REQUEST FOR PROPOSAL

Rural Nebraska Healthcare Network

Eastern Expansion Initiative

Phase II

FCC Rural Health Care Pilot Program
Administered under Universal Service Administrative Company guidelines

Requested by: The Rural Nebraska Healthcare Network

RFP #05: Eastern Expansion Initiative

Prepared by:

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INTRODUCTION AND BACKGROUND

The Rural Nebraska Healthcare Network (RNHN) is a not-for-profit corporation whose members are the nine not-for-profit and public hospitals in the Panhandle of Nebraska.[1] A board of directors, which is comprised of the Chief Executive Officer of each member hospital, governs the RNHN.

Since 1996, RNHN members have collaborated on projects in order to coordinate a unified healthcare response in the face of the geographic isolation of its patients. RNHN is an integrated healthcare system that serves nearly all patients in the Nebraska Panhandle. [2]

RNHN has recently completed a 700 mile fiber optic, privately owned, multi-gigabit Ethernet network connecting approximately 40 hospitals and clinics in the Panhandle. This fiber network is connected to 910 E15th Street, Denver Colorado, via redundant high capacity carrier circuits (1 GIG & 100Mbs respectively).
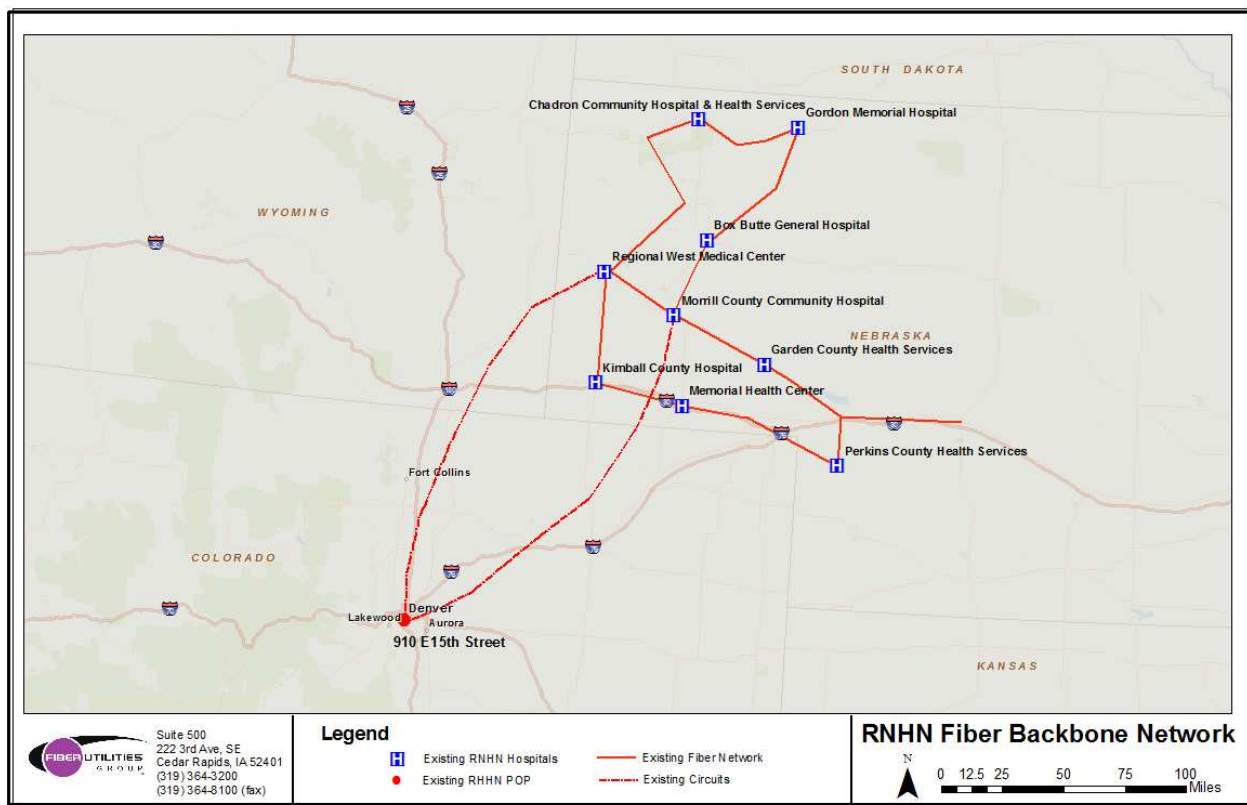
FIGURE 1- RNHN FIBER BACKBONE NETWORK

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[1]The member hospitals are: Box Butte General Hospital, Alliance; Chadron Community Hospital, Chadron; Garden County Health Services, Oshkosh; Gordon Memorial Health Services, Gordon; Kimball Health Services, Kimball; Memorial Health Center, Sidney; Morrill County Community Hospital, Bridgeport; Perkins County Health Services, Grant; and Regional West Medical Center, Scottsbluff.

[2]The Panhandle covers 11 counties spread out over 14,000 square miles with an average population density of 6.5 people per square mile.

The primary purpose of the RFP is to solicit bids from qualified vendors for a series of long-term, pre-paid leases designed to extend the RNHN network to identified eastern Nebraska medical facilities ("Phase II"). Phase two is comprised of two parts:

- Phase II(A): High capacity circuits connecting identified medical facilities (See Attachment A) as the "A" Location to (Nebraska Colocation Centers, 3rd floor, Suite 300A, 1623 Farnam St, Omaha, NE 68102), commonly referred to as the Farnam Hub as the "Z" Location. (Access Circuits)

- Phase II(B): High capacity circuits connecting the Farnam Hub to the RNHN fiber network in western Nebraska. (Backbone Circuits)

FIGURE 2 – ILLUSTRATIVE PHASE 2(A) EASTERN EXPANSION TO FARNAM
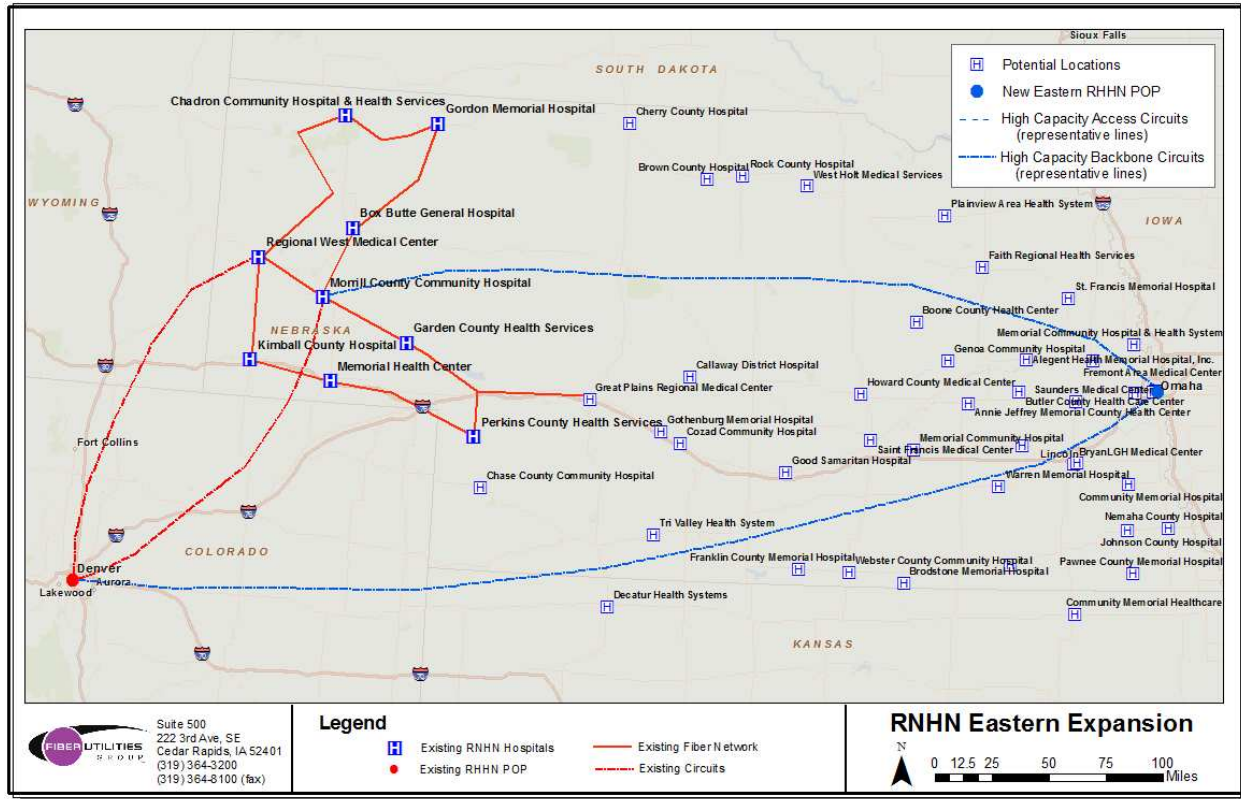
FIGURE 3 – ILLUSTRATIVE PHASE 2(B) FARNAM TO RNHN FIBER NETWORK CONNECTION.

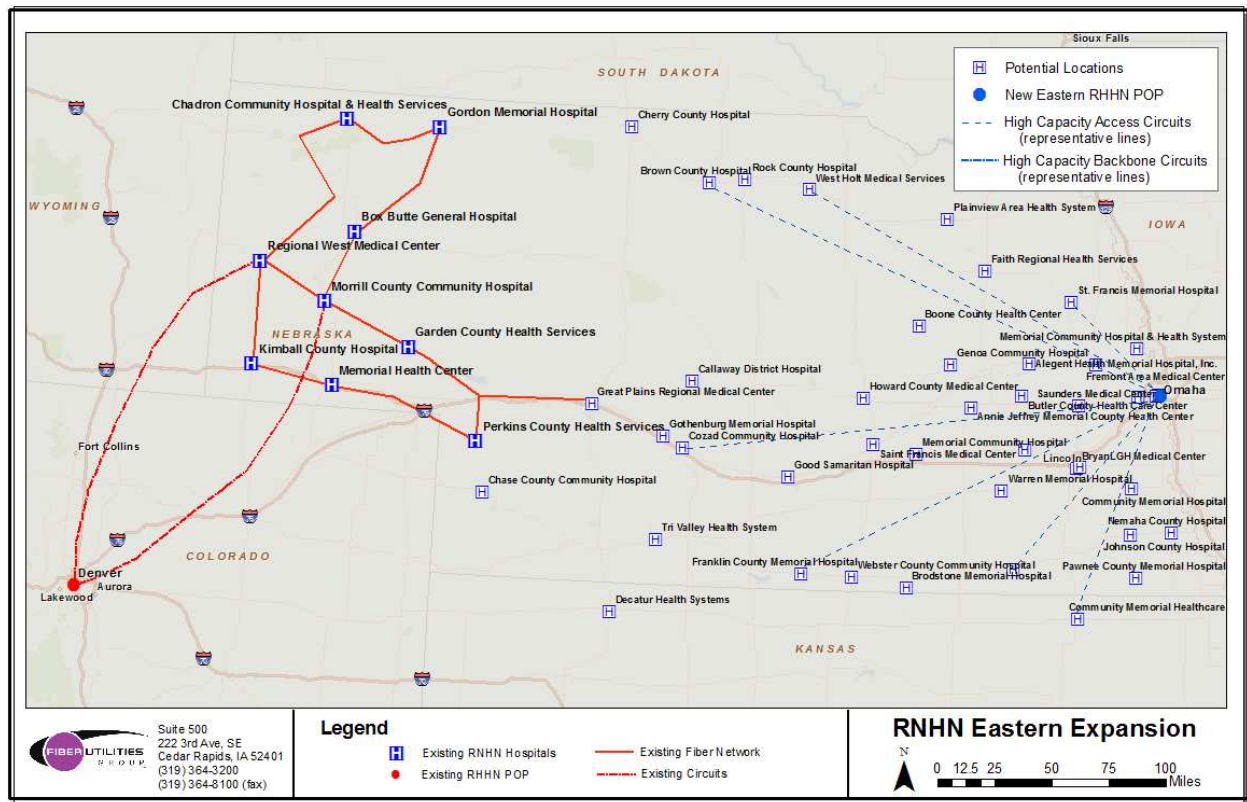RNHN's application was defined as a phased approach with additional groups of eligible users connected as they join the project in the future. This Request for Proposal (RFP) is intended to facilitate connectivity for a new group of eligible users connecting to the network. This new group (Phase 2) will complete the existing FCC Rural Health Care Pilot Program.

Project planning, project management and ongoing network operations and maintenance will be managed by Fiberutilities Group LLC located in Cedar Rapids, Iowa. Fiberutilities Group LLC currently manages over 8,000 route miles of fiber, including the existing RNHN network.

The goal of this project is to facilitate, through connectivity, improvements in patient care by making available both critical care and new ground breaking health care applications to rural users. Specific uses include (but are not limited to):

- Intra- and inter-region secure medical records sharing

- Connectivity to other regional health care networks and national interoperability initiatives, such as the Department of Health and Human Services or the Center for Disease Control initiatives via Internet2 and/or National LambdaRail

- Enabling the deployment and use of various tele-health applications in a rural environment through large bandwidth connectivity

The purpose of this RFP is to clearly define the scope and requirements needed to create these first mile connections to the RNHN network for Phase 2 users by soliciting bids from qualified bidders capable of delivering those first mile connections as specified in this RFP. Based on final RHCPP available budget as many Phase 2 participants as possible will be added to the network.

OVERVIEW OF RFP PACKAGE

This RFP bidder package was designed to be as inclusive as possible and to provide bidders sufficient information needed to submit a bid.

Included in this RFP are the following sections and attachments.

1. **Introduction and Background** provides information on the core fiber backbone network of RNHN, as well as the first mile access network, outlines FCC/USAC involvement, introduces the management company selected for network planning, operations and maintenance, and includes user and access point mapping.

2. **Overview of RFP Package**

3. **Contact Information** identifies contact individuals related to this RFP with phone, fax, and email information.

4. **Timing and Milestones Dates** outlines bid opening and closing dates, as well as acceptable response formats.

5. **Question / Clarification Process** outlines Q & A procedures for maintaining a fair, open and transparent bidding process for all bidder RFP inquiries.

6. **Bid Submission Process** confirms the specific requirements necessary to respond to this RFP.

7. **Bid Evaluation Process** outlines the criteria to be used in the selection of winning bids.

8. **Individual Location Bid Requirement** outlines the requirement for a non bundled bid response.

9. **Eligible User Information** outlines the address location and on-site contact information of eligible users participating in the access connectivity to the RNHN network under the FCC RHCPP.

10. **User Premise Requirements** outlines user on site user physical space, rack, power, environmental and security responsibilities.

11. **Core Network Access Points** outlines the address locations and contact information where bidders may connect Phase II circuits to the RNHN network.

12. **Access Circuit Design** provides pictorial view of logical lit circuit configuration.

13. **Phase 2 Access Connection Specifications – 10 MBPS symmetrical Ethernet or greater asymmetrical Ethernet Year Lit IRU** outlines preferred and acceptable bandwidth and circuit delivery requirements

14. **Required Edge Router Circuit Termination Equipment** outlines the specific provider edge equipment requirements to be provided by the bidder to access the RNHN network for Phase II.

15. **Edge Router Extended Warranty Requirements** outlines the extended coverage and term required for specified access circuit termination equipment.

16. **Bandwidth Requirements** outlines bandwidth type and quantity deemed preferable and acceptable for consideration in bid submissions for Phase II lit connectivity

17. **Availability Requirements** outlines the outage response time requirements for bidders for lit connectivity for Phase II.

18. **Performance Requirements** outlines network quality elements (latency, packet loss, etc.) deemed acceptable for consideration in bid submissions for lit connectivity for Phase 3.

19. **Lit Capacity and Equipment Operations and Maintenance Requirements** outlines the lit capacity and equipment operations and maintenance requirements for Phase II.

20. **Testing and Acceptance** outlines the process to be used to verify that lit circuits and equipment installation meets the required specifications for Phase II.

21. **Lit Capacity IRU** outlines and defines the purchase format required for lit services for Phase II.

22. **Alternatives** outline the willingness of RNHN to consider alternative proposals on specific locations that meet described criteria.

23. **Payment Process** outlines the sequential steps of processing winning bidder invoicing payment.

24. **Description of RFP #05** provides a description of this particular RFP. Please see Section 2: "Overview of RFP Package"

Phase II RFP Attachments:

> **A – Potential Participant Contact List**
>
> **B – RNHN Fiber Backbone Network**
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> **C – RNHN Eastern Expansion to Farnam**
>
> **D – RNHN Eastern Expansion Farnam to RNHN**
>
> **E – Lit Services Test and Accept Document**

CONTACT INFORMATION

All questions or requests for clarification related to the requirements specified in this RFP should be directed to:

> Kent Van Metre
> Fiberutilities Group LLC
> 222 Third Avenue SE
> Suite 500
> Cedar Rapids, Iowa, 52401
> Phone: 319- 297-6906
> Fax: 319-364-8100
> E mail: Kvanmetre@fiberutilities.com

For information on the Rural Health Care Pilot Program:

> Phone: 1-800-229-5476
> Web address: http://www.usac.org/rhc-pilot-program/

Information and documents related to this RFP may be accessed at http://www.usac.org/rhc-pilot-program/ by clicking on the "Search Posted Services" link and then clicking on the box for NE.

TIMING AND MILESTONE DATES

The bidding process will begin upon USAC posting this RFP on its website and remain open for no less than the minimum 28 days required by USAC and will fully comply with all USAC required bid posting requirements and timelines. Bids shall be due 30 days from the date USAC posts the RFP to the website. (See http://www.usac.org/rhc-pilot-program/vendors/step03/default.aspx)

Bid Response Deadline .... 5:00 PM Central Standard Time 30 days from posting

Bid Award Announcements (approx.) .... 2 weeks after bid response deadline

QUESTION / CLARIFICATION PROCESS

RNHN is committed to a fair, open, and transparent bidding process and will hold two separate clarification conference calls related to the information presented in this RFP.

All questions or requests for clarification should be presented at these sessions which are open to all bidders bidding the project.

Calls will be held on the following dates at the following times:

1. 1st Call: Held on the second (2nd) Friday following the RFP being posted to the USAC web site. 10:00 a.m. CST

2. 2nd Call: Held on the third (3rd) Friday following the RFP being posted to the USAC web site. 10:00 a.m. CST

The conference call bridge number for each call will be: (218) 895-1840 code 508499#

Verbal and written communications shall not be binding on RNHN unless expressly set forth in writing and signed by RNHN.

Bidders seeking clarification have sole responsibility for attending these conference calls.

Call notes or minutes will not be distributed.

A bidder email distribution list will be created for the purpose of distributing any additional written information by RNHN.

Any bidder desiring to be included on this distribution list should send an email with contact information to: Kvanmetre@fiberutilities.com with "RNHN PHASE II BIDDER EMAIL DISTRO" in the subject line.

These group clarification conference calls and the bidder distribution list will be the sole mechanism used for distributing additional information related to this RFP.

BID SUBMISSION PROCESS

All bidders responding to this RFP must have a valid Service Provider Identification Number (SPIN) issued by USAC.

The bidder's SPIN number must be provided at the time of the RFP response or the bid may be disqualified.

Bidders must make certain that their SPIN qualifies them for participation in the RHCPP.

Any questions by bidders related to SPIN's or USAC's requirements should be directed to USAC by email (RHCPILOT@usac.com) or by telephone (1-800-229-5476).

All RFP responses should contain complete contact information for the responding bidder (name, company, mailing address, phone number, fax number and email address).

All RFP responses should include background information on the bidders' company, including, at a minimum, a brief resume of financial, technical and managerial qualifications, areas of expertise, number of years in business, website URL if applicable, and any other information the bidder feels is important related to their ability to respond to this RFP.

All responses to this RFP must be electronic and received in MS Word or PDF format at: Kvanmetre@fiberutilities.com with "**RNHN Phase II RFP RESPONSE**" in the subject line. **All RFP RESPONSES MUST BE RECEIVED BY NO LATER THAN THIRTY DAYS AFTER THE RFP BEING POSTED ON THE USAC WEBSITE. ANY RESPONSE SUBMITTED AFTER THIS DEADLINE MAY NOT BE CONSIDERED FOR THE PROJECT.**

This RFP is not the contract between RNHN and the winning bidder(s).

BID EVALUATION PROCESS

Bids not meeting the specifications as outlined in this RFP may be disqualified.

It is anticipated that Phase II of the RHCPP will be the final phase of the project. As many remaining participants as economically feasible within the remaining available funding will be added to the network. RNHN highly prefers connectivity that is 100 Mbps symmetrical Ethernet or greater, although other capacities will be considered. RNHN realizes some proposed sites may not have this option available inside the budgetary constraints of the final phase of the project. Because RNHN highly prefers 100 Mbps symmetrical Ethernet or greater but acknowledges this alternative may not exist in all proposed locations at pricing that conforms to the overall budget, bids will be separately scored in the three categories listed below. Locations that offer 100 Mbps symmetrical Ethernet or greater connectivity conforming to RFP specifications will receive additional scoring weight. Because it is the highly preferred alternative RNHN reserves the right to reject bids for less than 10 Mbps asymmetrical Ethernet.

Bids will be evaluated based on the following criteria:

   a) Overall initial project cost Phase II (A):

      a. Category 1 = 100 Mbps symmetrical Ethernet or greater (highly preferred alternative)

      b. Category 2 = 10-100 Mbps symmetrical Ethernet (acceptable alternative)

   b) Overall initial project cost Phase II (B):

a. Category 1 = 1 Gbps symmetrical Ethernet

b. Category 2 = 100 Mbps symmetrical Ethernet

c) Cost per Mbps (total $ divided by total Mbps)

d) Meeting the highly preferred 100 Mbps symmetrical Ethernet or greater criteria will receive extra points in scoring

e) Guaranteed installation timelines (defined as tested and accepted)

f) Quality/ clarity/compliance of RFP response, favorable renewal options, favorable overall terms and conditions, and favorable service level agreements.

g) Delivery timelines should be included for each location being bid as indicated below and will be scored as follows in the award weighting:

60 days or less .... Most Preferred

90 days or less .... Preferred

120 days or less .... Acceptable

Greater than 120 days .... Least Preferred

Failure to clearly indicate a delivery timeline as listed above will result in a score of "Least Preferred."

Overall project cost by category will not be weighted less than any other category.

RNHN reserves the right to contact a bidder after submission of bid proposals for the purpose of clarifying a bid proposal to ensure mutual understanding. This contact may include written questions, interviews, site visits, and a review of past performance. This information may be used to evaluate the bidder's bid proposal. However, the information received from the bidder shall not be considered in the evaluation of a bidder's bid proposal if the information materially alters the content of the bid proposal.

RNHN reserves the right to waive deficiencies in a bid proposal. The decision as to whether a deficiency will be waived or will require the rejection of a bid proposal will be at the sole discretion of RNHN. This reserved right does not diminish RNHN' right to reject a bid proposal if bidder fails to comply or respond to any part of this RFP.

Upon award of a contract, the bidder will provide certification per USAC requirements and will assist RNHN in the preparation of the Network Cost Worksheet (NCW). These are required for the Funding Commitment Letter (FCL) issued by USAC.

The successful bidder must, within thirty (30) days, enter into a contract with RNHN to implement the service contemplated by this RFP (see Vendor Contract section). Failure of a successful bidder to agree to the terms of a contract within a timely manner may be grounds for RNHN to award the project to another bidder.

Winning bidders shall agree to maintain transaction documentation and records for a period of 5 years after payment in compliance with FCC rules and USAC document retention requirements.

This is a request for proposal, not an offer. Submission of a response does not constitute acceptance nor does an award. An offer and acceptance only occurs upon the successful negotiation and execution of an agreement between the bidder and RNHN. RNHN reserves the right to not award a bid for any reason for any or all user locations. RNHN also reserves the right to re-bid specific user connections in a later phase of the project should adequate time exist to do so.

RFP responses will not be shared with other bidders.

All bids submitted will receive a closure response consisting of either a) the awarding of the bid or b) a non-award notification letter via regular mail. Closure responses will be sent to the contact name and address indicated on the bid response. Bidders should anticipate a minimum of 2 weeks to complete the analysis of bids and provide the appropriate closure response.

INDIVIDUAL LOCATION BID REQUIREMENT

Bids must be submitted "ala carte" for individual user locations on an individual location basis.

Bundled bids requiring acceptance of multiple locations will not be accepted.

Bidders may bid multiple products for the same location if they desire provided the products meet the criteria outlined in the RFP.

ELIGIBLE USER INFORMATION

RNHN seeks bids meeting the connectivity specifications set forth in this RFP.   The following eligible user listing (Table 1) lists the "A" location for each circuit as part of Phase II (A). The "Z" location shall be the Farnam Hub.

Table 1.

PHASE II LOCATIONS

Nbr	Name	Address	City	ST	Zip Code
1	Brown County Hospital	945 East Zero	Ainsworth	NE	69210
2	Boone County Health Center	723 West Fairview	Albion	NE	68620
3	West Holt Medical Services	406 W. Neely St.	Atkinson	NE	68713
4	Nemaha County Hospital	2022 13th St.	Auburn	NE	68305
5	Memorial Community Health	1423 Seventh St.	Aurora	NE	68818
6	Rock County Hospital	102 E. South St.	Bassett	NE	68714
7	Memorial Community Hospital & Health System	810 N. 22nd St.	Blair	NE	68008
8	Boys Town National Research Hospital West	14000 Boys Town Road	Boys Town	NE	68010
9	Callaway District Hospital	211, Kimball St.	Callaway	NE	68825
10	Tri Valley Health System	1305 W. Hwy 6 & 34	Cambridge	NE	69022
11	Cozad Community Hospital	300 E. 12th St.	Cozad	NE	69130
12	Butler County Health Care Center	372 S. 9th St.	David City	NE	68632
13	Jefferson Community Health Center	2200 H St.	Fairbury	NE	68352
14	Franklin County Memorial Hospital	1406 Q St.	Franklin	NE	68939
15	Fremont Area Medical Center	450 E. 23rd St.	Fremont	NE	68025
16	Warren Memorial Hospital	905 2nd St.	Friend	NE	68359
17	Genoa Medical Facilities	706 Ewing Ave.	Genoa	NE	68640
18	Gothenburg Memorial Hospital	910 20th St.	Gothenburg	NE	69138

19	Saint Francis Medical Center	2620 W. Faidley Ave.	Grand Island	NE	68802
20	Chase County Community Hospital	600 W. 12th St.	Imperial	NE	69033
21	Good Samaritan Hospital	10 E. 31st St.	Kearney	NE	68848
22	BryanLGH Medical Center	1600 S 48th Street	Lincoln	NE	68506
23	Saint Elizabeth Regional Medical Center	555 S. 70th Street	Lincoln	NE	68510
24	The University of Nebraska Medical Center	42nd and Emile Street	Omaha	NE	68198
25	Community Memorial Healthcare	708 North 18th	Marysville	KS	66508
26	Faith Regional Health Services	2700 W. Norfolk Ave	Norfolk	NE	68702
27	Great Plains Regional Medical Center	601 W. Leota St.	North Platte	NE	69101
28	Decatur Health Systems, Inc.	810 West Columbia	Oberlin	KS	67749
29	Boys Town National Research Hospital	555 N. 30th St.	Omaha	NE	68131
30					
31	Pawnee County Memorial Hospital	600 I St.	Pawnee City	NE	68420
32	Plainview Area Health System	704 N. 3rd St.	Plainview	NE	68769
33	Webster County Community Hospital	6th & Franklin	Red Cloud	NE	68970
34	Alegent Health Memorial Hospital, Inc.	104 W. 17 St	Schuyler	NE	68661
35	Memorial Health Care Systems	300 N. Columbia Ave.	Seward	NE	68434
36	Howard County Medical Center	1113 Sherman	St. Paul	NE	68873
37	Brodstone Memorial Hospital	520 East Tenth Street	Superior	NE	68978
38	Community Memorial Hospital	1579 Midland St.	Syracuse	NE	68446
39	Johnson County Hospital	202 High St.	Tecumseh	NE	68450
40	Cherry County Hospital	510 N. Green St.	Valentine	NE	69201
41	Saunders Medical Center	1760 County Road J	Wahoo	NE	68066
42	St. Francis Memorial Hospital	430 N. Monitor St.	West Point	NE	68788

USER PREMISE REQUIREMENTS

Each eligible user listed in Table 1 will provide adequate: a) physical and rack space, b) conditioned power, c) environmental control, and d) controlled security for required equipment as listed below.

It is the responsibility of each eligible user to cause the following elements to be available on premise to facilitate the adequate installation, maintenance and security of the access circuit.

POWER

Eligible user shall supply power to the mounting structure as follows:

1. 110 Volts AC

2. 15 amp fusing

3. Surge protection including lightning protection.

MOUNTING

Eligible user shall supply mounting structure as follows:

EIA-standard 19 in. Telco rack or equipment cabinet with at least one half rack with a minimum of 8 Rack Units of available space. Rack shall have clear work area of 36 inches in front and back of unit, with clear access to the rear of the unit. Eligible user shall use reasonable care in securing the area surrounding the mounting rack from free physical access.

HVAC

Eligible user shall locate the mounting rack in an area served by the building heating and cooling system that is capable of maintaining a constant ambient temperature between 60 degrees F at 20% to 65% relative humidity level. Temperature set point is 72 degrees F with a 2 degree F variation. Humidity set point is 50% with a 5% variation.

PHYSICAL SECURITY

Eligible user shall ensure the physical security of mounting. Personnel allowed to access the physical area should be listed with the network operator. It is recommended that a log record be kept documenting any access to the area including name, company, start and end time, and reason for access.

In order to provide a bid for an access connection it may be required that bidders work directly with on-site personnel to understand the specific logistical environment. In some cases new fiber or (other facility) entrances may be required. In other cases wireless components may be needed to provide a connection of the size and quality specified in this RFP.

An on-site contact person has been identified in this RFP for each user location.

It is anticipated that various bidders will be in contact with the on-site contact person seeking assistance with acquiring the logistical information needed to provide a bid.

It is the responsibility of the bidder to contact each site they bid on to request any and all site information needed to adequately prepare their bid

A Fiberutilities Group contact person identified in the Contact Information section of this RFP is the resource coordinator for both bidders and user sites. This resource is intended to facilitate bidders receiving the on-site information they may need to respond to this RFP. *The resource coordinator does not have any influence on the outcome of any bids or on-site requirements in its capacity as a facilitator of information exchange between parties.*

Should any questions or issues regarding this information exchange arise please do not hesitate to contact the Fiberutilities Group contact listed in the Contact Information section of this RFP.

NETWORK ACCESS POINTS

All Access Circuits connecting Eligible Users to the RNHN (Phase II [A]) will terminate in the Nebraska Colocation Center, Third floor, Suite 300A at the Farnam Hub.

For Backbone Circuits designed to connect the Farnam Hub to the RNHN Fiber backbone (Phase II[B]) bidders may access the network at any of the specific network access points listed below in Table 2.

TABLE 2.

Location	Address	Usage
Regional West Medical Center	4021 Avenue B, Scottsbluff, NE 69361	RNHN Fiber Backbone Connection
Morrill County Community Hospital	1313 S Street, Bridgeport, NE 69336	RNHN Fiber Backbone Connection
Denver Gas & Electric Building	910 E 15th Street, Denver, CO 80202	RNHN Fiber Backbone Connection
Farnam Hub	Nebraska Colocation Center, 3rd Floor, Suite 300A, 1623 Farnam Street, Omaha, NE 68102	RNHN Fiber Backbone Connection and RNHN Eastern Expansion Terminating Hub

BACKBONE CIRCUIT SPECIFICATIONS

High capacity circuits connecting the Farnam Hub to the RNHN fiber network in western Nebraska (Backbone Circuits) must originate at the Farnam Hub and may terminate in any of the OTHER network access points listed in Table 2. This RFP is requesting two diverse circuits from the Farnam Hub to the RNHN Fiber Network. Vendors who wish to respond to both circuits must provide evidence of geographic diversity between the two circuit paths from Farnam to the selected network access points.

At least one of the backbone circuit connections must be 1Gbps symmetrical Ethernet. It would be preferable for both circuits to be 1Gbps. However, the secondary circuit may be offered at 100Mbps symmetrical Ethernet. Each circuit must be provided with a core router to allow for proper interconnection between the access circuits and the RNHN fiber backbone. (see Farnam Hub Core Router Equipment Requirements)

Delivery of circuits to network locations <u>must</u> include **all** costs to deliver the service to a RNHN core router located in the facility for the entire term period including, but not limited to, any required electronics, cross connects, riser fees, collocation fees and any other one-time or recurring costs or fees.

The Farnam and Denver Gas & Electric network access points are not owned by RNHN. RNHN cannot guarantee space availability, sufficient power, or any other collocation arrangement for

these locations. Bidders must contact the location owner to discuss specific collocation arrangements to accommodate their bid. Bidders are solely responsible for determining and securing appropriate collocation sites for the term of the agreement.

Contacts for discussions regarding collocation (costs, availability, power, etc.) with the location owners are the following:

Regional West Medical Center	Andrew Alberry	(308) 630-1050
Morrill County Hospital	Connie Christensen	(308) 262-1616
Denver Gas & Electric	Nancy Casados	(303) 825-2552
Farnam Hub	Tim Gilkerson	(402) 342-2656

FARNAM HUB CORE ROUTER EQUIPMENT REQUIREMENTS

The existing RNHN network core routers are Juniper MX480's configured to provide sufficient throughput and gateway routing capabilities. The RNHN Eastern Expansion requires the addition of two core routers at the Farnam Hub location – one connected to each backbone circuit. For example, if one vendor wishes to provide two diverse backbone circuits, RNHN requires that two core routers be supplied with the circuits as well. This requirement ensures that there are enough ports and sufficient capacity to terminate all the access circuit traffic and still allow for interconnection with the RNHN Fiber Backbone network.

The backbone connection provided by the bidder may contain whatever equipment is necessary to provide Layer 2 transport. The bidder must also provide a Layer 3 Core Router with the following characteristics to allow usage of existing management software to configure, maintain, and monitor the access connections and the RNHN network:

- Security, access control, and routing policies to properly and seamlessly integrate the access connection with the RNHN network.

- **Because the core network routers are Juniper MX480 routers, the core routers must seamlessly interoperate with Juniper management software used to manage the RNHN core network.**

- 20 copper Gigabit Ethernet ports

- 20 singlemode 1310nm Gigabit Ethernet ports

- 2 singlemode 1310nm 10 gigabit Ethernet ports

- Support aggregate throughput of 60Gbps

- support full scale L3 route and L3 VPN

- Operate a single operating system with features that are consistent with the features of the RNHN network routers.

ACCESS CIRCUIT SPECIFICATIONS

The existing RNHN network is a combination of physical Layer 0 and 1 fiber backbone cable, Layer 2 carrier Ethernet transport switches, and Layer 3 logical (IP services) core routers. As the first mile extension of the RNHN network, this access network must adhere to established architectural parameters and services frameworks. In particular, to provide consistent access to the RNHN network, access circuits must be a combination of these same elements of Layer 0 and 1

connectivity, Layer 2 transport, and Layer 3 router/firewall capabilities. Without all of these elements, the access circuit will not function correctly with the RNHN network.

For instance, the access connections may be used for health record sharing applications, connectivity to other regional and national networks via Internet2 / National LambdaRail, and various tele-health applications. These applications have in common the need to manage and control connectivity using tagged Layer 2 and Layer 3 IP concepts and require the use of a router both at the core and the edge of the services network. Because the RNHN network switches and routers are already in place, the access connection circuit must be a precisely configured combination of the transport connection and the edge router. As such, the edge router is equipment that terminates a carrier's or other provider's transmission facility and any router / switch that is directly connected to either the facility or the terminating equipment.

The RNHN network routers are Juniper MX480's configured to provide sufficient throughput and gateway routing capabilities. The RNHN network routers are connected to the RNHN network. Therefore, Ethernet traffic can enter the network at any transport switch and be carried to the RNHN network routers for delivery to the destination.

In addition to adequate physical space, conditioned power, environmental control, and controlled security, each eligible user, such as a hospital or clinic, will also provide (at its expense and not a part of this RFP) a customer premise router that offers an additional layer of firewall security in the network and selective routing capabilities.

RNHN Phase II of the RHCPP is anticipated to be the final phase of the project. As many remaining eligible users as economically feasible within the remaining available funding will be added to the network. RNHN prefers connectivity that is 100 Mbps symmetrical Ethernet (or greater). RNHN, however, realizes some proposed sites may not have this option available inside the budgetary constraints of the final phase of the project. Because RNHN prefers 100 Mbps symmetrical Ethernet or greater but acknowledges this alternative may not exist in all proposed locations at pricing that conforms to the overall budget, bids will be separately scored in the two categories: (1) 100 Mbps symmetrical Ethernet or greater, and (2) 10 – 100 Mbps symmetrical Ethernet.

RNHN is a private network. The access connection being bid may be routed through a core network however MAY NOT use the public internet to be routed to RNHN.

The Layer 2 transport must be pure Ethernet capable of being handed off to the RNHN network at the port level.

Whatever transport technology is chosen, the connection must be capable of passing 802.1Q VLAN tags through the access connections and the RNHN network.

The interface from the edge router at the participant demarcation (facing the hospital LAN) will be a copper cable connected to a 10/100/1000 Ethernet port. RNHN requires that the equipment interface to the participant LAN will be a router with firewall protection. The access connections provided by the vendor must be running firewall and security policies to protect the RNHN network and those connected to it from possible network threats.

Routing decisions at the edge router will be made based on a combination of routing policies and static routes

PROVIDER EDGE ROUTER EQUIPMENT REQUIREMENTS

The access connection provided by the bidder may contain whatever equipment is necessary to provide Layer 2 transport. The bidder must also provide a Layer 3 Provider Edge Router with the following characteristics to allow usage of existing management software to configure, maintain, and monitor the access connections and the RNHN network:

- Security, access control, and routing policies to properly and seamlessly integrate the access connection with the RNHN network.

- **Because the core network routers are Juniper MX480 routers, the provider edge router must seamlessly interoperate with Juniper management software used to manage the RNHN core network.**

- Support for T1, E1, Synchronous Serial, ISDN BRI, ADSL/2/2+, G.SHDSL, and Gigabit Ethernet interfaces

- 4 fixed Ethernet LAN ports

- Support throughput of 100Mbps

- 3G/4G modem support

- 1 GB DRAM

- Operate a single operating system with features that are consistent with the features of the RNHN network routers.

Bidder shall be responsible for placing edge router in user rack and verifying power functions are operational. RNHN shall be responsible for configuring and maintaining the edge router during and beyond the extended warranty period.

ROUTER EXTENDED WARRANTY REQUIREMENTS

Bidder shall provide and include in bid pricing a pre-paid, manufacturer's extended warranty for no less than 3 years for the Provider Edge and Core Routers (if providing backbone circuits). This contract must provide 12X5 next business day parts delivery, 24X7 technical support, software updates and upgrades, and access to customer support center web services. The vendor shall confirm the availability of next day delivery service, or, where next day delivery in unavailable, the vendor shall provide a next day shipment service.

Bidder shall be responsible for executing the extended warranty agreement on behalf of RNHN but shall have no responsibility for maintaining the edge router.

Bidder shall be responsible for placing the router in the rack and verifying power functions are operational. RNHN shall be responsible for configuring, and maintaining the routers during and beyond the extended warranty period.

In the event the warranty cannot be extended to RNHN, the vendor shall nevertheless provide RNHN with all the benefits of the warranty provided to the vendor.

BANDWIDTH REQUIREMENTS

Provided it meets all specifications stated in this RFP, the project is technology / infrastructure and bidder agnostic regarding the underlying transport medium employed to deliver bandwidth to the endpoint network elements.

If wireless technology is utilized it may be licensed or unlicensed spectrum. If unlicensed spectrum is proposed vendor must provide HIPAA compliant encryption capabilities as part of their proposal.

AVAILABILITY REQUIREMENTS

Availability is a percentage of total time that service is operative when measured over a 30 calendar month (720 hour) period. Ethernet service is considered inoperative when service is degraded to a level in which the packets are not passed between the user point of demarcation and the host point of demarcation. The end-to-end availability test standard for Ethernet service specified for the access connection is:

Specification	Availability
Single Cable Entrance	99.5%

The response time by the bidder shall be no greater than 3 hours from notification by the network operator or the end user of the service interruption. Vendor shall provide proactive notification and update the network managers hourly on progress attempts to fix the incident. Vendor shall also provide an escalation contact list.

These requirements will be included in the contract with successful bidders.

PERFORMANCE REQUIREMENTS

Performance is noted in terms of packet loss and latency. Packet Loss Ratio is defined as percentage of in-profile Ethernet frames not reliably delivered between the edge router to the ingress/egress point of the core network router over a given measurement interval.

Latency is defined as the average time it takes a packet to travel from the edge router to the ingress/egress point of the RNHN network router over a given measurement interval.

The Packet Loss Ratio and Latency standards for end-to-end portions of Ethernet service are

SPECIFICATION	MONTHLY AVERAGE
Packet Loss Ratio	No more than 0.5%
Latency	No more than 60ms

These requirements will be included in the contract with successful bidders.

LIT CAPACITY EQUIPMENT OPERATIONS AND MAINTENANCE REQUIREMENTS

Operations and maintenance of lit capacity by the vendor is required for the lit capacity to function correctly. Such operations and maintenance of the lit capacity must be provided either pursuant to the terms of the capacity IRU or pursuant to the terms of any alternative proposal made pursuant to the "Alternatives" section below.

In all cases the edge router equipment and required optical jumpers specified above will be operated and maintained by RNHN for the duration of the term. This includes initial configuration, testing, and ongoing management of the device.

TESTING AND ACCEPTANCE

Bidders are required to fully describe their service / performance level agreements in their bid submissions.

These service / performance agreements must minimally meet the criteria explicitly defined in the RFP requirements.

Service and performance level details will be considered material criteria for awarding contracts.

As specific contracts are awarded under this program, a testing and acceptance process as outlined in Attachment D will be performed by the network operator for each specific contract awarded based on the information provided in the proposal of the winning vendor(s). This testing and acceptance process will be consistent with customary and normal industry procedures and practices used to validate and verify the technology used to deliver the required bandwidth and the needs of the users of the access connections.

Testing and acceptance verification procedures will be performed by the network operator.

Upon the successful verification of service / performance criteria as outlined in the bid via completion of the testing and acceptance process, a formal acceptance document will be issued to the bidder by the network operator.

Bidders may invoice RNHN for services immediately upon receipt of the acceptance document. Payment is subject to the "Payment Process" section below.

LIT CAPACITY IRU

RNHN is a long-term initiative designed to improve patient care through broadband connectivity.

All bids meeting the specifications listed in the RFP should be priced as a year lit capacity IRU. No other terms will be considered or accepted except as set forth below in "Alternatives."

A lit capacity IRU is defined as a one-time, up-front payment covering all costs, fees and taxes, which explicitly includes operations and maintenance (see "Lit Capacity and Equipment Operations and Maintenance Requirements" above) from the time of acceptance (see "Testing and Acceptance" above) through to the end of the term.

RNHN is seeking a 10 year term for all lit capacity IRU's however shorter (or longer) terms may be submitted. No term under 120 months will be considered.

All lit services bids must contain a renewal clause that must be at the sole option of RNHN and shall not "evergreen" without explicit RNHN approval. Under the terms of the renewal clause, RNHN and bidder may renegotiate more favorable terms if mutually desired. Moreover, the renewal will include the required maintenance and operation of the lit capacity.

PAYMENT PROCESS

Payment is subject to 15% funding by RNHN and 85% by funds administered by USAC.

RNHN will authorize payment to the winning bidder(s) upon receipt of funding after successful testing and acceptance. RNHN does not, given the relatively compressed delivery expectations of the RNHN project (60 – 120 days), anticipate partial payments.

RNHN expects the selected bidder(s) to provide services as specified. RNHN does not guarantee any minimum compensation to the bidder or any minimum usage or purchase of the bidder's services or products.

Payments are expected to be administered as follows:

- Successful bidder will assist in the completion of a Network Cost Worksheet required by USAC to issue a Funding Commitment Letter (FCL)

- RNHN will be issued a FCL from USAC for services awarded.

- RNHN will place an order with the winning bidder(s) upon receipt of the FCL.

- Bidder will complete installation of the access connection(s) per specifications (including required edge router) and notify RNHN that the access connection(s) is ready for testing and acceptance.

- RNHN will work with bidder(s) within ten (10) working days of written notice by bidder(s) of readiness to complete the testing and acceptance process as outlined in bidder contract(s).

- Upon acceptance of service(s) via the acceptance document, bidder(s) may invoice RNHN for products and services.

- RNHN will be responsible for directly paying 15% of the invoice upon satisfactory completion of testing and acceptance. At that time, RNHN will also provide the vendor(s) with the necessary documentation required for the vendor(s) to process their 85% payment request directly with USAC.

- RNHN will create the required USAC invoicing material and bidder(s) will then countersign each USAC invoice acknowledging receipt of the 15% co-payment and directly submit each invoice to USAC for processing of the 85% balance.

- Contact information for USAC invoice submission will be provided with the acceptance document.

- USAC processes invoices bi-monthly. USAC has informed RNHN that final payment for services should be expected directly from USAC to bidder(s) within 30 days of the receipt of a properly processed and submitted invoice.

- Bidder(s) agrees to maintain transaction documentation and records for a period of 5 years after payment in compliance with FCC rules and USAC document retention requirements.

DESCRIPTION OF RFP #05

Please see Section 2: Overview of RFP Package

PHASE II RFP ATTACHMENTS

A – Potential Participant Contact List

B – RNHN Fiber Backbone Network

C – RNHN Eastern Expansion to Farnam

D – RNHN Eastern Expansion Farnam to RNHN

E – RNHN Lit Services Test & Accept Document

ATTACHMENT A – EASTERN EXPANSION MEDICAL FACILITIES

Nbr	Name	Address	City	ST	Zip Code	Administrator	Phone
1	Brown County Hospital	945 East Zero	Ainsworth	NE	69210	Shannon Sorenson, PT, DPT	(402) 387-2800
2	Boone County Health Center	723 West Fairview	Albion	NE	68620	Victor N. Lee, FACHE	(402) 395-2191
3	West Holt Medical Services	406 W. Neely St.	Atkinson	NE	68713	Michael Coyle, MBA	(402) 925-2811
4	Nemaha County Hospital	2022 13th St.	Auburn	NE	68305	Marty Fattig, FACHE	(402) 274-4366
5	Memorial Community Health	1423 Seventh St.	Aurora	NE	68818	Diane Keller, MHA	(402) 694-3171
6	Rock County Hospital	102 E. South St.	Bassett	NE	68714	Stacey A. Knox	(402) 684-3366
7	Memorial Community Hospital & Health System	810 N. 22nd St.	Blair	NE	68008	Sally Harvey	(402) 426-2182
8	Boys Town National Research Hospital West	14000 Boys Town Road	Boys Town	NE	68010	John K. Arch, FACHE	(402) 498-6511
9	Callaway District Hospital	211, Kimball St.	Callaway	NE	68825	Marvin Neth	(308) 836-2228
10	Tri Valley Health System	1305 W. Hwy 6 & 34	Cambridge	NE	69022	Roger Steinkruger	(308) 697-3329
11	Cozad Community Hospital	300 E. 12th St.	Cozad	NE	69130	Lyle E. Davis	(308) 784-2261
12	Butler County Health Care Center	372 S. 9th St.	David City	NE	68632	Donald T. Naiberk	(402) 367-1200
13	Jefferson Community Health Center	2200 H St.	Fairbury	NE	68352	William L. Welch, FACHE	(402) 729-3351
14	Franklin County Memorial Hospital	1406 Q St.	Franklin	NE	68939	Linda D. Bush	(308) 425-6221
15	Fremont Area Medical Center	450 E. 23rd St.	Fremont	NE	68025	Patrick Booth	(402) 721-1610
16	Warren Memorial Hospital	905 2nd St.	Friend	NE	68359	John Wilson, MHSA	(402) 947-2541
17	Genoa Medical Facilities	706 Ewing Ave.	Genoa	NE	68640	David Jennings	(402) 993-2283
18	Gothenburg Memorial Hospital	910 20th St.	Gothenburg	NE	69138	Kayleen Dudley	(308) 537-3661
19	Saint Francis Medical Center	2620 W. Faidley Ave.	Grand Island	NE	68802	Daniel P. McElligott, FACHE	(308) 398-5602
20	Chase County Community Hospital	600 W. 12th St.	Imperial	NE	69033	Lola Jones	(308) 882-7111
21	Good Samaritan Hospital	10 E. 31st St.	Kearney	NE	68848	Michael Schneiders, MBA	(308) 865-7900
22	BryanLGH Medical Center	1600 S 48th Street	Lincoln	NE	68506	Kenneth Foster	(402) 481-5533
23	Saint Elizabeth Regional Medical Center	555 S. 70th Street	Lincoln	NE	68510	Kim Moore	(402) 219-7700
24	The University of Nebraska Medical Center	42nd and Emile Street	Omaha	NE	68198	Donald Leuenberger	(402) 559-6300

| 25 | Community Memorial Healthcare | 708 North 18th | Marysville | KS | 66508 | Curtis Hawkinson | (785(562-2311 |
26	Faith Regional Health Services	2700 W. Norfolk Ave	Norfolk	NE	68702	Melissa Nemec	(402) 844-8128
27	Great Plains Regional Medical Center	601 W. Leota St.	North Platte	NE	69101	Krystal Claymore	(308) 696-8000
28	Decatur Health Systems, Inc.	810 West Columbia	Oberlin	KS	67749	Lynn Doeden	(785) 475-2208
29	Boys Town National Research Hospital	555 N. 30th St.	Omaha	NE	68131	John K. Arch, FACHE	(402) 498-6511
31	Pawnee County Memorial Hospital	600 I St.	Pawnee City	NE	68420	James A Kubik	(402) 852-2231
32	Plainview Area Health System	704 N. 3rd St.	Plainview	NE	68769	Rick Gamel	(402) 582-4245
33	Webster County Community Hospital	6th & Franklin	Red Cloud	NE	68970	Marianna Harris	(402) 746-5600
34	Alegent Health Memorial Hospital, Inc.	104 W. 17 St	Schuyler	NE	68661	Connie Peters	(402) 352-2441
35	Memorial Health Care Systems	300 N. Columbia Ave.	Seward	NE	68434	Roger J. Reamer	(402) 643-2971
36	Howard County Medical Center	1113 Sherman	St. Paul	NE	68873	Arlan Johnson	(308) 754-4421
37	Brodstone Memorial Hospital	520 East Tenth Street	Superior	NE	68978	John Keelan	(402) 879-3281
38	Community Memorial Hospital	1579 Midland St.	Syracuse	NE	68446	Michael D. Harvey	(402) 269-2011
39	Johnson County Hospital	202 High St.	Tecumseh	NE	68450	Diane Newman	(402) 335-3361
40	Cherry County Hospital	510 N. Green St.	Valentine	NE	69201	Brent A. Peterson	(402) 376-2525
41	Saunders Medical Center	1760 County Road J	Wahoo	NE	68066	Ken Archer	(402) 443-4191
42	St. Francis Memorial Hospital	430 N. Monitor St.	West Point	NE	68788	Ronald O. Briggs, FACHE	(402) 372-2404

ATTACHMENT B – RNHN FIBER BACKBONE NETWORK
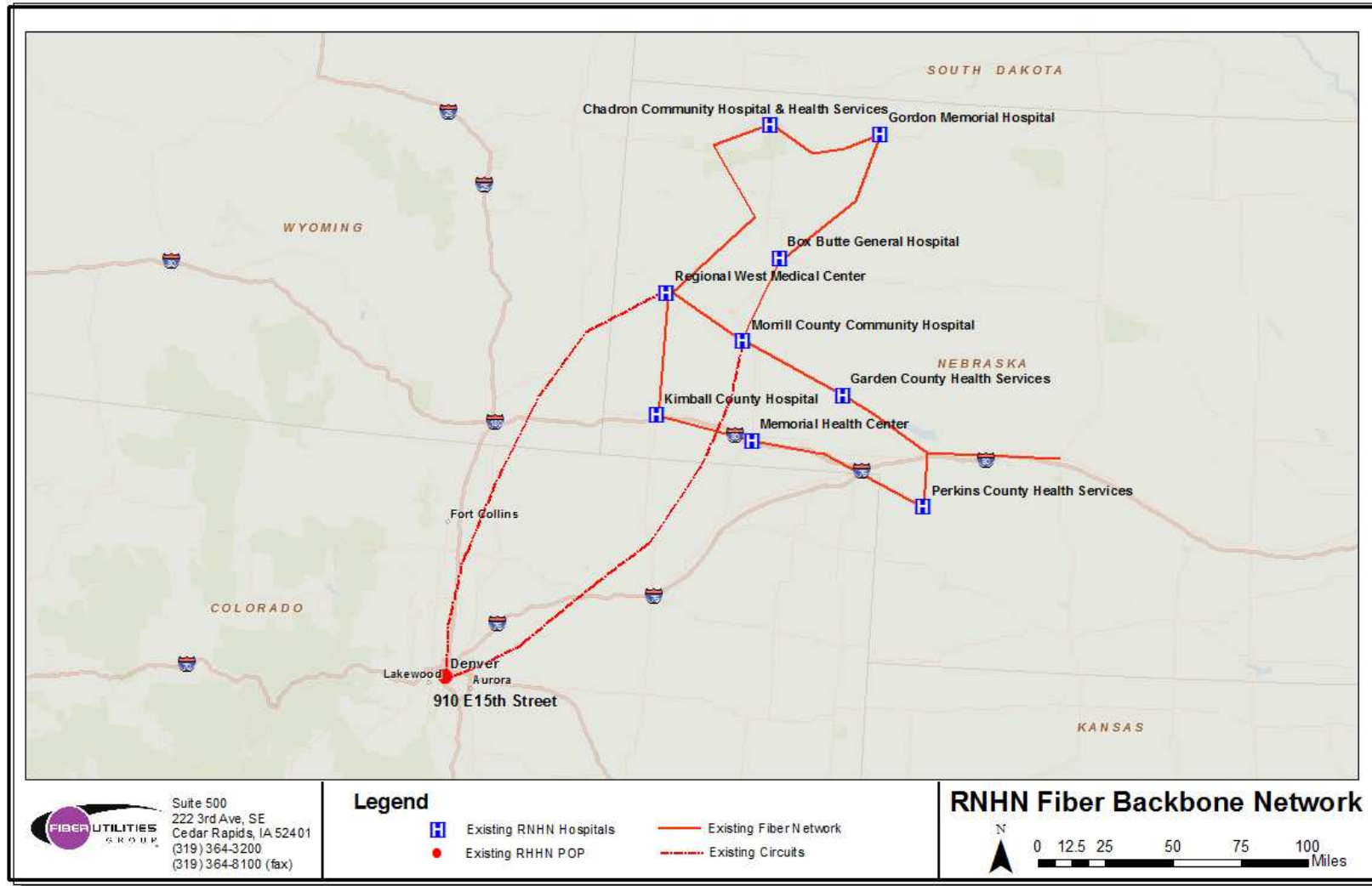
ATTACHMENT C – RNHN EASTERN EXPANSION TO FARNAM
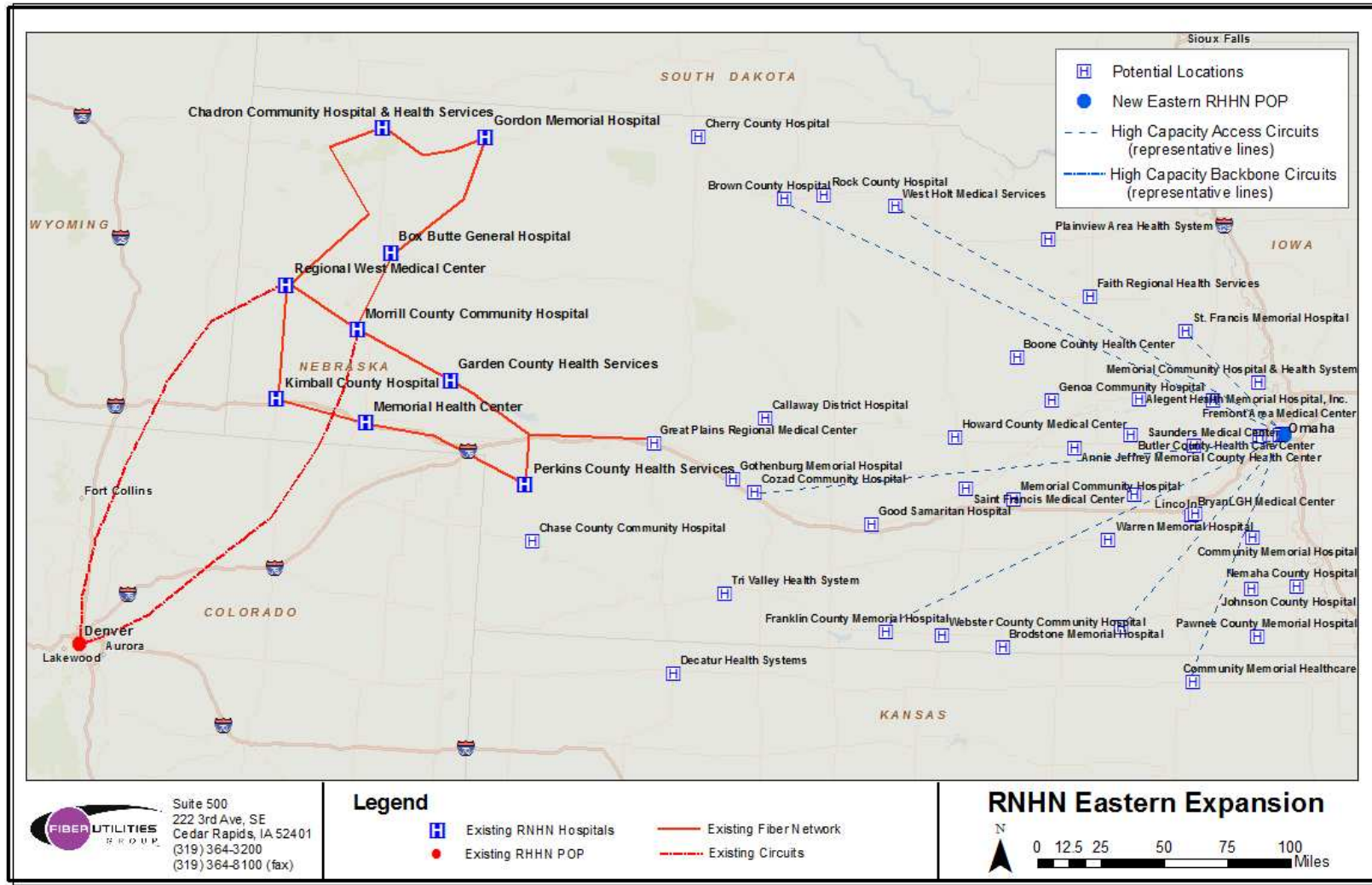
ATTACHMENT D – RNHN EASTERN EXPANSION FARNAM TO RNHN
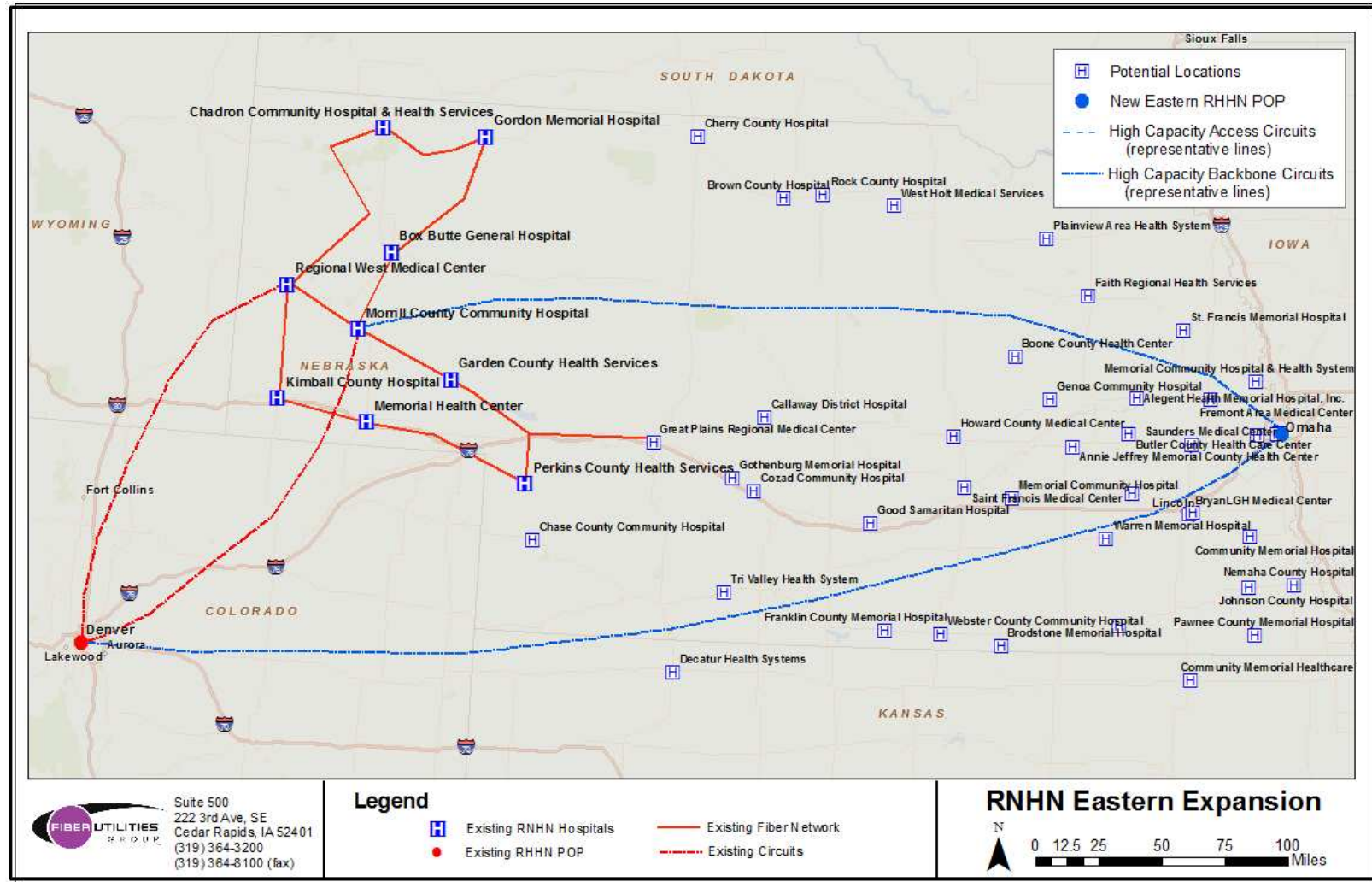
ATTACHMENT E – RNHN LIT SERVICES TEST AND ACCEPT DOCUMENT

BANDWIDTH REQUIREMENTS.

Listed below are the specific requirements for each Service Level Agreement to a RNHN endpoint.

The minimum bandwidth requirements for a connection between an eligible user and the backbone core fiber network is 10Mbps of symmetrical Ethernet.

The goal of these requirements is to support the basic electronic health records systems as well as the tele-health and educational applications anticipated in the near future.

- **Bandwidth may be proposed at higher levels than 10 Mbps if desired (up to 1 Gbps).**
- *Positive weighted value will be given to the <u>lower cost per Mbps</u> segment of proposals*

CIRCUIT REQUIREMENTS

AVAILABILITY

Availability is a percentage of total time that service is operative when measured over a 30 consecutive day (720 hour) period. Ethernet service **is considered inoperative when service is degraded to a level in which the packets are not passed between the user point of demarcation and the host point of demarcation**. The end-to-end availability test standard for Ethernet service specified for the RNHN connection is:

Specification	Availability
Single Cable Entrance	99.5%

OUTAGE RESPONSE TIMEFRAME

The connection outage response time shall be 3 hours from service interruption. Vendor shall provide proactive notification and update the health system network managers hourly on progress attempts to fix the incident. Vendor shall also provide an escalation contact list.

VLAN TAG REQUIREMENTS

The connection must be capable of passing 802.1Q VLAN tags through the access connection. Fiberutilities will test with tagged frames. This is a requirement per the RFP and if the circuit does not pass 802.1Q frames **THE CIRCUIT WILL NOT BE ACCEPTED.**

PERFORMANCE REQUIREMENTS

Performance is noted in terms of packet loss and latency. **Packet Loss Ratio** is defined as percentage of in-profile Ethernet frames not reliably delivered between the provider edge router to the ingress/egress point of the core network router over a given measurement interval.

Latency is defined as the average time it takes a packet to travel from the provider edge router to the ingress/egress point of the core network router over a given measurement interval.

The Packet Loss Ratio and Latency standards for end-to-end portions of Ethernet service are:

SPECIFICATION	MONTHLY AVERAGE
Packet Loss Ratio	No more than 0.5%
Latency	No more than 60ms

ROUTER TEST

Router will be tested to verify that it is able to boot error free. The router will need to detect all hardware included. If the router is able to boot error free and detect all hardware it is considered functional and accepted.

RFC 2544 TESTING STANDARD

The RFC 2544 standard, established by the Internet Engineering Task Force (IETF) standards body, is the de facto methodology that outlines the tests required to measure and prove performance criteria for carrier Ethernet networks. The standard provides an out-of-service benchmarking methodology to evaluate the performance of network devices using throughput, back-to-back, packet loss and latency tests, with each test validating a specific part of an SLA. The methodology defines the frame size, test duration and number of test iterations. Once completed, these tests will provide performance metrics of the Ethernet network under test.

In order to ensure that an Ethernet network is capable of supporting a variety of services (such as VoIP, video, etc.), the RFC 2544 test suite supports seven pre-defined frame sizes (64, 128, 256, 512, 1024, 1280 and 1518 bytes) to simulate various traffic conditions.   Each frame size will be tested.

CIRCUIT AVAILABILTY NOTIFICATION PROCESS

1. Notification of circuit availability will be sent by Vendor to Fiberutilities Network Operations Center: noc@fibertutilities.com (The Fiberutilities Network operations number is 877-562-9625 and is available, 24/7/365)

2. Fiberutilities Ticket Number   _____

3. Customer or Tester Ticket Number   _____

4. Within 3 business days Fiberutilities will arrange for a circuit test date. Notification will be sent via email to Vendor contact listed in RFP.

After a formal notification has been sent to the Fiberutilities Network Operations Center,   the Fiberutilities technician will be dispatched to verify the above findings. Fiberutilities will have 15 business days to test and accept or deny the above test findings. The vender tester will have two additional attempts to correct any issues with the circuit before Fiberutilities will decline the circuit all together without any obligations.

Upon acceptance or denial of any circuit, Fiberutilities will notify the Vendor tester of the results with findings within 5 business days of the result via the listed RFP contact email.
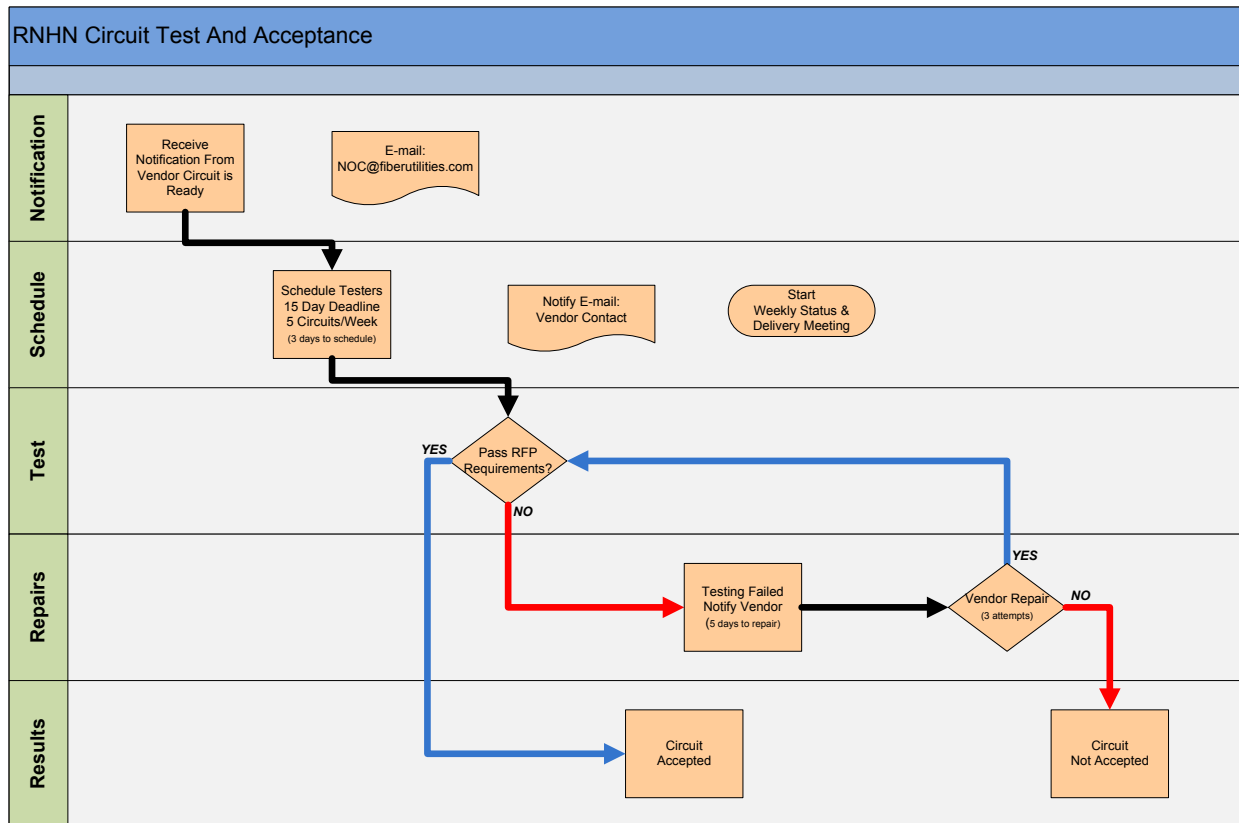
Vendor will participate in weekly status and delivery meetings via conference call to will be jointly scheduled work flow and report on circuit status issues. Fiberutilities will make resources available to coordinate on-site tests of up to 5 sites per week. Other arrangements may be agreed to based upon workflow as defined by Fiberutilities.

RFC 2544 TEST AND ACCEPTANCE DOCUMENT BY SITE

Customer Site Location: _____

Vendor: _____

Date Vendor Notified of Circuit Availability: _____

Date of Test performed: _____

Technician Performing Test: _____

Provider Circuit Number or ID: _____

Circle one: Pass   or   Fail

If circuit is not accepted, indicate reason for non acceptance:

_____

_____

_____

Circuit Delivery Requirements:

- The Speed of this test should be 10Mbps. The circuit speed test will pass with a variance in throughput of not less than 97% or 97 megabits. If the circuit speed throughput results indicate less than 97% or 97 megabits than the circuit will not be accepted.

- Latency of these Tests should be no more than *60 ms point to point*. If latency is greater than 60 ms than the circuit test will not be accepted.

- *Availability of the Network should be Equal to or Greater than* **99.5% tested over a 24 hour period. Up to two circuits may be randomly**

selected and tested for availability. If either of the circuits do not meet the 99.5% availability the circuit will not be accepted.

- If any of the tests indicated above do not pass, the vendor will be notified via email per the Vendor contact specified in the RFP. The vendor will then be given 5 days to correct deficiency and to then resubmit a trouble ticket for a circuit retest. Vendor will be allowed a maximum of three tests per circuit.

Testing Table 1

Frame Size	Data Throughput	Latency	Pass or Fail
64 byte	fps	ms	
256 byte	fps	ms	
1024bytes	fps	ms	
1518 bytes	fps	ms	