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## REQUEST FOR PROPOSAL

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### **HealthNet connect (HNC) First Mile Access Network**

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

**Requested by: Iowa Health System**

*Prepared by:*



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Armstrong Centre  
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## INTRODUCTION AND BACKGROUND

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Iowa Health System (IHS) is an Iowa-based, nonprofit regional health care provider serving a geographically dispersed rural population in the upper Midwest.

IHS is the largest healthcare system in Iowa and operates facilities in seven large Iowa communities, plus Rock Island and Moline, Illinois. IHS supports a system of rural hospitals in 14 Iowa communities and partners with 450 physicians and 125 clinics in more than 80 communities in Iowa and Illinois.

Using its own capital and operating funds, IHS has already established a core fiber, 2,100+ route mile, backbone network which is operating in Iowa and Illinois, with additional fiber extensions to connection points in metro Chicago and metro Denver. (See Figure 1.)

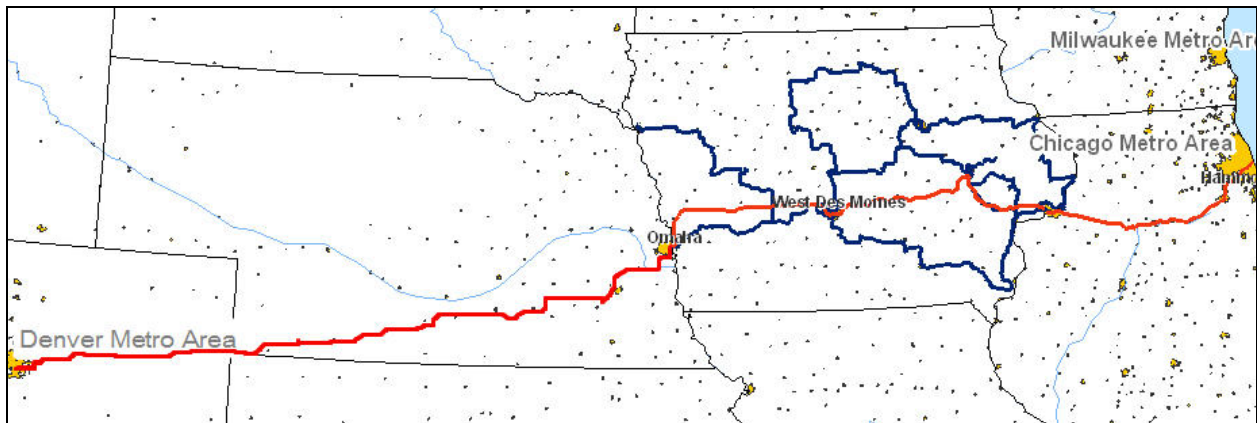


FIGURE 1- IHS FIBER BACKBONE NETWORK

In 2007, IHS applied for and was subsequently awarded access to funds in the amount of \$7.8 million from the FCC’s Rural Health Care Pilot Program (RHCPP). The express purpose of this funding, as outlined in the application, is to create first mile access connections to the existing core backbone fiber network by a broad range of health care providers (eligible and non eligible). These funds will be administered under the rules of the FCC and the guidelines of the Universal Service Administrative Company (USAC).

The resulting combined network (*i.e.*, the existing IHS-owned core backbone fiber network and the FCC/USAC-funded first mile access network) is dedicated exclusively to health care and is intended to serve as the connectivity foundation for health care entities across the region.

IHS intends to utilize RHCPP funds to enable connectivity for eligible health care entities in as many communities as possible. Additionally, IHS anticipates that numerous health care entities, such as health care related private enterprise, physicians, and clinics, will also choose to connect to the network. Such connections for these entities will be at their expense because they are not eligible for funding under the RHCPP.

The first mile access network will consist of first-mile large bandwidth (100 Mb or more) dedicated connections from health care facilities (IHS affiliates and others) to the existing core backbone fiber network of IHS. (For illustrative purposes see Figure 2)

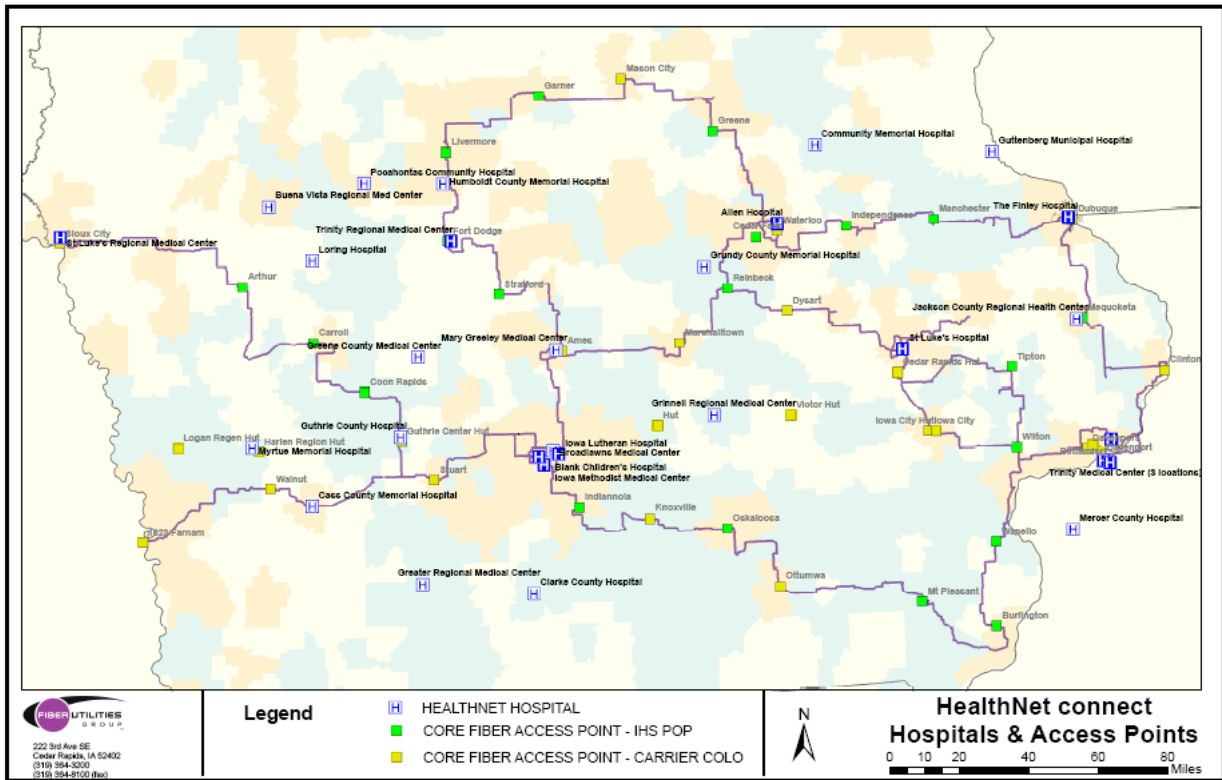


FIGURE 2 - ILLUSTRATIVE HNC HOSPITALS AND ACCESS POINTS

The RHCPP makes funding available over a three fiscal year period. IHS’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 the initial group of eligible users connecting to the IHS network.

HNC 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 IHS network.

The goal of HNC 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 IHS network by soliciting bids from qualified vendors capable of delivering those first mile connections as specified in this RFP.

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## OVERVIEW OF RFP PACKAGE

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This RFP vendor package was designed to be as inclusive as possible and to provide vendors 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 IHS, 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. (Figures 1 and 2)
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 vendor 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. **Eligible User Information** outlines the address location and on-site contact information of eligible users participating in the first phase of access connectivity to the IHS network under the FCC RHCPP.
9. **Core Network Access Points** outlines the address locations and contact information where vendors may connect HNC circuits to the IHS network.
10. **Bundled or A La Carte Response** outlines the guidelines and definitions of single location or bundled location bidding.
11. **Access Circuit Design** outlines both in written and pictorial form the network elements in each access connection. (Attachment A)
12. **Required Access Circuit Equipment** outlines the specific provider edge equipment requirements to be provided by the vendor to access the IHS network.
13. **Edge Router Extended Warranty Requirements** outlines the extended coverage and term required for specified access circuit equipment.
14. **Bandwidth Requirements** outlines bandwidth type and quantity deemed acceptable for consideration in bid submissions.
15. **Availability Requirements** outlines the outage response time requirements for vendors.
16. **Performance Requirements** outlines network quality elements (latency, packet loss, *etc.*) deemed acceptable for consideration in bid submissions.
17. **Locations Already on Fiber** outlines the equipment-only requirements needed to connect participating IHS affiliates to the IHS network.

18. **Lit Capacity and Equipment Operations and Maintenance Requirements** outlines the lit capacity and equipment operations and maintenance requirements.
19. **Testing and Acceptance** outlines the process to be used to verify that circuits and equipment installation meets the required specifications.
20. **Fifteen (15) Year Lit Capacity IRU** outlines the type of capacity for the bid of the access circuits.
21. **Alternatives** outlines the willingness of IHS to consider alternative proposals that meet described criteria.
22. **Payment Process** outlines the sequential steps of processing vendor invoicing / payment.

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## CONTACT INFORMATION

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

Dave Lunemann  
HealthNet connect Contract Project Manager  
Fiberutilities Group LLC  
222 Third Avenue SE  
Suite 500  
Cedar Rapids, Iowa, 52401  
Phone: 319- 364-3200  
Fax: 319-364-8100  
E mail: dlunemann@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 IA.

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## TIMING AND MILESTONE DATES

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The bidding process will begin upon USAC posting this RFP on its website and remain open through November 17, 2008. The RFP will be posted for the 28 days required by USAC and will fully comply with all USAC required bid posting requirements and timelines. (See <http://www.usac.org/rhc-pilot-program/vendors/step03/default.aspx>)



Bid Response Deadline ..... November 17, 2008

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

## **QUESTION / CLARIFICATION PROCESS**

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IHS is committed to a fair, open, and transparent bidding process and will hold three 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 vendors bidding the project.

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

October 10, 2008 (Friday) at 1 pm central daylight savings time

October 24, 2008 (Friday) at 1 pm central daylight time

November 12, 2008 (Wednesday) at 1 pm central standard time

The conference call bridge number for each call will be: 866-393-8073 code \*7392611\*

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

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

Call notes or minutes will not be distributed.

A vendor email distribution list will be created for the purpose of distributing any written information by IHS.

Any vendor desiring to be included in this distribution list should send an email with contact information to: [dlunemann@fiberutilities.com](mailto:dlunemann@fiberutilities.com) with "VENDOR EMAIL DISTRO" in the subject line.

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

## **BID SUBMISSION PROCESS**

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

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

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



Any questions by vendors 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 vendor (name, company, mailing address, phone number, fax number and email address).

All RFP responses should include background information on the vendors' 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 vendor 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: dlunemann@fiberutilities.com with "HNC RFP RESPONSE" in the subject line. **All RFP RESPONSES MUST BE RECEIVED BY NO LATER THAN NOVEMBER 17 (MONDAY), 2008 AT 5:00 PM CENTRAL STANDARD TIME. ANY RESPONSE SUBMITTED AFTER THIS DEADLINE WILL NOT BE CONSIDERED FOR THIS PHASE OF THE HNC PROJECT.**

This RFP is not the contract between IHS and the winning vendor(s).

## **BID EVALUATION PROCESS**

Bids not meeting the specifications as outlined in this RFP may be disqualified from consideration for this phase of the HNC project.

Bids will be evaluated based on the following criteria, which are not listed in order of priority:

- a) Overall initial project cost
- b) Cost per Mbs (total \$ divided by total Mbs)
- c) Guaranteed installation timelines (defined as tested and accepted)
- d) Quality/ clarity/compliance of RFP response, favorable renewal options, favorable overall terms and conditions, and favorable service level agreements.
- e) 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 Optimal
  - 90 days or less ..... Optimal
  - 120 days or less ..... Acceptable
  - Greater than 120 days ..... Least Optimal

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

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

IHS reserves the right to contact a vendor 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 vendor's bid proposal. However, the information received from the vendor shall not be considered in the evaluation of a vendor's bid proposal if the information materially alters the content of the bid proposal.

IHS 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 IHS. This reserved right does not diminish IHS' right to reject a bid proposal if vendor fails to comply or respond to any part of this RFP.

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

The successful vendor must, within sixty (60) days, enter into a contract with IHS to implement the service contemplated by this RFP. Failure of a successful vendor to agree to the terms of a contract within a timely manner may be grounds for IHS to award the project to another bidder.

Vendors 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 vendor and IHS. IHS reserves the right to not award a bid for any reason and for any or all user locations. IHS also reserves the right to re-bid specific user connections in a later phase of the project.**

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 mail. Closure responses will be sent to the contact name and address indicated on the bid response. Vendors should anticipate a minimum of 3 weeks to complete the analysis of bids and provide the appropriate closure response.

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## BUNDLED OR A LA CARTE RESPONSES

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Bids may be submitted for individual user locations (a la carte) or may be submitted as groups of specific user locations (bundled).

Vendors may submit bids for any combination of locations under both formats (a la carte and bundled) at their discretion.

Vendors may determine at their option the quantity and combination of a la carte and bundled locations.

IHS anticipates that bids submitted as a bundle of locations will have a lower cost structure than separate individual locations.

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## ELIGIBLE USER INFORMATION

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IHS seeks bids meeting the connectivity specifications set forth in this RFP which connect the following eligible user addresses listed below in Table 1. to the Core Network Access points listed below in Table 2.

Table 1. Eligible Users.

HOSPITAL	ADDRESS	ON-SITE IT CONTACT	PHONE # / EMAIL ADDRESS	NPA-NXX
<i>Allen Hospital</i>	<i>1825 Logan Ave Waterloo, IA 50703</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>319-235</i>
<b>**Blank Children's Hospital / Iowa Methodist Medical Center</b>	<i>1200 Pleasant St Des Moines, IA 50309</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>515-241</i>
<i>Iowa Lutheran Hospital</i>	<i>700 E University Ave Des Moines, IA 50316</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>515-263</i>
<i>St. Luke's Hospital</i>	<i>1026 A Ave NE Cedar Rapids, IA 52402</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>319-369</i>
<i>St. Luke's Regional Medical Center</i>	<i>2720 Stone Park Blvd Sioux City, IA 51104</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>712-279</i>
<i>The Finley Hospital</i>	<i>350 N Grandview Ave Dubuque, IA 52001</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>563-582</i>
<i>Trinity Regional Medical Center – Terrace Park Campus</i>	<i>4500 Utica Ridge Rd Bettendorf, IA 52722</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>563-742</i>
<i>Trinity Medical Center – 7th St Campus</i>	<i>500 John Deere Rd Moline, IL 61265</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>309-779</i>
<i>Trinity Medical Center – West</i>	<i>2701 17th St Rock Island, IL 61201</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>309-779</i>
<i>Trinity Regional Medical Center</i>	<i>802 Kenyon Rd Fort Dodge, IA 50501</i>	<i>Stacie Caryl</i>	<i>319 739-2611 CarylSM0@crstlukes.com</i>	<i>515-573</i>
Broadlawns Medical Center	1801 Hickman Rd Des Moines, IA 50314	Mark Hanson	515-282-2283 mhanson@broadlawns.org	515-282
Buena Vista Regional Medical Center	1525 West Fifth Street Storm Lake, IA 50588	Stan Spack	712-213-8666 spack.stan@bvrmc.org	712-732
Cass County Memorial Hospital	1501 E 10th St Atlantic, IA 50022	Arthur Kirshner	712-243-7830 kiran@casshealth.org	712-243
Clarke County Hospital	800 S Fillmore St Osceola, IA 50213	Nathan Pieken	641-342-5393 npieken@clarkehosp.org	641-342
Community Memorial Hospital	909 West 1 <sup>st</sup> St Sumner, IA 50674	Scott Rouse	641-628-8742 srouse@icetechnologies.com	563-578
Greater Regional Medical Center	1700 W Townline Creston, IA 50801	Mitch Forkner	641-782-3897 mitchf@greaterregional.org	641-782
Greene County Medical Center	1000 W Lincolnway Jefferson, IA 50129	Roger Overby	515-386-2114 roger.overby@gcmchealth.com	515-386
Grinnell Regional Medical Center	210 4th Ave Grinnell, IA 50112	Heidi Thompson	641-236-2393 hthomp@grmc.us	641-236
Grundy County Memorial Hospital	201 E J Ave Grundy Center, IA 50638	Ryan Bingman	319-824-5421 X265 bingmarj@ihs.org	319-824
Guthrie County Hospital	710 N 12th St Guthrie Center, IA 50115	Jeff Cobb	641-332-3837 jcobb@gcho.org	641-332
Guttenberg Municipal Hospital	200 Main St Guttenberg, IA 52052	Robin Esmann	563-252-5531 robin.esmann@guttenberghospital.org	563-252
Humboldt County Memorial Hospital	1000 N 15th St Humboldt, IA 50548	Larry Hall	515-332-4200 X191 larryh@humboldthospital.org	515-332
Jackson County Regional Health Center	700 W Grove St Maquoketa, IA 52060	Tom Wartick	563-652-7712 tom.wartick@jcrhc.org	563-652
Loring Hospital	211 Highland Ave Sac City, IA 50583	Brian Messier	800-888-2135 brian@wrksystems.com	712-662



<b>HOSPITAL</b>	<b>ADDRESS</b>	<b>ON-SITE IT CONTACT</b>	<b>PHONE # / EMAIL ADDRESS</b>	<b>NPA-NXX</b>
Mary Greeley Medical Center	1111 Duff Ave Ames, IA 50010	Janelle Anderson	515-239-6702 anderson@mgmc.com	515-239
Mercer County Hospital	409 NW Ninth Ave Aledo, IL 61231	Tim Putnam	309-582-5301 tputnam@mercerhospital.org	309 582
Myrtue Memorial Hospital	1213 Garfield Ave Harlan, IA 51537	Khristine Jacobsen	712-755-4298 kjacobsen@myrtuemedical.org	712-755
Pocahontas Community Hospital	606 NW 7th St Pocahontas, IA 50574	Chuck Buske	712-335-3501 cbuske@pocahontashospital.org	712-335

**\*\*Two eligible users are using one connection at this location**

The first ten locations, listed in bolded and italicized font, are IHS affiliate hospital locations. These affiliate locations already have access fiber available and therefore only require the installation of the edge equipment and fiber optic jumper connections to access the IHS network. Accordingly, the RFP requirements for these ten affiliate locations are limited to the acquisition and installation of the edge equipment, extended warranty, and the fiber optic jumper connector. (See “Locations Already On Fiber” section below.)

Each hospital listed in this phase of the project will provide adequate: a) physical space, b) conditioned power, c) environmental control, and d) controlled security for required equipment.

## CORE NETWORK ACCESS POINTS

Vendors may access the IHS network at any of the specific address locations listed below in Table 2.

Table 2. Core Access Network Points.

ADDRESS	CITY	ST	ZIP	NPA-NXX	TYPE	OWNER
1560 TECHNOLOGY PKWY	CEDAR FALLS	IA	50613	319-277	DATA CENTER	TEAM TECHNOLOGY
1630 225TH ST	GARNER	IA	50423	641-923	NETWORK HUT	IHS
4009 406 ROAD	BURLINGTON	IA	52601	319-754	NETWORK HUT	IHS
390 VELVET RD	COON RAPIDS	IA	50058	712-999	NETWORK HUT	IHS
914 A STREET WEST	FT. DODGE	IA	50501	515-955	NETWORK HUT	IHS
1305 MONTANA AVE	LIVERMORE	IA	50548	515-379	NETWORK HUT	IHS
6351 270TH STREET	ARTHUR	IA	51445	712-367	NETWORK HUT	IHS
1699 OTTERVILLE BLVD	INDEPENDENCE	IA	50644	319-334	NETWORK HUT	IHS
15030 ILLINOIS STREET	INDIANOLA	IA	50125	515-961	NETWORK HUT	IHS
3391 130TH STREET	PIERSON	IA	51030	712-375	NETWORK HUT	IHS
1698 120TH ST	REINBECK	IA	50669	319-345	NETWORK HUT	IHS
1938 HONEY CREEK ROAD	MANCHESTER	IA	52057	563-927	NETWORK HUT	IHS
3482 HWY 62	MAQUOKETA	IA	52060	563-652	NETWORK HUT	IHS
1553 OAKLAND MILLS RD	MT. PLEASANT	IA	52641	319-385	NETWORK HUT	IHS
2748 300TH ST	GREENE	IA	50658	641-823	NETWORK HUT	IHS
500 EAST STREET	OSKALOOSA	IA	52577	641-673	NETWORK HUT	IHS
615 TENYCK AVENUE	STRATFORD	IA	50249	515-838	NETWORK HUT	IHS
933 QUINCY ROAD	TIPTON	IA	52772	563-452	NETWORK HUT	IHS
18970 GRANITE AVE	CARROLL	IA	51401	712-775	NETWORK HUT	IHS
819 S 5TH STREET	WAPELLO	IA	52653	319-523	NETWORK HUT	IHS
2683 122ND ST	WILTON	IA	52778	563-732	NETWORK HUT	IHS
2715 FORD ST	AMES	IA	50010	515-598	CARRIER COLO	PAETEC
221 3RD AVENUE SE	CEDAR RAPIDS	IA	52401	319-366	CARRIER COLO	PAETEC
507 SOUTH 4TH STREET	CLINTON	IA	52732	563-519	CARRIER COLO	PAETEC
101 WEST 2ND STREET	DAVENPORT	IA	52801	563-823	CARRIER COLO	PAETEC
5617 WEST LOCUST ST	DAVENPORT	IA	52804	563-823	CARRIER COLO	PAETEC
245 RAILROAD AVENUE	DUBUQUE	IA	52001	563-690	CARRIER COLO	PAETEC
1304 59TH STREET	DYSART	IA	52224	319-476	CARRIER COLO	PAETEC
1566 GILBERT STREET	IOWA CITY	IA	52242	319-248	CARRIER COLO	PAETEC
813 N LINCOLN STREET	KNOXVILLE	IA	50138	319-739	CARRIER COLO	PAETEC
11 E CHURCH STREET	MARSHALLTOWN	IA	50158	641-352	CARRIER COLO	PAETEC



101 E STATE STREET	MASON CITY	IA	50401	641-423	CARRIER COLO	PAETEC
1721 ST MARYS AVENUE	OMAHA	NE	68154	402-408	CARRIER COLO	PAETEC
1227 N VAN BUREN STREET	OTTUMWA	IA	52501	641-226	CARRIER COLO	PAETEC
624 E FRONT STREET	STUART	IA	50250	515-523	CARRIER COLO	PAETEC
615 PEARL STREET	WALNUT	IA	51577	712-784	CARRIER COLO	PAETEC
501 SYCAMORE STREET	WATERLOO	IA	50797	319-433	CARRIER COLO	PAETEC
4401 WESTOWN PARKWAY	WEST DES MOINES	IA	50266	515-309	CARRIER COLO	PAETEC
666 WALNUT	DES MOINES	IA	50309	515-369	MEET ME ROOM	NEXGEN

These locations already contain core network interface equipment. There is no guarantee of space availability, sufficient power, or any other collocation arrangement for these locations. Vendors must contact the location owners to discuss such collocation arrangements. Vendors are solely responsible for determining and securing collocation sites for the term of any fifteen year lit capacity IRU. (See “Fifteen (15) Year Lit Capacity IRU” section below).

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

Location Owner	Name	Phone
<b>TEAM</b>	Mark Kittrell	800 728-8326
<b>IHS</b>	Dave Lunemann	319 364-3200
<b>PAETEC</b>	Debbie Grasso	515-309-1309
<b>NEXGEN</b>	Lance Allison	515 208-1662

Non-recurring charges and monthly recurring charges incurred as a result of the network collocation site chosen for interconnection are the responsibility of the vendor, and subject to vendor-negotiated collocation agreements with the location owner(s).

IHS is open to discussion during the scheduled vendor conference calls of possible alternative interface points of presence that are not listed above.

## ACCESS CIRCUIT DESIGN

### FIRST MILE TECHNICAL REQUIREMENTS (ATTACHMENT A)

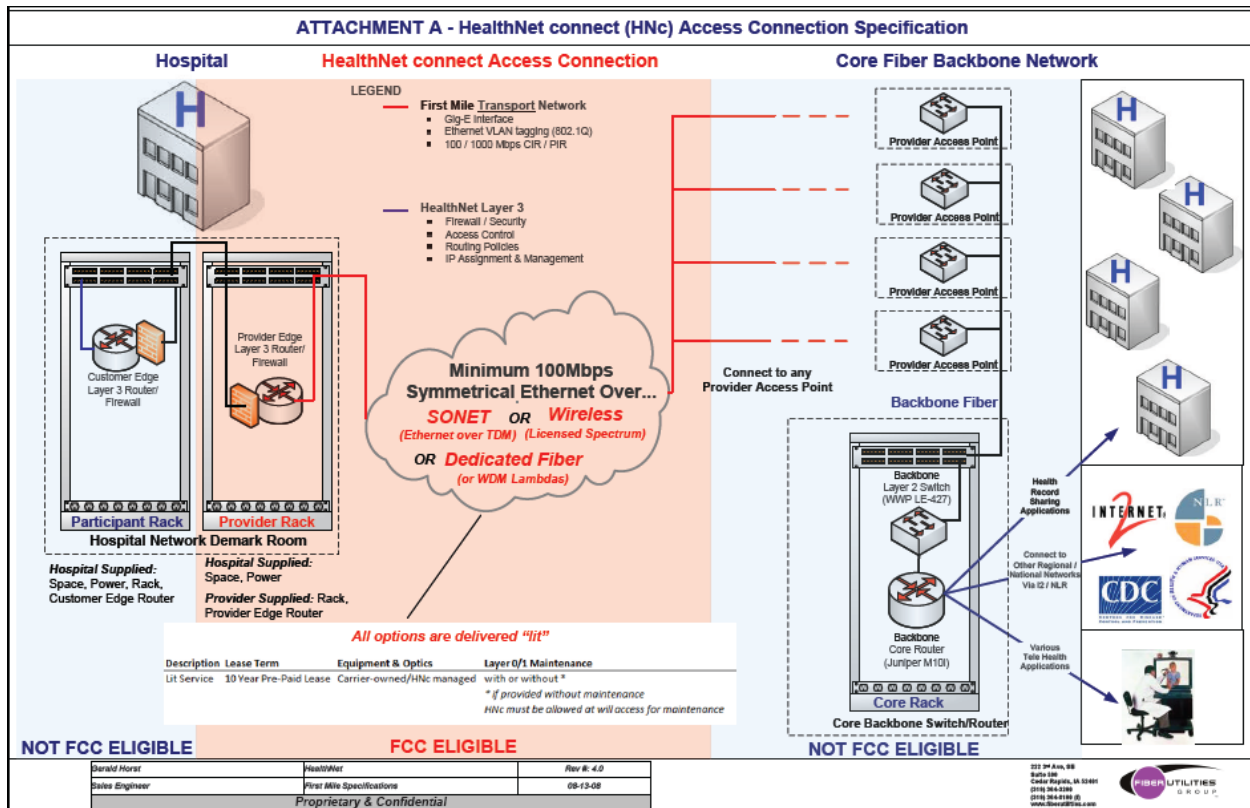


FIGURE 3 - HNC CIRCUIT DESIGN

Figure 3 above is a logical representation of the overall network (both the IHS network and the access connections).

IHS applied for and the FCC approved funding for only that portion shown above labeled "FCC Eligible," and only that portion is the subject of this RFP.

The existing IHS 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 IHS network, this access network must adhere to established architectural parameters and services frameworks. In particular, to provide consistent access to the IHS 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 IHS network.

For instance, the access connections will 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 Layer 3 IP concepts and require the use of a router both at the core and the edge of the services network. Because the IHS 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 IHS router is a Juniper M10i configured to provide sufficient throughput and gateway routing capabilities. The IHS network routers are connected to the IHS network. Therefore, Ethernet traffic can enter the network at any transport switch and be carried to the IHS 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, 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.

The access connection itself must provide a minimum of 100Mbps symmetrical Ethernet over any transport technology selected by the vendor. The Layer 2 transport can be pure Ethernet over fiber (with or without wave division multiplexing), Ethernet over SONET, or Ethernet over wireless licensed spectrum. Whatever transport technology is chosen, the connection must be capable of passing 802.1Q VLAN tags through the access connections and the IHS network.

The access circuit can connect at any defined backbone provider access point listed in the "Core Network Access Points" section above. The interface at these points of presence will be a Layer 2 backbone switch with a Gig-E interface connected via a single mode, LC jumper to a 1310 small form pluggable (SFP) optic.

The interface from the edge router at the hospital demarcation (facing the hospital LAN) will be a copper cable connected to a 10/100/1000 Ethernet port with a minimum bandwidth throughput configuration of 100Mbps. IHS expects that the equipment interface to the hospital 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 IHS 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.

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## **REQUIRED ACCESS CIRCUIT EQUIPMENT**

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

- Security, access control, and routing policies to properly and seamlessly integrate the access connection with the IHS network.
- Because the core network routers are Juniper M10i routers, the provider edge router must seamlessly interoperate with Juniper management software used to manage the IHS core network.

- Support for T1, E1, Synchronous Serial, ISDN BRI, ADSL/2/2+, G.SHDSL, and Gigabit Ethernet interfaces
- Support for integrated IP telephony
- 4 fixed Gigabit Ethernet LAN ports and 5 PIM slots
- 256 MB DRAM default, expandable to 1 GB DRAM
- 256 MB compact flash default, upgradeable to 1 GB
- Hardware encryption acceleration (optional)
- AC or DC powered versions
- NEBS compliant
- Operate a single operating system with features that are consistent with the features of the IHS network routers.

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## EDGE ROUTER EXTENDED WARRANTY REQUIREMENTS

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Vendor shall provide and include in bid pricing a pre-paid, manufacturer's extended warranty for no less than 3 years for the edge router. 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 is unavailable, the vendor shall provide a next day shipment service.

Vendor shall be responsible for executing the extended warranty agreement on behalf of IHS but shall have no responsibility for maintaining the edge router. IHS shall be responsible for maintaining the edge router during and beyond the extended warranty period.

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

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## BANDWIDTH REQUIREMENTS

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

If wireless technology is utilized it must be licensed spectrum.

The minimum bandwidth requirement for the connection between an eligible user and the backbone core fiber network is 100Mbps of symmetrical Ethernet. Bandwidth may be proposed at higher levels than 100 Mbps if desired (up to 1 Gbs).

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.

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## AVAILABILITY REQUIREMENTS

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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 access connection is:

<b>Specification</b>	<b>Availability</b>
Single Cable Entrance	99.5%

The response time by the vendor 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 vendors.

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## **PERFORMANCE REQUIREMENTS**

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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 IHS network router over a given measurement interval.

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

<b>SPECIFICATION</b>	<b>MONTHLY AVERAGE</b>
Packet Loss Ratio	No more than 0.5%
Latency	No more than 60ms

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

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## LOCATIONS ALREADY ON FIBER

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The IHS affiliate locations (identified in the “Eligible User Information” section above) already have fiber access to the IHS network and will require a different approach to the first mile access specification.

Since Layer 0, Layer 1, and Layer 2 access connections are already in place for the affiliate hospitals the required components to access the new shared health care network that are the subject of this RFP are a Layer 3 edge router and fiber optical jumper connector. Nevertheless, as discussed in the section above entitled “Access Circuit Design”, all components of Layer 0, Layer 1, Layer 2, and Layer 3 are required for the circuit to function correctly as part of this project. Thus, the same router specifications listed in the “Required Access Circuit Equipment” section above (*e.g.*, seamless compatibility with Juniper management software) are required at these locations to maintain a uniform network for management purposes.

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## LIT CAPACITY AND EQUIPMENT OPERATIONS AND MAINTENANCE REQUIREMENTS

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### *LIT CAPACITY OPERATIONS AND MAINTENANCE*

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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 fifteen (15) year capacity IRU or pursuant to the terms of any alternative proposal made pursuant to the “Alternatives” section below.

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### *EQUIPMENT OPERATIONS AND MAINTENANCE*

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

Operations and maintenance of all vendor equipment by the vendor is required for the lit capacity to function correctly. Such operations and maintenance of the equipment must be provided either pursuant to the terms of the fifteen (15) year lit capacity IRU or pursuant to the terms of any alternative proposal made pursuant to the “Alternatives” section below.

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## TESTING AND ACCEPTANCE

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Vendors 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 will be outlined on an individual case basis 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 vendor by the network operator.

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

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## **FIFTEEN (15) YEAR LIT CAPACITY IRU**

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HNC 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 fifteen (15) year lit capacity IRU. No other terms will be considered or accepted except as set forth below in "Alternatives."

A fifteen (15) year lit capacity IRU is defined as a one-time, up-front payment covering all costs, 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 consecutive fifteen (15) years.

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

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## **ALTERNATIVES**

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IHS anticipates that some responses may be from vendors who prefer to construct and light the infrastructure but who do not want to operate and maintain it. IHS is open to considering these types of proposals. However, these responses must meet the specification requirements outlined herein and must grant IHS and/or its authorized agents full and complete at will access to all rights of way, as well as full and complete at will access to all locations (splice points, buildings, fiber sheath, etc.) necessary to operate and maintain the infrastructure.

Any alternative proposal for a duration of time must contain a renewal clause which must be at the sole option of IHS and shall not "evergreen" without explicit IHS approval. IHS and vendor may, however, renegotiate more favorable terms if mutually beneficial to both parties. Moreover, the renewal will include the required maintenance and operation of the lit capacity.

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## PAYMENT PROCESS

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

IHS intends to pay the vendor(s) upon receipt of funding after successful testing and acceptance. IHS does not, given the relatively compressed delivery expectations of the HNC project (60 – 120 days), anticipate partial payments.

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

Payments are expected to be administered as follows:

- Successful vendor will assist in the completion of a Network Cost Worksheet required by USAC to issue a Funding Commitment Letter (FCL)
- IHS will be issued a FCL from USAC for services awarded.
- IHS will place an order with the winning vendor(s) upon receipt of the FCL.
- Vendor will complete installation of the access connection(s) per specifications (including required edge router) and notify IHS that the access connection(s) is ready for testing and acceptance.
- IHS will work with vendor(s) within ten (10) working days of written notice by vendor(s) of readiness to complete the testing and acceptance process as outlined in vendor contract(s).
- Upon acceptance of service(s) via the acceptance document, vendor(s) may invoice IHS for products and services.
- IHS will be responsible for directly paying 15% of the invoice upon satisfactory completion of testing and acceptance. At that time, IHS will also provide the vendor(s) with the necessary documentation required for the vendor(s) to process their 85% payment request directly with USAC.
- Vendor(s) will then countersign each 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 IHS that final payment for services should be expected directly from USAC to vendor(s) within 30 days of the receipt of a properly processed and submitted invoice.
- Vendor(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.