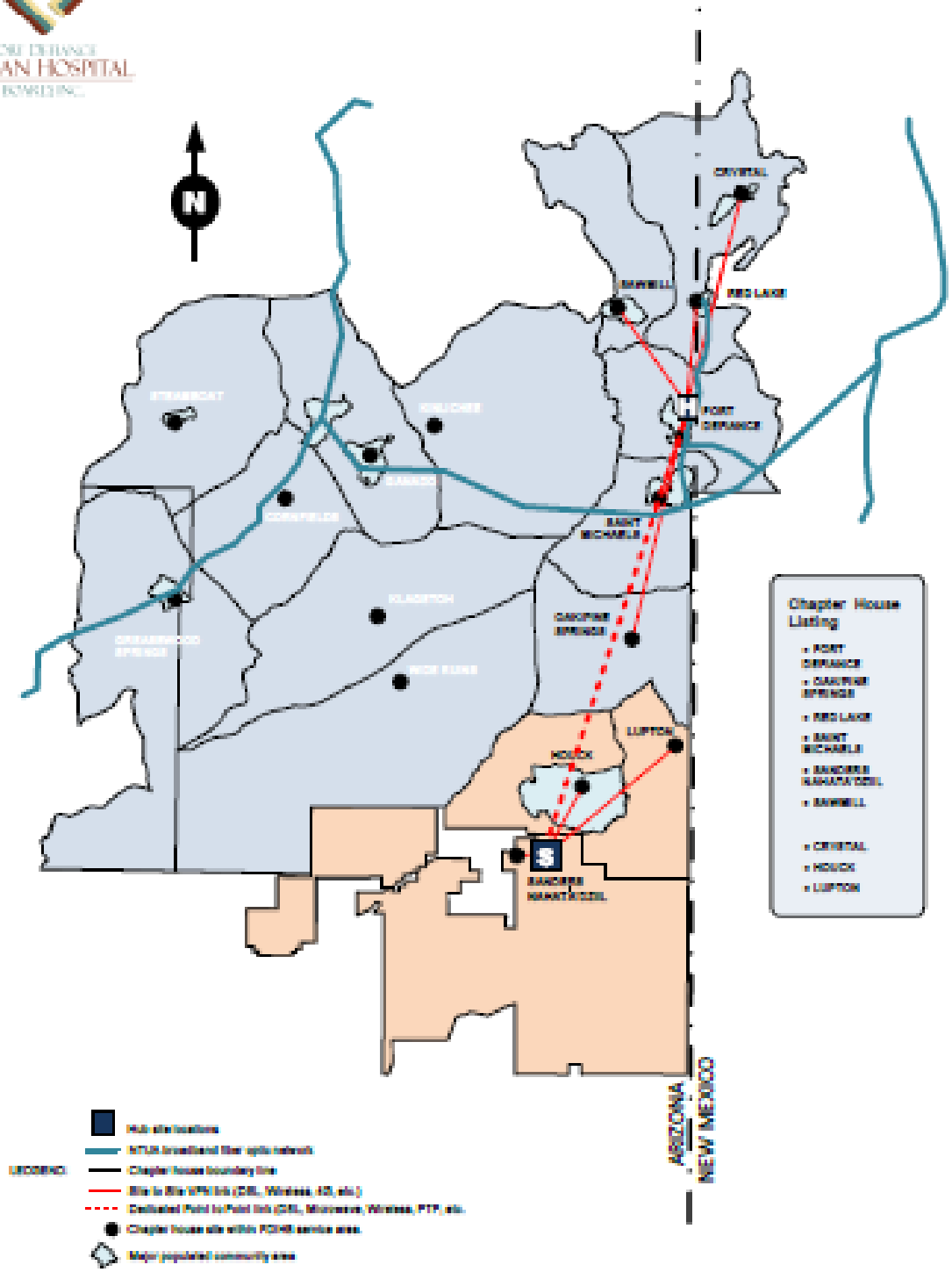
that existing circuits are decommissioned as the new, RHCPP-supported circuits are installed. Bids failing to meet these requirements will be rejected without further consideration.

3.4. Site Location connectivity details see Appendix B

Appendix A: Site Connectivity Drawings

The following drawings provide a graphical depiction of the connectivity solicited by this RFP. The drawings are schematic in nature and are intended to provide an overview only. In the event of a discrepancy between the drawings and the Detail Site Specifications or any written description or specification in this RFP, the written version shall be considered to be authoritative.

Telehealth Network



Appendix B: Detail Site Specifications

Hub Site #1: Fort Defiance Indian Hospital Board, Inc. – Primary

Fort Defiance Indian Hospital: Fort Defiance Indian Hospital Board, Inc. hospital is located in Fort Defiance, Arizona and will serve as the primary hub for all communication, patient record data, internet access, security authentication and technical assistance center.

The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

The Primary Hub Site #1 system is currently maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the existing Hub Site #1 system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Site 1.

Bandwidth: 45 Mbps minimum between all two Hub sites, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to

show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing below.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified below. These configurations are based on Cisco products: Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Site Hospital & Hub Location # 1 - Primary	Network Equipment	Hardware Specifications

Fort Defiance Indian Hospital Board, Inc.	• 2 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• Core switch 10G capable for LAN
	  o 4 switch core system(s)
	  ▪ Redundant switching fabric
	  ▪ Redundant power system
	  ▪ 6 10/100/1000 POE blades in each core switch
	  ▪ 2 24 port 1000 sfp fiber ports
	  ▪ 2 6 port 10g sfp fiber ports
	• Closet switch
	  o 40 closet switch 10/100/1000 48 port 1g or 10g
	  o 40 UPS unit for each closet switch
	• Wireless Access Point and Wireless LAN controller
	  o 140 Access points a/g/n
	  o 4 Wireless LAN controllers for redundancy.
	  o 2 Wireless access point server system.
	• Wireless mesh network
	  o 4 Locations for wireless paging
	  ▪ Fort Defiance Housing
	  • FDIHB Housing area
	  • Former Hospital Site Housing area
	  ▪ Window Rock Housing
	  • Upper Staff Housing area
	  • Lower Staff Housing area
	  o 14 Wireless mesh access points with encryption
	  ▪ Wireless mesh management server system.
	• Security appliance
	  o 2 security appliance(s)
	  o VPN access back to hub location(s).
	  o Encrypt VPN sessions 3DES, IPSEC, AES. Etc.
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server V3 SSL
	  o CISCO Netflow collection server
	• Microwave point to point connection
	  o 45mbps or greater license radios
	• UPS battery backup system for network equipment
		• Qty 4 CISCO Catalyst 6000-VSS720 switches with modules and advance encryption IOS.
		• Qty 2 CISCO Router 3945E-SEC/K9
		• Qty 40 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 140 CISCO wireless access point, WLC wireless lan controller, and wireless management server.
		• Qty 14 CISCO wireless outdoor mesh system and controller.
		• Qty 4 CISCO ASA security appliance system for security and VPN access.

Hub Site #2: Nahata Dziil Clinic, (AKA Sanders Clinic)Sanders, AZ.

Nahata'dziil Clinic: Nahata'dziil Clinic is located in Sanders, Arizona and will serve as a secondary hub location for intermediate communication, patient record access, internet access, security authentication and technical assistance center for local coverage area.

The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

The Hub Site # 2 system is currently maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the existing Hub Site # 2 system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Site 2.

Bandwidth: 45 Mbps minimum between two Hub sites, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified below.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing below.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Site Clinic & Hub Location # 2 - Secondary	Network Equipment	Hardware Specifications

Sanders, Nahata Dziil Clinic (AKA Sanders Clinic)	• 2 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• Core switch 10G capable for LAN
	  ○ 2 switch core system(s)
	  ▪ Redundant switching fabric
	  ▪ Redundant power system
	  ▪ 6 10/100/1000 POE blades in each core switch
	  ▪ 2 24 port 1000 sfp fiber ports
	  ▪ 2 6 port 10g sfp fiber ports
	• Closet switch
	  ○ 6 closet switch 10/100/1000 48 port 1g or 10g
	  ○ UPS unit for each closet switch
	• Wireless Access Point and Wireless LAN controller
	  ○ 8 Access points a/g/n
	  ○ 2 Wireless LAN controllers for redundancy.
	  ○ 1 Wireless access point server system.
	• Wireless mesh network
	  ○ 4 Wireless mesh access points with encryption
	  ○ 1 Wireless mesh management server system.
	• Firewall or security appliance
	  ○ 2 security appliance(s)
	  ○ VPN access back to hub location(s).
	  ○ Encrypt VPN sessions 3DES, IPSEC, AES. Etc.
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  ○ SNMP monitoring server
	  ○ Netflow collection server
	• Storage and file server(s)
	  ○ 4 file servers with MS 2008 64 bit, 40g mem, raid 5, SAS 300g drives
	  ○ 2 Mass storage SAN system 10 terabytes
	• Network/Server rack/wall mounts enclosure system.
	• UPS battery backup system for network equipment and computer desktops.
		• Qty 2 CISCO Catalyst 6000-VSS720 switches with modules and advance encryption IOS.
		• Qty 2 CISCO Router 3945E-SEC/K9
		• Qty 6 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 4 CISCO wireless access point, WLC wireless lan controller, and wireless management server.
		• Qty 4 CISCO wireless outdoor mesh system and controller.
		• Qty 2 CISCO ASA security appliance system for security and VPN access.

Phase I (Chapter Sites)

Site # 3: Fort Defiance Chapter

Fort Defiance chapter house is located in Fort Defiance, Arizona and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. The chapter house currently is in line of site of the FDIHB water tank and a wireless connection can be used and save on monthly bandwidth cost. FDIHB recommends that an encrypted wireless bridge be used to establish connectivity to save on bandwidth cost(s) and provide Telehealth access.

The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code

IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 3 Fort Defiance Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 4: Oak/Pine Springs Chapter

Oak/Pine Springs chapter house is located in Sawmill, Arizona and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. Oak Springs chapter house currently doesn't have line of site to any of the two proposed hub locations and a DSL (digital subscriber line) circuit will be used to connect Oak/Pine Springs chapter house to the FDIHB hospital hub for data and Telehealth access in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Site 1.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals

offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 4 Oak/Pine Springs Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 5 : Red Lake Chapter

Red Lake chapter house is located in Red Lake, New Mexico and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. Red Lake chapter house currently doesn't have line of site to any of the two proposed hub locations and a DSL (digital subscriber line) circuit will be used to connect Red Lake chapter house to the FDIHB hospital hub for data and Telehealth access in this area.

The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Site 1.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 5 Red Lake Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 6: Saint Michaels Chapter

Saint Michael's chapter house is located in Saint Michaels, Arizona and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. The chapter house currently is in line of site of the FDIHB Window Rock, Arizona water tank and a wireless connection can be used and save on monthly bandwidth cost. FDIHB recommends that an encrypted wireless bridge be used to establish connectivity to save on bandwidth cost(s) and provide Telehealth access.
The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Site 1.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 6 St. Michaels Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 7: Nahata'dziil (Sanders) Chapter

Nahata'dziil chapter house is located in Sanders, Arizona and will serve as site which will connect to Nahata'dziil clinic hub due to its proximity and locale. The chapter house currently is in line of site of the Nahata'dziil clinic and a wireless connection can be used and save on monthly bandwidth cost. FDIHB recommends that an encrypted wireless bridge be used to establish connectivity to save on bandwidth cost(s) and provide Telehealth access.

The Navajo Nation will be building a broadband network throughout the Navajo Reservation which will help expand bandwidth needs for chapter sites and future Telehealth expansions in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to

show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site 7 Nahata'dziil (Sanders) chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 8: Sawmill Chapter

Sawmill chapter house is located in Sawmill, Arizona and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. Sawmill chapter house currently doesn't have line of site to any of the three proposed hub locations and a DSL (digital subscriber line) circuit will be used to connect Sawmill chapter house to the FDIHB hospital hub for data and Telehealth access in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – **Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.**

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and ‘as built’ drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 8 Sawmill Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 9: Crystal Chapter

Crystal chapter house is located in Crystal, New Mexico and will serve as a site which will connect to the FDIHB hospital hub site due to its proximity and telecommunications carrier. Crystal chapter house currently doesn't have line of site to any of the three proposed hub locations and a DSL (digital subscriber line) circuit will be used to connect Crystal chapter house to the FDIHB hospital hub for data and Telehealth access in this area.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 9 Crystal Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 10 : Houck Chapter

Houck chapter house is located in Houck, Arizona and will serve as a site which will connect to Nahata'dziil clinic hub due to its proximity and telecommunications carrier. Houck chapter house currently doesn't have line of site to any of the three proposed hub locations and a DSL (digital subscriber line) circuit will be used from a telecommunication carrier. A site to site encrypted VPN (virtual private network) tunnel will be used to connect Houck chapter house to the Nahata'dziil hub for data and Telehealth access.
All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO BOX 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and 'as built' drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing, Appendix B.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 10 Houck Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Site # 11: Lupton Chapter

Lupton chapter house is located in Lupton, Arizona and will serve as a site which will connect to Nahata'dziil clinic hub due to its proximity and telecommunications carrier. Lupton chapter house currently doesn't have line of site to any of the three proposed hub locations and a DSL (digital subscriber line) circuit will be used from a telecommunication carrier. A site to site encrypted VPN (virtual private network) tunnel will be used to connect Houck chapter house to the Nahata'dziil hub for data and Telehealth access.

All broadband links specified are to provide transport between the indicated site and the Hub switching system currently in use for connecting to the Hospital in Fort Defiance, AZ. See Appendix A at page 15 for the Site Connectivity diagram.

This site will be maintained by:

Fort Defiance Indian Hospital Board, Inc.
PO Box 649
Fort Defiance, AZ 86504

The requirement to connect to the site system notwithstanding, bidders are encouraged to meet specific designs for providing the backhaul services and connectivity needed to accomplish that goal.

Connectivity Requirements – Broadband Links

All circuits are to be fully provisioned from end-point to core location. Physical facility installation to the demarcation point at each site affected must be included in the bid.

Transport: To be determined by vendor, but must be transparent to layer-3 and higher protocols, including Hub Sites.

Bandwidth: 5 Mbps minimum or greater at this site, unless otherwise specified in the detail site listing. See Appendix C.

Latency: < 60ms; (between the two Hub sites and core routers)

Stability (video): jitter: good 0 – 20 ms, acceptable 20 – 50ms; packet loss good 0 – 0.5%, acceptable 0.5 – 1.5%

Site connectivity physical circuit redundancy should be proposed where the site's location and circumstances provide the capability of effectively providing redundant entry points to the facility, and the appropriate network hardware needed to manage the redundant circuits.

Site connectivity backhaul redundancy and resiliency should be proposed when possible, to provide separate physical and logical paths for redundant circuits. Resiliency for backhaul circuit transport is required, with provisioning to take into account that need.

Physical facilities and provisioning to the demarcation point of each site must be included in the proposal, where needed.

Connectivity Requirements – Dedicated Fiber / Dedicated Circuits / Microwave / Wireless / Satellite Links to certain site described herein.

Inter-building dedicated external fiber optic cable installations are solicited locations as specified in the Site Detail Specifications.

End-to-end fiber optic cable installation between the facility-designated telecommunications demarcation point in both sites of each site pair is required. Routing and installation particulars are to be determined by the bidder in accordance with the specifications below, and must be described in the bid proposal.

Dedicated fiber installation bids are to include all labor and materials needed for the installation of the specified fiber connectivity, including site survey, engineering, fiber installation, and termination.

Documentation, including final site survey, engineering drawings, fiber installation specifications and ‘as built’ drawings, is to be provided in a timely fashion upon the acceptance of an installation bid by Fort Defiance Indian Hospital Board, Inc.

The vendor will obtain permits from departments and/or agencies of cities, state, county, and federal government, railroads, or other entities which provide for the placement of facilities within their respective rights of way.

The vendor will provide easements for construction on private lands, as needed. Any and all easements must be approved by Fort Defiance Indian Hospital Board, Inc. prior to implementation. It is preferred that all easements be one time, advance payments with no recurring charges.

All external fiber installation will be of cable-in-duct construction, using twelve-strand (minimum) single-mode fiber optic cable. Bids for direct-buried cables and/or multi-mode fiber will not be considered.

All fiber installation will be installed and tested in accordance with industry-standard practices, including but not limited to the standards promulgated in the National Electrical Safety Code IEEE C-2), NFPA 70, TIA-590-A, and TIA-758-A, all as amended. Installation will meet all local building and electrical codes.

One hundred percent (100%) of all fiber optic media must be tested in accordance with TIA/EIA-568-B.1, TIA/EIA-568-B.3, and TIA-526-7 (single mode). OTDR instrument must be calibrated to show anomalies of .02dB minimum, with photographic or digitized traces provided to the Fort Defiance Indian Hospital Board, Inc. Site contact.

Edge Hardware (Router) Requirements

Routers are required for most sites as specified in the detailed site listing.

Routers must be compatible with existing network hardware in the Fort Defiance Indian Hospital Board, Inc. region on a functional, configuration, and physical level.

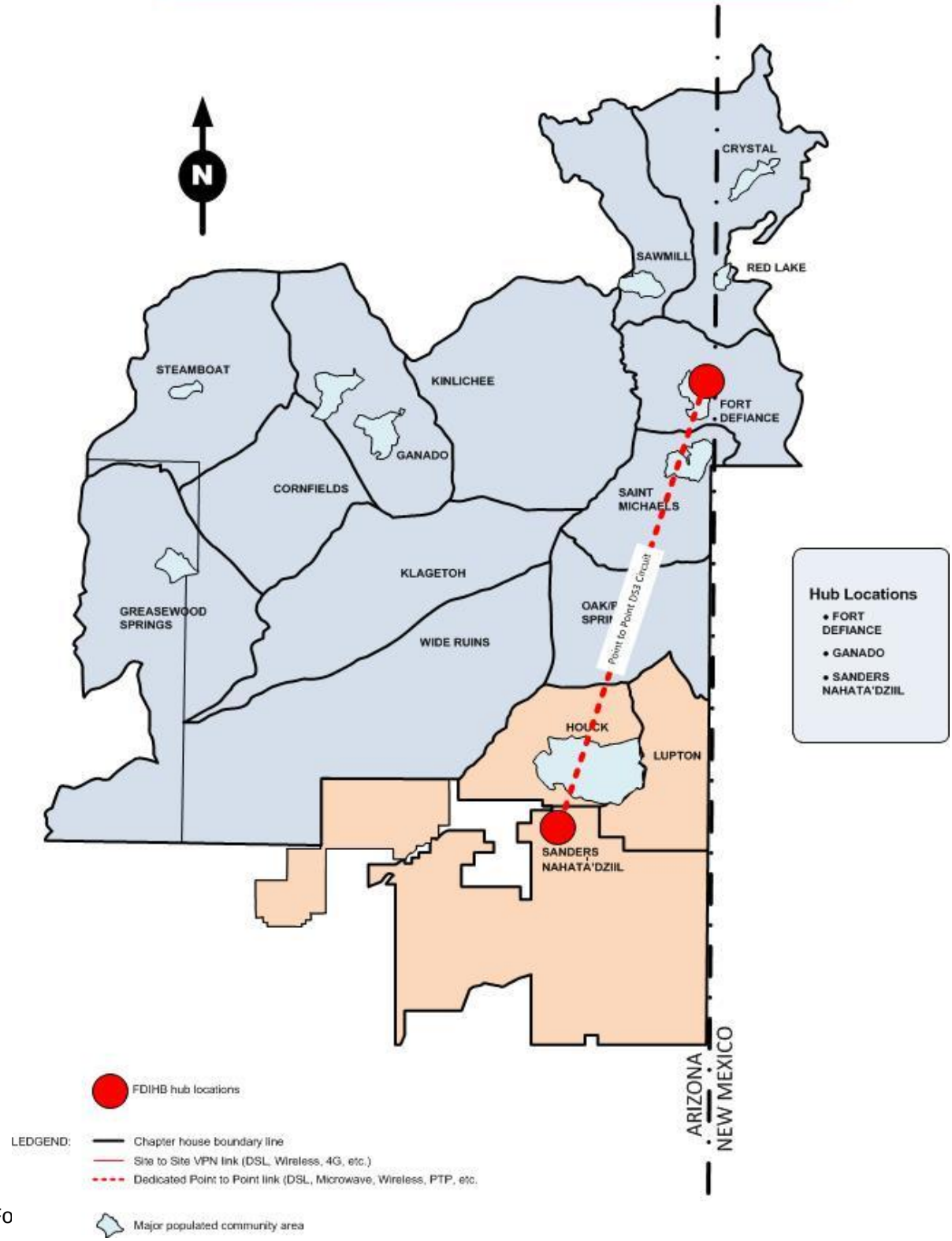
General configuration information for the router type is specified in the Site Detail Specifications. These configurations are based on Cisco products, Cisco-like hardware is required. Proposals offering alternate brands and configurations are not acceptable, with due consideration of the requirements for compatibility and interoperability set forth above and in Section 2.0.

Chapter Location	Network Equipment	Hardware Specifications

Site # 11 Lupton Chapter	• 1 Router(s) for point to point backbone connections (DS3, Ethernet, Wireless)
	• 1 switch 10/100/1000 with 48 POE ports
	• 1 Wireless Access Point a/g/n
	• Wireless mesh network
	  o 4 Wireless mesh access points with encryption
	  o 1 Wireless mesh management server system.
	• 1 Firewall with VPN access back to hub location(s).
	  o Encrypt VPN sessions back to hub location(s).
	• Network monitoring server and software for SNMP V3, SSL telnet sessions
	  o SNMP monitoring server
	  o Netflow collection server
	• Server/Network enclosure racking system.
	• UPS battery backup system for network equipment
		• Qty 1 CISCO Router 3945E-SEC/K9
		• Qty 2 CISCO Catalyst 3750X 48 port POE switches.
		• Qty 1 CISCO wireless access point, WLC Wireless LAN Controller, and wireless management server.
		• Qty 1 CISCO ASA security appliance system for security and VPN access.

Appendix C

Dedicated Circuits between hub sites



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Appendix D: Location Information

The following pages provide information for each site for which bids are solicited, organized by specification in a table that provides site physical and contact information, as well as connectivity and hardware requirements.

Location: Details on each of the Chapter House locations is specified including Latitude and longitude details.

Connectivity: Specified in terms of the desired transport type (Ethernet or TDM (DS1/DS3)). Multiple TDM circuits, if specified, are to be 'bonded' to provide aggregate bandwidth. Equivalent bandwidth of alternate types may be proposed, provided all requirements of Section 3.0 herein are met.

Hardware: Specified in terms of the Cisco Systems type/model desired for the primary router(s) to provide OSI Layer 3 'edge' connectivity for the circuits. Other brands or systems may be proposed, but bidders are cautioned that the compatibility requirements of Section 3.4.4 herein must be met.

Phase I (Chapter Sites):

Chapter House	Terrain	Network Connection Type
#1 Ft Defiance Hospital Board **Hospital & Hub** Lat./Lng: 35.74058°, -109.069885° Corner Route N12 and N7	Mountainous valley area 6800 feet elevation Tree line on hills located west and east side.	Possible connection to cellular tower/DSL/Metro Ethernet.
#2 Nahata'Dziil (Sanders Clinic) Clinic & Hub 35.2163675°, -109.333638° Chiih'Toh Blvd Bldg #2	Low hill side area 5800 feet elevation. Mostly low, flat to rolling desert hills and no tree line	Possible connection to cellular tower/DSL/Metro Ethernet.

#3 Fort Defiance <u>Chapter</u> Lat./Lng.: 35.74058°, -109.069885° Corner of Route 112 & BIA 110	Mountainous valley area 6800 feet elevation Tree line on hills located west and east side.	Point–to-Point Wireless connection to FDIHB FD water tank
#4 Oak/Pine Springs Chapter Lat./Lng.: 35.4713792°, -109.1273526° North I-40, Navajo Route 12, Milepost 19	Mountainous valley area 6500 feet elevation Heavy tree line surrounded by mountain west, and north side of chapter.	DSL
#5 Red Lake Chapter Lat./Lng.: 35.9078762°, -109.0475572° Sheppard Springs Road & Old Red Lake Rd	Flat hill side area 6500 feet elevation Mountain area located west of chapter house.	Direct fiber connectivity
#6 Saint Michaels Chapter Lat./Lng.: 35.6522178°, -109.0925971° Highway 264 (Across from IHS Bldg) Bldg 29A	Hillside valley area 6700 feet elevation Minimal tree line surrounded by mountain west, and east side of chapter.	Point to Point Wireless connection to FDIHB WR water tank
#7 Nahata'Dziil (Sanders) <u>Chapter</u> Lat./Lng.: 35.2005738°, -109.3057048°	Low hill side area 5800 feet elevation. Mostly low, flat to rolling desert hills and no tree line	Possible connection to Cellular tower / DSL

#8 Sawmill Chapter Lat./Lng.: 35.899661°, -109.1646541° Milepost 14 on Navajo Rt. 7 Across from Sawmill Primary School	Top of Mountain area 7500 feet elevation Tree line on hill side located east and possible line of site to Piney hill.	Possible connection to Cellular tower / DSL
# 9 Crystal Chapter Lat./Lng.: 36.0434015°, -108.968029° Navajo Route 12 off State Hwy 134	Mountainous area 7100 feet elevation High Mountain between Red Lake and Crystal chapter. No line of site to neighboring chapters.	Possible connection to Red Lake chapter
#10 Houck Chapter Lat./Lng.: 35.2834799°, -109.2098214° I-40 Exit 348	Mountainous area 6050 feet elevation Mountain area located west of chapter house.	Microwave / DSL
#11 Lupton Chapter Lat./Lng.: 35.3396174°, -109.0646442° I 40 Exit 357, In conjuction with Navajo Rt. 12	Mountainous area 6200 feet elevation Mountain area located north of chapter house.	Microwave / DSL