



**FCC Rural Health Care Pilot Program
WC Docket No. 02-60**

**Yearly Report
January -September 2015**

Submitted by the

Michigan Public Health Institute (MPHI)
Patrick Sheehan, Project Coordinator (PC)

On September 29, 2015

Project Overview, History, and Current Status

The project is being managed by MPHI. The project consists of RFPs 00, 01, 02, 03, and 04. RFP 04 will not be pursued for reasons described below.

RFPs 00 and 01 – Tower-based Wireless Network. Due to delays the main RFP 02 encountered (see below), MPHI decided to move forward with two small RFPs for the Thumb Rural Health Network (TRHN). The TRHN is a consortium of eight (8) RHCPP-eligible hospitals located in the thumb region of Michigan’s Lower Peninsula. These two RFPs expanded an existing tower-based wireless network by adding four more towers (RFP 00) and purchasing telecomm equipment for all nine towers within the network (RFP 01). The funding commitments totaled **\$519,193.02**.

- ***History of RFP 00 – TRHN Tower Construction.*** This RFP built four telecommunications towers. RFP 00 was posted in early May 2009. Six qualified bids were submitted. A vendor (Thumb Radio Inc. of Bad Axe, MI)—the lowest bidder—was chosen in late June 2009, and a contract was signed on September 2. (The RFP requested quotes for five towers, but TRHN was unable to acquire the land for one of the five, so it decided to lease space on a nearby tower, reducing the number of towers to be built to four.) RFP 00’s FCL was issued on September 24, 2009, and the Support Acknowledgement Letter was issued on October 2. Work on the towers was completed in early June 2010, and the final invoice was paid in mid-June 2010. Therefore, the RFP 00 project is complete.
- ***History of RFP 01 – TRHN Network Equipment.*** This RFP purchased telecommunications equipment (radios, switches, routers, the network server, etc.) for the nine towers that are part of the TRHN network. RFP 01 was posted at the beginning of June 2009. Four bids were received, although two contained significant deficiencies. A vendor (CDW-Government, Inc.)—the lowest bidder among the four—was chosen in late July, and a contract was signed on September 15, 2009. RFP 01’s FCL was issued on October 21, 2009, and the Support Acknowledgement Letter was issued on November 12. All of the equipment was delivered in December 2009, and the invoices were paid in January 2010. Therefore, the RFP 01 project is complete.

RFP 02 – Statewide Telecomm Network. This RFP will build a statewide healthcare network linking around 86 health care facilities throughout Michigan (with the exception of nine southeastern counties that include the metropolitan areas of Detroit, Flint, Lansing, Jackson, Ann Arbor, and Monroe). This network will use fiber optic cable (95 percent of the connections), T-1 lines, and other traditional “wired” technology.

- ***History and Current Status of RFP 02.*** MPHI submitted its RFP 02 and the list of approximately 521 *potential* participating sites (draft Form 465 Attachment) to USAC for an informal review in late October 2008. The RFP received immediate approval, but review of the 521 sites took five months. The American Recovery and Reinvestment Act (ARRA) was announced in February 2009, and it soon

became clear that funding would be made available to construct broadband infrastructure. Once plans for Michigan’s stimulus-funded, middle-mile broadband infrastructure—which RFP 02 intends to build upon—were clear, MPHI submitted the RFP 02 465 package. MPHI posted the RFP on November 10, 2009. Seven vendors submitted proposals on February 15, 2010. For the total, five-year cost of the project, the high bid was 431% larger than the low bid. The RFP 02 Evaluation Committee met in March 2010 and narrowed the competing vendors to two finalists (the two that had submitted the lowest cost bids). These vendors were given a two-week window during which they were permitted to adjust, or fine-tune, their cost figures to account for any networking or ARRA-funded project developments that had occurred in the first quarter of 2010. The revised cost figures were received on April 15, 2010. One vendor did not make any significant changes to its bid, while the other—already the low-cost bidder—dropped its aggregate five-year operating costs by another 9%. On April 19, the Evaluation Committee chose the latter vendor, Great Lakes Comnet (GLC) of East Lansing, MI, as the tentative winner.

Great Lakes Comnet’s “Estimated Price” figures were provided to the HCPs in late April 2010. The HCPs were asked to determine which sites they wanted to keep in the project and commit to participation by signing a contract. Ninety (90) sites committed by early August. Great Lakes then calculated “Actual Prices” (final prices) based on the smaller size of the network, and MPHI communicated those prices to the HCPs. Seventeen (17) sites had the option to leave the project (without penalty) because their Actual Prices exceeded the corresponding Estimated Prices by more than 10 percent. Three (3) sites chose to opt out.

During the fourth quarter of 2010, a construction schedule for the participating sites, which is dependent on the MERIT-REACH 3MC, ARRA-funded project, was finalized. GLC and MPHI signed a contract on March 30, and “Network Construction and Service Agreements,” to be signed by GLC and each of the participating HCPs, were mailed to the 27 participating HCPs (89 sites) on March 31. Twenty-three (23) HCPs, representing 72 sites, contractually committed.

MPHI submitted the FCC Form 466-A package in June 2011. The *initial* FCL was received on July 29, 2011. The funding commitment was \$7,988,067.60. That funding commitment included a “gross-up” to cover likely USF taxes on both construction and service charges. However, in late 2011, MPHI learned that the service provider, GLC, had provided inaccurate information about which items were subject to the USF and which were not. The errors were sizable enough that MPHI felt compelled to rescind the original FCL. On January 29, 2012, MPHI requested several revisions to the original Form 466A and submitted a replacement NCW. The rescind-and-reissue FCL was dated March 15, 2012. The new funding commitment is \$7,372,299.98, which includes a gross-up to cover likely USF taxes on part of the service charges.

Invoicing began for the project in August 2012. All network construction is scheduled for completion in September 2013. Construction was completed on time as described above. Invoicing for all sites continued through September 24, 2015.

- **RFP 02 “Round 2.”** In late 2011 and early 2012, several RHCPP-eligible sites that rejected participation in 2010, plus two more data centers, requested to participate. In April and May 2012, five organizations signed Network Agreements with GLC to participate. These organizations added two data centers and four other sites that had already been vetted as part of the RFP 02 Form 465 process. These additions increased the total number of participating organizations from 23 to 26 and the total number of sites from 72 to 78. An additional six (6) RHCPP-eligible sites that may benefit from a data center’s participation are listed as \$0-cost participants on the Form 466A Attachments and NCW.

MPHI submitted the FCC Form 466-A package on May 31, 2012. The FCL was received on September 28, 2012. The funding commitment of \$863,953.07 was approved. That funding commitment includes a “gross-up” to cover likely USF taxes on part of the service charges. A Form 467 was submitted October 1. This is Michigan’s final RHCPP funding request. Construction of all sites is slated for completion in September 2013.

RFPs 03 and 04 – Fiber Build Project. MPHI’s May 2007 application proposed creating “telehealth and telemedicine infrastructure and services in the areas of Michigan where the need is the most acute.”¹ MPHI listed slightly less than 400 health care sites as potential candidates for networking.² Three years later, it now appears that MPHI will be able to network only 93 sites: the eight sites networked by RFPs 00 and 01, and the 87 sites networked by RFP 02 (including two RFP 00/01 sites). The reasons for this shortfall are Michigan’s poor economy, the three-year gap between the RHCPP announcement and RFP 02’s marketing phase, the complexity of USAC programs in general and MPHI’s RHCPP-funded statewide network in particular, and the high cost of the statewide network. To use the remaining RHCPP funding awarded to MPHI, to extend the statewide network created by RFP 02, and to help achieve the infrastructure goals of the RHCPP, MPHI has conceived an RFP 03, which will fund the installation of hospital-owned, fiber optic spans linking hospitals to their satellite sites and/or to other hospitals. The RFP 03 concept was marketed to Michigan HCPs during the fourth quarter of 2010. Five hospital systems (45 sites) committed to the project, two in Michigan’s Upper Peninsula west of Marquette, and three in the central part of Michigan’s Lower Peninsula.

USAC reviewed the RFP 03 scoping document and the 465 Attachment during January 2011, and the RFP was posted on February 2, 2011. On April 11, MPHI

¹ “Pilot Program for Enhanced Access to Advanced Telecommunications and Information Services: Application to the Federal Communications Commission Submitted by the Michigan Public Health Institute,” May 7, 2007, p. 31.

² *Ibid.*, pp. 34-38.

received bids from eight (8) vendors. Evaluation Committees for four hospitals met the week of April 18 and tentatively chose winning bidders; the fifth hospital withdrew from the project due to the high cost of the lone bid it received. Contract negotiations between each participating hospital system and the winning bidder began in May. The status of each follows:

- Portage Health. The contract was signed on Sep. 14, 2011, and the 466A package was informally submitted on Oct. 6. The requested funding commitment was \$5,517,314. The FCL was received on Jan. 12, 2012. A Form 467 was submitted on Jan. 17, and the Acknowledgement Letter was received on Jan. 24. The first of the sites was connected in July 2012 and invoicing began in September.
- Memorial Healthcare. The contract was signed on Oct. 31, 2011, and the 466A package was informally submitted on Nov. 9. The requested funding commitment was \$2,091,756. The FCL was received on Feb. 16, 2012. A Form 467 was submitted on Feb. 17, and the Acknowledgement Letter was received on March 1.
- Covenant Medical Center. The contract was signed on Dec. 7, 2011, and the 466A package was informally submitted on Dec. 12. The requested funding commitment was \$518,302. The FCL was received on Feb. 23, 2012. A Form 467 was submitted on Feb. 27, and the Acknowledgement Letter was received on March 15.
- Edward W. Sparrow Hospital Association. The contract was signed on Dec. 20, 2011, and the 466A package was submitted on Jan. 3, 2012. The requested funding commitment is \$2,651,989. The FCL was received on March 1, 2012. A Form 467 was submitted on March 6, and the Acknowledgement Letter was received on March 15.

The four projects will cover 34 sites under 20-year IRUs. The requested funding commitments total \$10,779,361.

All construction and invoicing for Portage Health completed and finalized as of December 14, 2014. Portage Health was purchased by a for-profit company. Part of the sites could allow for network usage. Diane Torres from Portage Health to provide for-profit usage report.

RFP 04 was planned as a companion to RFP 03 and would have covered the same sites as RFP 03, if construction firms had won the bidding. The plan was to help HCPs oversee the construction of the fiber networks that RFP 03 will build. Specifically, on behalf of the HCPs, RFP 04 would have engaged Quality Assurance Inspectors who, at the HCPs' discretion, would have been assigned to review the Contractor's route engineering and/or permitting work, inspect the purchased fiber and/or associated hardware to ensure that it meets Work Order Specifications, inspect the Contractor's construction activities on an ongoing basis, perform final testing and acceptance of fiber Spans, conduct educational seminars on outside plant (OSP) fiber optic construction to HCP employees involved with the project, etc. USAC reviewed RFP 04 in February, it was posted on March 4, and two bids were received on April 12. However, the RFP03 contract awards are going to be IRU or IRU-like arrangements, which preclude the need for quality assurance oversight under RFP 04.

1. Project Contact and Coordination Information

a. Identify the project leader(s) and respective business affiliations.

The Project Coordinator (PC) is Patrick Sheehan

b. Provide a complete address for postal delivery and the telephone, fax, and e-mail address for the responsible administrative official.

The APC's (Patrick Sheehan) contact information follows:

Michigan Public Health Institute
2436 Woodlake Circle, Suite 300
Okemos, MI 48864
Telephone: 517.324.6052
Fax: 517.324.6052
E-mail: psheehan@mphi.org

c. Identify the organization that is legally and financially responsible for the conduct of activities supported by the award.

The Michigan Public Health Institute (MPHI) is legally and financially responsible for the conduct of activities supported by the award.

d. Explain how project is being coordinated throughout the state or region.

RFPs 00 and 01. RFPs 00 and 01 were coordinated through TRHN's executive director. (As noted above, TRHN is a consortium of eight hospitals.) The hospitals are kept informed by TRHN's executive director.

RFP 02 (Initial Round and Round 2). The following narrative refers to RFP 02, the statewide RFP.

Initial recruitment of HCPs to participate in the project was approached on a regional basis using representatives residing in each of five rural Medical Trading Areas (MTAs) covering 80 percent of the state (excluding only the southeastern quadrant of Michigan's Lower Peninsula). These regional representatives were employed by health care facilities and knew or were familiar with the HCPs located within their respective MTAs. Once the bulk of the LOAs had been received, MPHI assumed the task of obtaining missing information and resolving paperwork problems.

Initially, the MTA representatives handled most of the communication with the participating HCPs. Coordination with the regional reps was managed by telephone, e-mail, and teleconferences. However, as the LOA collection process progressed, MPHI

assumed more responsibility for communicating directly with the HCPs. As part of this effort, MPHI launched a website dedicated to the Michigan RHCPP: <http://fcc.mphi.org>.

Representatives of each MTA; the Michigan Department of Technology, Management & Budget (DTMB); and the Michigan Department of Community Health (MDCH) formed an RFP 02 Review Team. The team met on a weekly basis, via teleconference, to develop and refine the RFP.

During the USAC site eligibility review process (early October 2008 through February 2009), MPHI coordinated the flow of data between USAC and the sites that applied for federal funding. MPHI submitted data to USAC in three batches: for the entire set of 551 sites in early October; for a third of the sites in mid-January; and, finally, for 37 sites in mid-February. USAC finalized the eligibility status of most sites (with three exceptions) on February 25, 2009. MPHI submitted 521 of these sites as part of its 465 package on November 4, 2009. By a letter dated November 6, USAC ruled three sites as ineligible for the federal subsidy. USAC posted the RFP on November 10. MPHI filed an appeal of the three ineligibility decisions on November 20. These appeals were resolved in March and April of 2010, with USAC ruling two sites eligible and the third site 33.2% eligible.

MPHI keeps the participating HCPs informed about the progress of the project. Examples of such activities follow.

- MPHI conducted a conference call with the regional representatives on April 14 and with the HCPs on April 17, 2009. Each regional representative and each participating HCP received a letter and an e-mail that summarized the project's history and invited them to attend the conference call.
- In late April 2009, by letter, MPHI formally notified the participating health care providers (HCPs) of the results of the eligibility review. If any site was deemed ineligible for federal funding, the specific FCC rationale was provided.
- MPHI posts updates on the aforementioned Michigan RHCPP website. For example, updates were posted on June 22 and October 12, 2009.
- A personalized e-mail update was sent to all RFP 02 participants on October 12-13, 2009.
- A personalized e-mail was sent to all participating HCPs on December 16-17, 2009. This e-mail solicited a telephone number for each site that could be used to determine what telecommunications equipment served each location.
- On August 24, 2010, MPHI conducted an e-mail survey to determine if there was sufficient interest to offer a second-round RFP 02 to add sites to the network that had not been listed on the original RFP 02's Form 465 Attachment.

The Governor of Michigan, DTMB, MDCH, and Michigan's Congressional delegation, all of whom are keenly interested in a successful implementation of the project, have been briefed on a regular basis. DTMB and MDCH officials are conferring with the APC and his project team on a bi-weekly basis.

On April 23, 2010, a package containing a letter detailing the next steps in the project, “Estimated Price” cost figures, and contracts were mailed to each of the points of contact for the 121 participating health care provider organizations. MPHI hosted a conference call for all participating HCPs on May 12 and 13, 2010. In May and June, MPHI made hundreds of e-mail, voice mail, and conference call contacts with representatives of a large majority of the participating HCPs. On September 8, 2010, those HCPs that had committed sites to the network based on preliminary prices were informed by letter of the “Actual Price” (cost) to link each of their Participating Sites to the network. The letters identified sites that had the option to “opt out” because Actual Prices exceeded Estimated Prices by more than 10 percent. On Nov. 18, 2010, the final site construction schedule was e-mailed to the HCPs. On March 31, 2011, vendor-HCP contracts with cover letter were mailed to the participating HCPs; e-mails to the HCPs were also sent. Twenty-three (23) health care providers, representing 72 sites, signed.

Following receipt of the FCL in late July 2011, the project entered the network construction phase. On January 23, 2012, MPHI e-mailed (and mailed a hard-copy letter to) the 23 participating organizations representing the 72 sites. The letter detailed the next steps in the project (focused on site acceptance and the invoicing process), provided service provider (GLC) contact information, and gave GLC the lead role, with MPHI limiting its future roles to invoice facilitation and problem resolution. The first sites came online in June 2012 and invoicing began in August.

RFP 03. The opportunity to participate in RFP 03 was marketed to Michigan’s hospitals through the Michigan Health and Hospital Association (MHA). It was marketed to Michigan’s community health centers through the Michigan Primary Care Association (MPCA). HCPs submitted their applications in late November and early December 2010, and the five (later reduced to four) participating HCPs have dealt directly with MPHI since then through weekly e-mail and telephone contact with the project manager. FCLs for all four were received in the first quarter of 2012. Following receipt of each FCL, MPHI e-mailed (and mailed a hard-copy letter to) the key participants at the hospital system and service provider. The letter detailed the next steps in the project (focused on site acceptance and the invoicing process), listed HCP and service provider contact information, and gave the service provider the lead role, with MPHI limiting its future roles to invoice facilitation and problem resolution. The first sites came online in June 2012 and invoicing began in September.

RFP 04. The opportunity to participate in RFP 04 was marketed through the Telecommunications Association of Michigan and the national Fiber Optic Association. An information session was hosted for interested bidders on March 23, 2011. However, the RFP03 contract awards are going to be IRU or IRU-like arrangements, which preclude the need for quality assurance oversight under RFP 04.

2. *Identify all health care facilities included in the network.*
 - a. *Provide address (including county), zip code, Rural Urban Commuting Area (RUCA) code (including primary and secondary), six-digit census*

tract, and phone number for each health care facility participating in the network.

- b. For each participating institution, indicate whether it is:**
 - i. Public or non-public;*
 - ii. Not-for-profit or for-profit;*
 - iii. An eligible health care provider or ineligible health-care provider with an explanation of why the health care facility is eligible under section 254 of the 1996 Act and the Commission’s rules or a description of the type of ineligible health care provider entity.*

Note: Public, as used here, means “owned by a local, state, or federal government.” USAC’s RHCPP Director and the RHCPP coaches have offered conflicting definitions of the term (e.g., on an October 14, 2009, national conference call). Until USAC publishes clear guidance, we intend to continue to use this definition.

RFPs 00 and 01

SITE	ADDRESS	CITY	COUNTY	STATE	ZIP CODE	CENSUS TRACT	RUCA	Public?	Non-profit	Pilot Eligible?	USAC "Eligible Entity TYPE"	Brief Explanation of Eligibility or Ineligibility	TEL.
Caro Community Hospital	401 North Hooper St.	Caro	Tuscola	MI	48723	9606.00	7.0	NO	TRUE	YES	5: Not-for-profit hospital	MI Nonprofit Critical Access Hospital	989-673-3141
Deckerville Community Hospital	3559 Pine St.	Deckerville	Sanilac	MI	48427	9704.00	10.6	NO	TRUE	YES	5: Not-for-profit hospital	Nonprofit community hospital	810-376-2835
Harbor Beach Community Hospital	210 South First St.	Harbor Beach	Huron	MI	48441	9512.00	10.6	NO	TRUE	YES	5: Not-for-profit hospital	MI Nonprofit Critical Access Hospital	989-479-3201
Hills & Dales General Hospital	4675 Hill St.	Cass City	Tuscola	MI	48726	9601.00	7.0	NO	TRUE	YES	5: Not-for-profit hospital	MI Nonprofit Critical Access Hospital	989-912-6275
Huron Medical Center - Bad Axe	1100 South Van Dyke Rd.	Bad Axe	Huron	MI	48413	9511.00	8.0	NO	TRUE	YES	5: Not-for-profit hospital	Nonprofit community hospital	989-269-8933
McKenzie Memorial Hospital	120 Delaware St.	Sandusky	Sanilac	MI	48471	9709.00	7.0	NO	TRUE	YES	5: Not-for-profit hospital	MI Nonprofit Critical Access Hospital	810-648-6125
Scheurer Hospital - Hospital	170 North Caseville Rd.	Pigeon	Huron	MI	48755	9507.00	10.0	NO	TRUE	YES	5: Not-for-profit hospital	MI Nonprofit Critical Access Hospital	989-453-5202

Marlette Regional Hospital	2770 Main St.	Marlette	Sanilac	MI	48453	9710.00	10.6	NO	TRUE	YES	5: Not- for- profit hospital	Nonprofit community hospital	989- 635- 4001
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RFP 02 (Initial Round and Round 2)

RFP 02’s Form 465 Attachment listed 521 sites that had expressed interest in participating in the project. Seventy-eight (78) sites contractually committed to the project (initial round of 72 in 2011 and six more in 2012). The requested data for the 78 sites is shown at **Appendix A** to this quarterly report. Four (4) sites are data centers that support multiple non-profit health care sites.

RFP 03

RFP 03’s Form 465 Attachment listed 45 sites that had expressed interest in participating in the project. Thirty-four (34) sites contractually committed to the project. The requested data for the 34 sites is shown at **Appendix B** to this quarterly report.

3. **Network Narrative: In the first quarterly report following the completion of the competitive bidding process and the selection of vendors, the selected participant must submit an updated technical description of the communications network that it intends to implement, which takes into account the results its network design studies and negotiations with its vendors. This technical description should provide, where applicable:**
 - a. **Brief description of the backbone network of the dedicated health care network, e.g., MPLS network, carrier-provided VPN, a SONET ring;**
 - b. **Explanation of how health care provider sites will connect to (or access) the network, including the access technologies/services and transmission speeds;**
 - c. **Explanation of how and where the network will connect to a national backbone such as NLR or Internet2;**
 - d. **Number of miles of fiber construction, and whether the fiber is buried or aerial;**
 - e. **Special systems or services for network management or maintenance (if applicable) and where such systems reside or are based.**

RFPs 00 and 01 – Tower Construction and Equipment. The TRHN is a consortium of eight (8) “Pilot Eligible” hospitals located in the thumb region of Michigan’s Lower Peninsula. The TRHN has expanded an existing, microwave tower-based, wireless network by adding four more towers.

- (a) **Brief description of the backbone network of the dedicated health care network.** The TRHN has expanded an existing microwave, tower-based, wireless network by adding four more towers to the original four towers and leasing space on a ninth tower. RFP 00 constructed the four towers. RFP 01 purchased

telecommunications equipment for all nine towers (one at each of the eight hospitals plus the centrally located, leased hub tower). Long-range, wireless, point-to-point “radios” were mounted on each of the nine towers and provide direct, line-of-sight communication between pairs of towers/hospitals.

(b) Explanation of how health care provider sites will connect to (or access) the network. The radios transmit data at 55 Mbps. They are linked to their associated hospitals by means of Ethernet networking and Cisco switches and routers.

(c) Explanation of how and where the network will connect to a national backbone such as NLR or Internet2. The TRHN regional network will connect to the larger statewide project (RFP 02 – see below), the Internet, and Internet2 at two tower sites.

(d) Number of miles of fiber construction. Since this is a wireless network, fiber optic cable will not be used.

(e) Special systems or services for network management or maintenance (if applicable) and where such systems reside or are base. The wireless network is monitored and managed using network monitoring (purchased by TRHN) and network management (Ipswitch WhatsUp Gold Premium) software running on a standard ProLiant Quad-Core Xeon server and under a Windows Server 2008 OS.

RFP 02 – Statewide Network and RFP02 “Round 2.” MPHI is building a network linking health care providers throughout Michigan (except for the southeastern urban area from Lansing to Detroit). This network’s backbone will link to Internet2 in at least two locations.

(a) Brief description of the backbone network of the dedicated health care network. The network will be an MPLS fiber network built using a ring typology. It will be based on Great Lakes Comnet’s (GLC’s) Michigan-centered MPLS backbone. In other words, where possible, the network will be owned (rather than leased) by GLC, providing greater flexibility, management, and control.

(b) Explanation of how health care provider sites will connect to (or access) the network. Sites will access the network using router and firewall (VPN) equipment provided by GLC.

(c) Explanation of how and where the network will connect to a national backbone such as NLR or Internet2. The statewide network will connect to the public Internet through GLC’s backbone at four locations, Chicago, Cleveland, Grand Rapids, and Southfield, MI. The statewide network will connect to Internet2 through GLC’s backbone at two locations, Chicago and Cleveland.

(d) Number of miles of fiber construction. Much of the network will piggyback on the ARRA-funded, 2,000+-mile Merit REACH Michigan Middle Mile Collaborative (3MC) fiber optic infrastructure that will be built throughout Michigan from 2011 through 2013. In addition, GLC will build final-mile fiber to connect sites. MPHI will report GLC’s mileage when that figure is available.

(e) Special systems or services for network management or maintenance (if applicable) and where such systems reside or are based. GLC’s 24x7x365 network operations center (NOC) will monitor the network. Network

maintenance will be handled by GLC technicians dispersed throughout the state. Spare equipment will be staged at the 19 Michigan ILECs that own GLC.

RFPs 03 – Fiber Build. MPHI is funding the construction of hospital-owned fiber networks for four (4) Michigan hospital systems. These networks will connect each system's main hospital(s) with its eligible satellite sites and, in several cases, other hospital systems.

(a) Brief description of the backbone network of the dedicated health care network. The five systems will be built as follows:

- Portage Health's network will employ (a) a ring topology that will connect five sites to Portage's main campus and (b) linear fiber spans that will connect three other sites (including Baraga County Memorial Hospital and Marquette General Hospital) to Portage's main campus.
- Covenant Medical Center will employ a linear topology that will connect Covenant's two hospitals and a third site.
- Memorial Healthcare will employ an almost pure hub and spoke topology, with nine satellite sites connected directly to the Main Campus, and two other satellite sites connected to two of the nine satellites.
- The Edward W. Sparrow Hospital Association will employ a mostly hub and spoke approach, with six satellite sites, including two rural hospitals, connected directly to the main Sparrow Hospital; a third rural hospital connected to one of the other two rural hospitals; and another urban hospital (St. Lawrence) connected to a satellite site next door and already networked to the main Sparrow Hospital.
- The extant fiber infrastructure in Michigan, coupled with the privately owned fiber backbone infrastructure being constructed throughout Michigan with ARRA funding, will link the Upper Peninsula network to the three Lower Peninsula hospital systems.

(b) Explanation of how health care provider sites will connect to (or access) the network. Fiber will be terminated at each site. Each will access the hospital network using router and firewall (VPN) equipment owned by the hospital system.

(c) Explanation of how and where the network will connect to a national backbone such as NLR or Internet2. Not applicable. Connection to a national backbone is optional.

(d) Number of miles of fiber construction. The four hospital systems will lease approximately 400 route miles of fiber cable.

(e) Special systems or services for network management or maintenance (if applicable) and where such systems reside or are based. Not applicable.

4. **List of Connected Health Care Providers: Provide information below for all eligible and ineligible health care provider sites that, as of the close of the most recent reporting period, are connected to the network and operational.**
 - a. **Health care provider site;**
 - b. **Eligible provider (Yes/No);**
 - c. **Type of network connection (e.g., fiber, copper, wireless);**
 - d. **How connection is provided (e.g., carrier-provided service; self-constructed; leased facility);**
 - e. **Service and/or speed of connection (e.g., DS1, DS3, DSL, OC3, Metro Ethernet (10Mbps);**
 - f. **Gateway to NLR, Internet2, or the Public Internet (Yes/No);**
 - g. **Site Equipment (e.g., router, switch, SONET ADM, WDM), including manufacturer name and model number.**
 - h. **Provide a logical diagram or map of the network.**

RFPs 00 and 01 – Tower Construction and Equipment

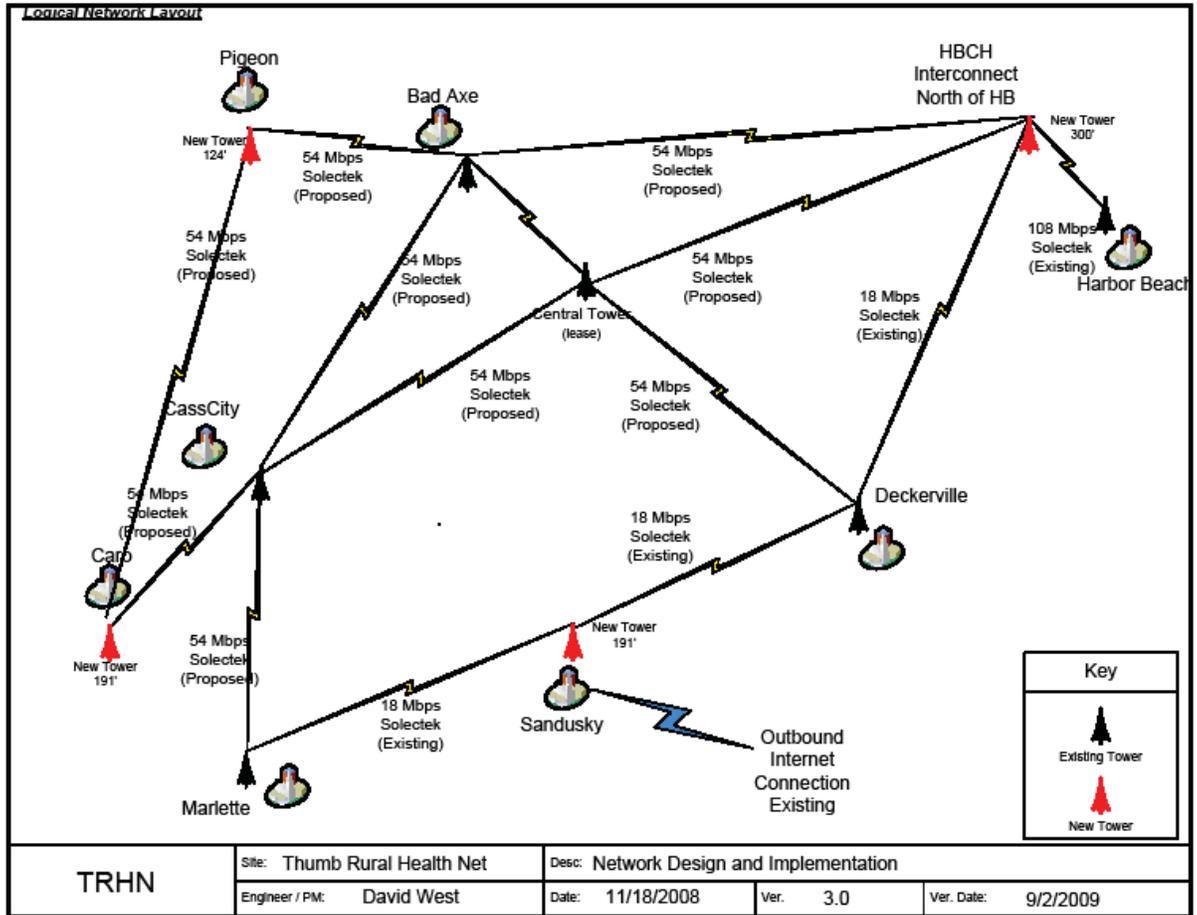
Health Care Provider	City in MI	Eligible?	Connection Type	How Connection Is Provided	Bandwidth	Gateway to Internet2	Gateway to Public Internet	Site Equipment
Caro Community Hospital	Caro	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Deckerville Community Hospital	Deckerville	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Harbor Beach Community Hospital	Harbor Beach	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Hills & Dales General Hospital	Cass City	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Huron Medical Center	Bad Axe	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Marlette Regional Hospital	Marlette	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
McKenzie Memorial Hospital	Sandusky	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *
Scheurer Hospital	Pigeon	Yes	Wireless	Self-constructed	55 mbps	Yes	Yes	See *

* Tessco Airstream 4.9 long-range PTP wireless network kit

* Cisco Catalyst 3560 24 Layer 3 Ethernet Switch

* Black Box 8U wall-mounted rack enclosure

A network map follows.



RFP 02 – Statewide Network.

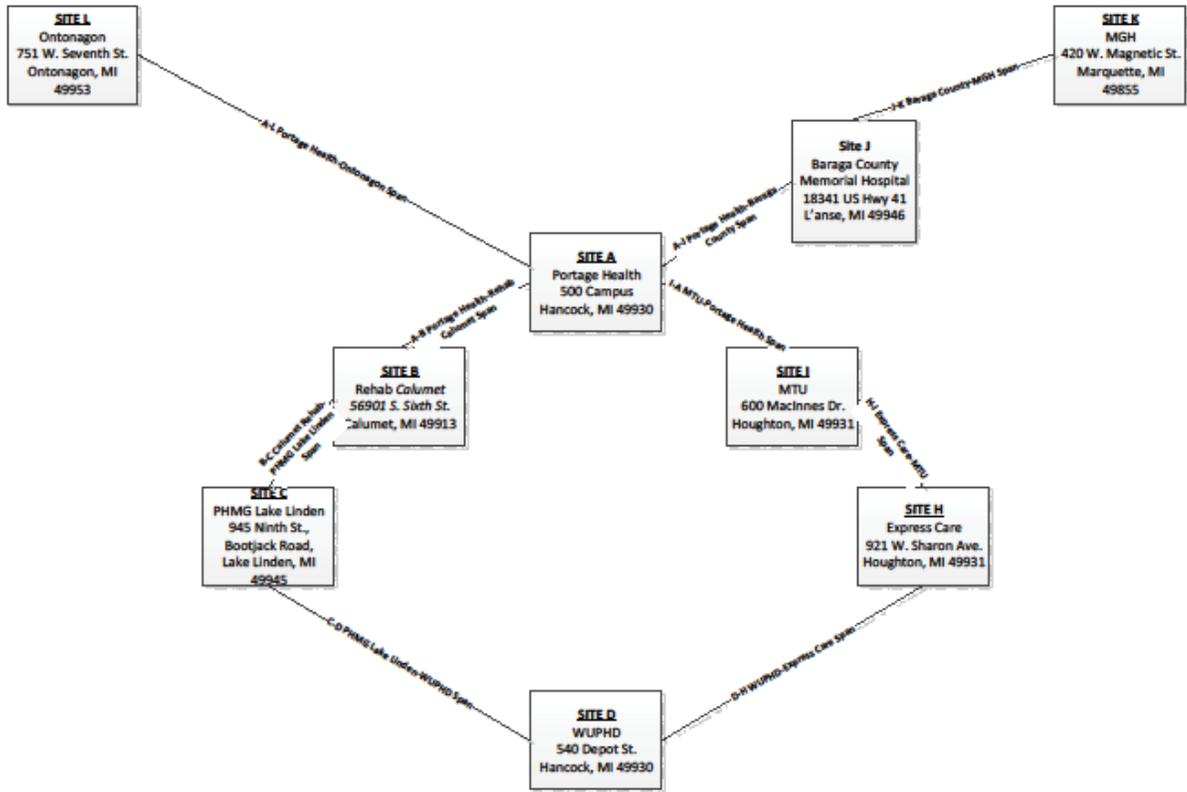
See **Appendix C** for List of connected RFP 02 Health Care Providers.

See **Appendix D** for network map.

RFPs 03 – Fiber Build.

See **Appendix E** for List of connected Health Care Providers.

A network map follows.



5. Identify the following non-recurring and recurring costs,³ where applicable shown both as budgeted and actually incurred for the applicable quarter and funding year to-date.
 - a. Network Design
 - b. Network Equipment, including engineering and installation
 - c. Infrastructure Deployment/Outside Plant
 - i. Engineering
 - ii. Construction
 - d. Internet2, NLR, or Public Internet Connection
 - e. Leased Facilities or Tariffed Services
 - f. Network Management, Maintenance, and Operation Costs (not captured elsewhere)
 - g. Other Non-Recurring and Recurring Costs

- **RFP 00** – MPHI budgeted \$557,351.20 (both USAC & HCP shares) for construction of four towers. All of these costs were non-recurring, and all fit into category c above. All but \$2,337.84 of the FCL was paid to the vendor

³ Non-recurring costs are flat charges incurred only once when acquiring a particular service or facility. Recurring costs are costs that recur, typically on a monthly basis, because they vary with respect to usage or length of service contract.

(\$471,410.68 was paid), and the HCP paid \$83,190.12 (15 percent of the tower construction cost).

Invoice #	Incurred Costs (Invoice Amount)	HCP Payment	USAC Payment	Status of USAC Payment
88429	\$47,870.00	\$7,180.50	\$40,689.50	Paid
88522	\$104,746.20	\$15,711.93	\$89,034.27	Paid
88584	\$68,345.00	\$10,251.75	\$58,093.25	Paid
88622	\$36,141.00	\$5,421.15	\$30,719.85	Paid
88713	\$80,049.60	\$12,007.44	\$68,042.16	Paid
88739	\$38,620.00	\$5,793.00	\$32,827.00	Paid
88822	\$40,857.00	\$6,128.55	\$34,728.45	Paid
88878	\$53,880.00	\$8,082.00	\$45,798.00	Paid
88942	\$43,636.00	\$6,545.40	\$37,090.60	Paid
88957	\$40,456.00	\$6,068.40	\$34,387.60	Paid
Totals	\$554,600.80	\$83,190.12	\$471,410.68	

- **RFP 01** – MPHI budgeted \$53,464.12 (both USAC & HCP shares) for network equipment mounted on nine towers (five towers were pre-existing). All of these costs were non-recurring, and all fit into category *b* above. All but 24 cents of the FCL was paid to the vendor (\$45,444.35 was paid), and the HCP paid \$8,019.62 (15 percent of the equipment cost).
- **RFP 02** – The budget for RFP 02 follows:
 - Network Design – N/A
 - Network Equipment, including engineering and installation – For purposes of this document, these costs are embedded in Infrastructure Deployment/Outside Plant. However, they will be broken out in the Network Cost Worksheet (NCW). They are a small percentage of the actual engineering and construction cost.
 - Infrastructure Deployment/Outside Plant: Engineering and Construction – The RHCPP will contribute \$5,266,241.35 for 72 sites (approximately 85 percent of the actual cost). The HCPs will contribute an additional \$929,336.80 (approximately 15 percent of the actual cost). Because some sites are less than 100% eligible, the 85-15 split is not precise.
 - Internet2, NLR, or Public Internet Connection – These costs are embedded in the monthly Operation Costs.
 - Leased Facilities or Tariffed Services – N/A
 - Network Management, Maintenance, and Operation Costs (not captured elsewhere) – The RHCPP will contribute \$2,106,058.63 in monthly operating subsidies for 72 sites during the first 24 months of operation at each site (approximately 85 percent of the actual cost). The HCPs will contribute an additional \$371,657.36 (approximately 15 percent of the

actual cost). Because some sites are less than 100% eligible, the 85-15 split is not precise.

- Other Non-Recurring and Recurring Costs – N/A
- **RFP 02 “Round 2”** – The budget for RFP 02 Round 2 sites follows:
 - Network Design – N/A
 - Network Equipment, including engineering and installation – For purposes of this document, these costs are embedded in Infrastructure Deployment/Outside Plant. However, they will be broken out in the Network Cost Worksheet (NCW). They are a small percentage of the actual engineering and construction cost.
 - Infrastructure Deployment/Outside Plant: Engineering and Construction – The RHCPP will contribute \$600,160 for 6 sites (85 percent of the actual cost). The HCPs will contribute an additional \$105,911 (15 percent of the actual cost).
 - Internet2, NLR, or Public Internet Connection – These costs are embedded in the monthly Operation Costs.
 - Leased Facilities or Tariffed Services – N/A
 - Network Management, Maintenance, and Operation Costs (not captured elsewhere) – The RHCPP will contribute \$263,793 in monthly operating subsidies for 6 sites during the first 24 months of operation at each site (85 percent of the actual cost). The HCPs will contribute an additional \$46,552 (15 percent of the actual cost).
 - Other Non-Recurring and Recurring Costs – N/A
- **RFP 03** – The budget for RFP 03 follows:
 - Network Design – N/A
 - Network Equipment, including engineering and installation – RFP 03’s participating hospitals will be purchasing 20-year IRUs (indefeasible right of use leases) or IRU-like arrangements. The hardware costs are embedded in the up-front, lump sum payment for the IRU.
 - Infrastructure Deployment/Outside Plant: Engineering and Construction – The infrastructure deployment/outside plant costs are embedded in the up-front, lump sum payment for the IRU.
 - Internet2, NLR, or Public Internet Connection – These costs are embedded in the up-front, lump sum payment for the IRU.
 - Leased Facilities or Tariffed Services – The RHCPP will contribute approximately \$10,779,000 for the IRU and IRU-like arrangements (approximately 85 percent of the actual cost), and the HCPs will contribute an additional \$1.9 million (15 percent of the actual cost).
 - Network Management, Maintenance, and Operation Costs (not captured elsewhere) – These costs—over 20 years—are embedded in the up-front, lump sum payment for the IRU.
 - Other Non-Recurring and Recurring Costs – N/A

6. Describe how costs have been apportioned and the sources of the funds to pay them:

a. Explain how costs are identified, allocated among, and apportioned to both eligible and ineligible network participants.

RFPs 00 and 01. The actual costs to serve a site were allocated to that site. All eight (8) network participants are eligible health care providers (hospitals) and received the full 85 percent subsidy.

RFP 02. The actual costs to serve a site are allocated to that site. If a site is fully eligible, it receives the full 85 percent subsidy. If a site is partially eligible, it receives a pro-rated subsidy and makes up the difference.

RFPs 03. The actual costs to serve a site are allocated to that site. Each fiber segment linking a pair of sites connects at least one 100%-eligible site, so all sites are receiving the full 85 percent subsidy.

b. Describe the source of funds from:

- i. Eligible Pilot Program network participants**
- ii. Ineligible Pilot Program network participants**

RFPs 00 and 01. The source of the participating health care providers' 15 percent share was a HRSA grant obtained through their consortium, the Thumb Rural Health Network (TRHN). There were no recurring costs in this project; all costs were one-time construction or purchase.

RFP 02. The source of funds for the HCPs' match is the HCP itself.

RFP 03. The source of funds for the HCP's match is the HCP itself.

c. Show contributions from all other sources (e.g., local, state, and federal sources, and other grants).

- i. Identify source of financial support and anticipated revenues that is paying for costs not covered by the fund and by Pilot Program participants.**
- ii. Identify the respective amounts and remaining time for such assistance.**

RFPs 00 and 01. With the exception of sources described in 6.b. above, there were no other sources of funds.

RFP 02. There should be no other sources of funds.

RFP 03. There should be no other sources of funds.

d. Explain how the selected participant's minimum 15 percent contribution is helping to achieve both the selected participant's identified goals and objectives and the overarching goals of the Pilot Program.

RFPs 00 and 01. The participants' 15 percent contribution is helping to pay for a telecomm network that is critical for inter-hospital communication.

RFP 02. The participants' 15 percent contribution is helping to pay for a telecomm network that is critical for inter-site and inter-HCP intrastate communication.

RFP 03. The participants' 15 percent contribution is helping to pay for a hospital system telecommunications networks that are vital to these hospitals use of electronic health records (EHRs), health information exchange (HIE), and other forms of health information technology (HIT).

7. *Identify any technical or non-technical requirements or procedures necessary for ineligible entities to connect to the participant's network.*

RFPs 00 and 01. All network participants are subsidy-eligible health care providers (hospitals).

RFP 02. All network participants except for four data centers are subsidy-eligible. However, the data centers are 100% eligible at the FCC Form 466 stage of the process. If there were any entities eligible to participate but ineligible for the subsidy, they would pay 100 percent of the cost of participation (both one-time connection and monthly service).

RFP 03. All participating sites are subsidy-eligible. If there were any entities eligible to participate but ineligible for the subsidy, they would pay 100 percent of the cost of participation.

8. *Provide an update on the project management plan, detailing:*
a. *The project's current leadership and management structure and any changes to the management structure since the last data report; and*

There has been no change from prior Quarterly Reports. For current project leadership, please refer to the response to question 1.

b. *In the first quarterly report, the selected applicant should provide a detailed project plan and schedule. The schedule must provide a list of key project deliverables or tasks, and their anticipated completion dates. Among the deliverables, participants must indicate the dates when each health care provider site is expected to be connected to the network and operational. Subsequent quarterly reports should identify which project deliverables, scheduled for the previous quarter, were met, and which were not met. In the event a project deliverable is not achieved, or the work and deliverables deviate from the work plan, the selected participant must provide an explanation.*

RFP 00 – Tower Construction. This project schedule has been completed:

- April 2009. MPHI submitted the FCC Form 465 package for USAC review.
- May 2009. USAC finalized its review and posted the RFP.
- June 2009. Vendors submitted proposals, and MPHI selected a winning vendor.
- July - September 2009. A contract was negotiated and signed.
- September 2009. USAC reviewed and approved the FCC Form 466A package.

- September 24, 2009. USAC issued the FCL.
- Late September 2009. Construction began.
- October 2, 2009. USAC issued a Support Acknowledgement Letter.
- June 30, 2010. Construction is completed.
- December 2009 through July, 2010. Network equipment purchased through RFP 01 was mounted on the towers as they are completed.
- July 2010. All eight hospitals are linked to an operational network.

RFP 01 – Purchase of Network Equipment. This project schedule has been completed:

- May 2009. MPHI submitted the FCC Form 465 package for USAC review.
- June 2009. USAC finalized its review and posted the RFP.
- July 2009. Vendors submitted proposals, and MPHI selected a winning vendor.
- August - September 2009. A contract was negotiated and signed.
- September 2009. USAC reviewed and approved the FCC Form 466A package.
- October 2009. USAC issued the FCL.
- November 2009. USAC issued a Support Acknowledgement Letter.
- December 2009. All equipment was delivered.
- December 2009. The HCP paid its 15 percent share to the vendor.
- January 2010. USAC paid its 85 percent share to the vendor.
- December 2009 through July, 2010. Network equipment purchased through RFP 01 was mounted on the towers as they are completed.
- July 2010. All eight hospitals are linked to an operational network.

RFP 02 – Statewide Network

MPHI plans to network 78 HCP sites stretched across 80 percent of the state’s geography. Participants will be classified into four categories: Tier 1 (large regional referral hospitals), Tier 2 (other hospitals), Tier 3 (large clinics with five or more clinicians), and Tier 4 (smaller clinics). All HCPs will be connected to the Internet2 backbone. Connection throughput; the number of virtual private network connections; the locus of equipment management; the uptime, response time, and repair time requirements; and other features will vary by Tier, with the most robust service being provided to Tier 1 HCPs.

A tentative project schedule follows:

- July-September 2008. The RFP was written; refined; and reviewed by a prominent telecommunications law firm. **COMPLETED**
- October 2008 – The RFP was finalized. **COMPLETED**
- November 2008 – USAC informally reviewed the RFP. **COMPLETED**
- October 2008 through February 2009 – USAC informally reviewed the eligibility of sites for FCC funding. **COMPLETED**⁴
- November 2009 – MPHI submitted the 465 package to USAC. **COMPLETED**
- November 2009 – The RFP was posted on the USAC website. **COMPLETED**

⁴ A decision on one “administrative” site is still outstanding a year after the initial submission of data.

- February 2010 – Vendor proposals are received. **COMPLETED**
- February - April 2010 – The Evaluation Committee evaluates proposals and selects a tentative winning bidder. **COMPLETED**
- April 23 – Late July 2010 – Based on “estimated” cost data from the tentative winning bid, participating HCPs, by site, confirm their participation (by contract) or withdraw from the project. **COMPLETED**
- Early August 2010 – A list of committed sites is compiled and provided to the tentative winning bidder. **COMPLETED**
- September 2010 – The tentative winning bidder recalculates costs based on the list of committed sites and submits the “actual” costs to MPHI, which in turn communicates them to the HCPs. The HCPs have the right to withdraw a site if a site’s actual costs exceed its estimated costs by more than 10%. **COMPLETED**
- November 2010 – The tentative winning bidder creates a construction schedule. **COMPLETED**
- ***October 2010 – March 2011*** – MPHI negotiates a signs a contract with the winning bidder, Great Lakes Comnet. **COMPLETED**
- ***April – May 2011*** – Great Lakes Comnet and each of the 23 HCPs (representing 72 sites) sign a contract. **COMPLETED**
- ***June 2011***. MPHI submitted the 72-site FCC Form 466-A package. The FCL was received on July 29, 2011. The funding commitment is \$7,988,067.60. **COMPLETED**
- ***January – March 2012*** – MPHI rescinded the initial FCL and submitted a revised Form 466A and NCW. The rescind-and-revise FCL was received on March 15, 2012. The funding commitment is \$7,372,299.98. **COMPLETED**
- ***May 2012*** – MPHI submitted a FCC Form 466-A package to add six more sites. The requested funding commitment is \$863,953. **COMPLETED**
- USAC approved the 466-A package, and MPHI received the FCL on September 28, 2012. MPHI submitted the Form 467 on October 1. **COMPLETED**
- ***4th Quarter 2011 through 3rd Quarter 2013*** – The winning bidder builds the network, with HCPs connected in a serial manner as quickly as possible.
- ***1st and 2nd years of network operation*** (timing will vary by HCP) – The monthly service costs during the first and second years of each HCP’s participation in the network are subsidized by RHCPP funds (85%), with the balance being paid by the HCP.
- ***3rd through 5th years of network operation*** – The monthly service rates paid by the HCPs were set by the original contract. The HCPs pay 100 percent of those costs.

RFPs 03 – Fiber Build

RFP 03 will fund the installation of hospital-owned fiber optic spans linking hospitals to their satellite sites and/or to other hospitals. Four hospital systems, 11 hospitals, and a total of 34 sites are involved.

- December 2010-January 2011. MPHI submitted the RFP 03 FCC Form 465 package for an informal USAC review. **COMPLETED**

- January 2011. MPHI submitted its RFP 03 FCC Form 465 package for USAC review. USAC posted the RFP on Feb. 2, with bids due on April 11. **COMPLETED**
- February 2011. MPHI submitted its RFP 04 FCC Form 465 package for USAC review. USAC posted the RFP on March 4, with bids due April 12. **COMPLETED**
- April 2011. An Evaluation Committee for each hospital system evaluated RFP 03 and RFP 04 bids and selected tentative winners. **COMPLETED**
- May-December 2011. Hospitals and telecom service providers negotiate and sign contracts, and MPHI submits 466A packages (the fourth 466A package was actually submitted on Jan. 3, 2012). **COMPLETED**
- First Quarter 2012. FCLs are received for all four hospital projects: Covenant Medical Center, Memorial Healthcare, Portage Health, and the Edward W. Sparrow Hospital Association. The total funding commitment is approximately \$10,779,360 **COMPLETED**
- 2012 through summer 2013. Construction and formal acceptance of fiber spans. All hospital system fiber networks should be operational by the end of 2013.

9. Provide detail on whether the network is or will become self-sustaining. Selected participants should provide an explanation of how network is self-sustaining.

See the Sustainability Plan attached as **Appendix F**.

10. RFP 00 and 01 - Provide detail on how the supported network has advanced telemedicine benefits:

- a. Explain how the supported network has achieved the goals and objectives outlined in selected participant's Pilot Program application.***
- The project provided substitute bandwidth (of higher speed and quality) and better connectivity between TRHN's consortia of 8 rural hospitals. The consortium is also involved in our RFP 02 project. Now that the build-out for RFP 02 is complete, the consortia also has high speed connectivity to other health care providers in Michigan and a link to the national fiber backbone which will allow the consortia to reap the full benefit of the network Michigan is currently constructing it's HIE infrastructure and the broadband provided will help enable HIE and the use of HIT. The broadband provided is essentially a conduit for information flow. That ability to move data, whether used as part of telehealth or more traditional approaches supports the goals that were outlined when the Michigan projects were envisioned.

- b. Explain how the supported network has brought the benefits of innovative telehealth and, in particular, telemedicine services to those areas of the country where the need for those benefits is most acute.***
Communication of data within the consortia has greatly improved. Without the connectivity, many HCP's would not have the infrastructure needed to support the telehealth.
- c. Explain how the supported network has allowed patients access to critically needed medical specialists in a variety of practices without leaving their homes or communities.***
The high speed connections have allowed the consortia to be a better provider by giving patients timely access to medical results and specialists across the region.
- d. Explain how the supported network has allowed health care providers access to government research institutions, and/or academic, public, and private health care institutions that are repositories of medical expertise and information.***
The high speed connection has allowed for a smoother transmission of data from key repositories with the state to HCPs.

Explain how the supported network has allowed health care professionals to monitor critically ill patients at multiple locations around the clock, provide access to advanced applications in continuing education and research, and/or enhanced the health care community's ability to provide a rapid and coordinated response in the event of a national crisis.

Health Care Providers now have accessibility to remotely access electronic medical records which affords them the ability to provide timely care from nearly any location.

RFP 02 and 03

The RFP02 statewide network and RFP 03 fiber build projects have been completed

11. RFP 00 and 01 - Provide detail on how the supported network has complied with Department of Health and Human Services (HHS) health IT initiatives:

- a. Explain how the supported network has used health IT systems and products that meet interoperability standards recognized by the HHS Secretary. Explain how the supported network has used health IT products certified by the Certification Commission for Healthcare Information Technology***

The HCP's have been able to implement certified EHR technology (CPSI) with the ability to connect our patient's information with other providers using other forms of technology.

b. Explain how the supported network has supported the Nationwide Health Information Network (NHIN) architecture by coordinating activities with organizations performing NHIN trial implementations.

The consortia reports no activity of this nature has been conducted at this time

c. Explain how the supported network has used resources available at HHS' Agency for Healthcare Research and Quality (AHRQ) National Resource Center for Health Information Technology.

The consortium foresees utilization of the supported network in this capacity in the future.

d. Explain how the selected participant has educated themselves concerning the Pandemic and All Hazards Preparedness Act and coordinated with the HHS Assistant Secretary for Public Response as a resource for telehealth inventory and for the implementation of other preparedness and response initiatives.

The consortia reports no activity of this nature has been conducted at this time.

e. Explain how the supported network has used resources available through HHS' Centers for Disease Control and Prevention (CDC) Public Health Information Network (PHIN) to facilitate interoperability with public health and emergency organizations.

The network has allowed the consortia to electronically report to public health and emergency organizations. The primary HIE-HIT role for Michigan's RHCPP projects is to provide the broadband infrastructure—the networks and bandwidth—that is essential for health information exchange and the meaningful use of electronic health records to actually work.

12. RFP 00/01 - Explain how the selected participants coordinated in the use of their health care networks with the Department of Health and Human Services (HHS) and, in particular, with its Centers for Disease Control and Prevention (CDC) in instances of national, regional, or local public health emergencies (e.g., pandemics, bioterrorism). In such instances, where feasible, explain how selected participants provided access to their supported networks to HHS, including CDC, and other public health officials.

The state fiber backbone has allowed limited remote access credentials to public health officials needing to access information.

Completed by: Patrick Sheehan, MPHI Business Analyst, 09/27/2015

Michigan Public Health Institute (MPHI)

Appendix F

Sustainability Plan

**For RFPs 00 and 01 (8-hospital Thumb Rural Health Network),
RFP 02 (78-site State of Michigan Broadband Network), and
RFP 03 (Private Fiber Networks for Four Hospital Systems Encompassing 34 Sites)**

Background

RFPs 00 and 01 – Tower-based Wireless Network. Due to delays the main RFP 02 encountered (see below), MPHI decided to move forward with two small RFPs for the Thumb Rural Health Network (TRHN). The TRHN is a consortium of eight (8) RHCPP-eligible hospitals located in the thumb region of Michigan’s Lower Peninsula. These two RFPs expanded an existing tower-based wireless network by adding four more towers (RFP 00) and purchasing telecomm equipment for all nine towers within the network (RFP 01). The funding commitments totaled \$519,193.02.

- *History of RFP 00 – TRHN Tower Construction.* This RFP built four telecommunications towers. RFP 00 was posted in early May 2009. Six qualified bids were submitted. A vendor (Thumb Radio Inc. of Bad Axe, MI)—the lowest bidder—was chosen in late June 2009, and a contract was signed on September 2. (The RFP requested quotes for five towers, but TRHN was unable to acquire the land for one of the five, so it decided to lease space on a nearby tower, reducing the number of towers to be built to four.) RFP 00’s FCL was issued on September 24, 2009, and the Support Acknowledgement Letter was issued on October 2. Work on the towers was completed in early June 2010, and the final invoice was paid in mid-June 2010. Therefore, the RFP 00 project is complete.
- *History of RFP 01 – TRHN Network Equipment.* This RFP purchased telecommunications equipment (radios, switches, routers, the network server, etc.) for the nine towers that are part of the TRHN network. RFP 01 was posted at the beginning of June 2009. Four bids were received, although two contained significant deficiencies. A vendor (CDW-Government, Inc.)—the lowest bidder among the four—was chosen in late July, and a contract was signed on September 15, 2009. RFP 01’s FCL was issued on October 21, 2009, and the Support Acknowledgement Letter was issued on November 12. All of the equipment was delivered in December 2009, and the invoices were paid in January 2010. Therefore, the RFP 01 project is complete.

RFP 02 – Statewide Telecomm Network. This RFP will build a statewide healthcare network linking a total of 78 health care facilities throughout Michigan (with the exception of nine southeastern counties that include the metropolitan areas of Detroit, Flint, Lansing, Jackson, Ann Arbor, and Monroe). This network will use fiber optic cable (95 percent of the connections), T-1 lines, and other traditional “wired” technology.

- **RFP 02 – Original and Rescind-and-Reissue FCLs.** MPHI submitted its RFP 02 and the list of approximately 521 *potential* participating sites (draft Form 465 Attachment) to USAC for an informal review in late October 2008. The RFP received immediate approval, but review of the 521 sites took five months. The American Recovery and Reinvestment Act (ARRA) was announced in February 2009, and it soon became clear that funding would be made available to construct broadband infrastructure. Once plans for Michigan’s stimulus-funded, middle-mile broadband infrastructure—which RFP 02 intends to build upon—were clear, MPHI submitted the RFP 02 465 package. MPHI posted the RFP on November 10, 2009. Seven vendors submitted proposals on February 15, 2010. For the total, five-year cost of the project, the high bid was 431% larger than the low bid. The RFP 02 Evaluation Committee met in March 2010 and narrowed the competing vendors to two finalists (the two that had submitted the lowest cost bids). These vendors were given a two-week window during which they were permitted to adjust, or fine-tune, their cost figures to account for any networking or ARRA-funded project developments that had occurred in the first quarter of 2010. The revised cost figures were received on April 15, 2010. One vendor did not make any significant changes to its bid, while the other—already the low-cost bidder—dropped its aggregate five-year operating costs by another 9%. On April 19, the Evaluation Committee chose the latter vendor, Great Lakes Comnet (GLC) of East Lansing, MI, as the tentative winner.

Great Lakes Comnet’s “Estimated Price” figures were provided to the HCPs in late April 2010. The HCPs were asked to determine which sites they wanted to keep in the project and commit to participation by signing a contract. Ninety (90) sites committed by early August. Great Lakes then calculated “Actual Prices” (final prices) based on the smaller size of the network, and MPHI communicated those prices to the HCPs. Seventeen (17) sites had the option to leave the project (without penalty) because their Actual Prices exceeded the corresponding Estimated Prices by more than 10 percent. Three (3) sites chose to opt out.

During the fourth quarter of 2010, a construction schedule for the participating sites, which is dependent on the MERIT-REACH 3MC, ARRA-funded project, was finalized. GLC and MPHI signed a contract on March 30, and “Network Construction and Service Agreements,” to be signed by GLC and each of the participating HCPs, were mailed to the 27 participating HCPs (89 sites) on March 31. Twenty-three (23) HCPs, representing 72 sites, contractually committed.

MPHI submitted the FCC Form 466-A package in June 2011. The *initial* FCL was received on July 29, 2011. The funding commitment was \$7,988,067.60. That funding

commitment included a “gross-up” to cover likely USF taxes on both construction and service charges. However, in late 2011, MPHI learned that the service provider, GLC, had provided inaccurate information about which items were subject to the USF and which were not. The errors were sizable enough that MPHI felt compelled to rescind the original FCL. On January 29, 2012, MPHI requested several revisions to the original Form 466A and submitted a replacement NCW. The rescind-and-reissue FCL was dated March 15, 2012. The new funding commitment is \$7,372,299.98, which includes a gross-up to cover likely USF taxes on part of the service charges.

- **RFP 02 “Round 2.”** In late 2011 and early 2012, several RHCPP-eligible sites that rejected participation in 2010, plus two more data centers, requested to participate. In April and May 2012, five organizations signed Network Agreements with GLC to participate. These organizations added two data centers and four sites that had already been vetted as part of the RFP 02 Form 465 process. These additions increased the total number of participating organizations from 23 to 26 and the total number of sites from 72 to 78. An additional six (6) RHCPP-eligible sites that may benefit from a data center’s participation are listed as \$0-cost participants on the Form 466A Attachments and NCW.

MPHI submitted the FCC Form 466-A package on May 31, 2012. The requested funding commitment is \$863,953.07. That funding commitment includes a “gross-up” to cover likely USF taxes on part of the service charges. This is Michigan’s final RHCPP funding request.

Construction on RFP 02 began in the summer of 2011. The first invoicing for completed legs of the project began in August of 2012. USAC has paid \$147,604.03 on this RFP through December 2012.

RFPs 03 – Fiber Build Project. MPHI’s May 2007 application proposed creating “telehealth and telemedicine infrastructure and services in the areas of Michigan where the need is the most acute.”⁵ MPHI listed slightly less than 400 health care sites as potential candidates for networking.⁶ Three years later, it now appears that MPHI will be able to network only 93 sites: the eight sites networked by RFPs 00 and 01, and the 87 sites networked by RFP 02 (including two RFP 00/01 sites). The reasons for this shortfall are Michigan’s poor economy, the three-year gap between the RHCPP announcement and RFP 02’s marketing phase, the complexity of USAC programs in general and MPHI’s RHCPP-funded statewide network in particular, and the high cost of the statewide network. To use the remaining RHCPP funding awarded to MPHI, to extend the statewide network created by RFP 02, and to help achieve the infrastructure goals of the RHCPP, MPHI has conceived an RFP 03, which will fund the installation of hospital-owned, fiber optic spans linking hospitals to their satellite sites and/or to other hospitals. The RFP 03 concept was marketed to Michigan HCPs during the fourth

⁵ “Pilot Program for Enhanced Access to Advanced Telecommunications and Information Services: Application to the Federal Communications Commission Submitted by the Michigan Public Health Institute,” May 7, 2007, p. 31.

⁶ *Ibid.*, pp. 34-38.

quarter of 2010. Five hospital systems (45 sites) committed to the project, two in Michigan's Upper Peninsula west of Marquette, and three in the central part of Michigan's Lower Peninsula.

USAC reviewed the RFP 03 scoping document and the 465 Attachment during January 2011, and the RFP was posted on February 2, 2011. On April 11, MPHI received bids from eight (8) vendors. Evaluation Committees for four hospitals met the week of April 18 and tentatively chose winning bidders; the fifth hospital withdrew from the project due to the high cost of the lone bid it received. Contract negotiations between each participating hospital system and the winning bidder began in May. The status of each follows:

- Portage Health. The contract was signed on Sep. 14, 2011, and the 466A package was informally submitted on Oct. 6. The requested funding commitment was \$5,517,314. The FCL was received on Jan. 12, 2012. A Form 467 was submitted on Jan. 17, and the Acknowledgement Letter was received on Jan. 24.
- Memorial Healthcare. The contract was signed on Oct. 31, 2011, and the 466A package was informally submitted on Nov. 9. The requested funding commitment was \$2,091,756. The FCL was received on Feb. 16, 2012. A Form 467 was submitted on Feb. 17, and the Acknowledgement Letter was received on March 1.
- Covenant Medical Center. The contract was signed on Dec. 7, 2011, and the 466A package was informally submitted on Dec. 12. The requested funding commitment was \$518,302. The FCL was received on Feb. 23, 2012. A Form 467 was submitted on Feb. 27, and the Acknowledgement Letter was received on March 15.
- Edward W. Sparrow Hospital Association. The contract was signed on Dec. 20, 2011, and the 466A package was submitted on Jan. 3, 2012. The requested funding commitment is \$2,651,989. The FCL was received on March 1, 2012. A Form 467 was submitted on March 6, and the Acknowledgement Letter was received on March 15.

The four projects will cover 34 sites under 20-year IRUs. The funding commitments total **\$10,779,361**.

Invoicing began in June of 2012. USAC has paid \$2,452,139.48 on this RFP in 2012.

How Do These Three Networks Interact?

The eight RFPs 00/01 sites networked by the Thumb Rural Health Network's tower-mounted wireless radio network are directly connected to the 78-site, RFP 02 statewide network because two sites are members of both. This creates an 84-site network.

The 34 sites participating in RFP 03's four hospital system networks are connected to the 84-site RFPs 00/01/02 network through the Internet and the massive fiber backbone already constructed and being constructed within Michigan, most of it with ARRA funding

These 118 sites, in turn, are directly or indirectly connected to hundreds of other Michigan sites through public and private networks and health information exchanges (HIEs).

Minimum 15 Percent Funding Match

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network (TRHN), a consortium of eight (8) hospitals, paid the 15 percent match using a HRSA grant.
- ***RFP 02 – Statewide Broadband Network.*** Each participating health care provider will be required to pay its 15 percent share. Partially eligible sites will be required to pay a larger share. To MPHI's knowledge, no state or federal funding will be used to pay the HCP's share of the costs.
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each participating hospital system will be required to pay its 15 percent share. All sites are 100 percent eligible. To MPHI's knowledge, no state or federal funding will be used to pay the hospital system's share of the costs.

Project Sustainability Period

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network (TRHN) owns and maintains the network. The ongoing maintenance costs (primarily replacing tower-mounted radios that are not functioning properly) are minimal. (See budget below.) The network has been operating for a full year. TRHN intends to use the network for the foreseeable future, so its lifespan is open-ended.
- ***RFP 02 – Statewide Broadband Network.*** The initial commitment is for a period of five years. The vendor and the HCPs participating in the Michigan network are then free to negotiate contract renewals. However, the vendor has a financial incentive to retain the HCPs as customers, as the fiber optics built with Pilot Program funding must continue to be used for health care purposes. Factors favoring HCP renewal are the existence of the fiber capacity, the likelihood of attractive pricing, and the existing relationship with the service provider. (See budget below.)
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each of the four networks will be operated under a 20-year IRU contractual commitment.

Principal Factors & Budget

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** TRHN researched a number of technologies to network its eight hospitals and decided that a tower-mounted, wireless radio system was, long-term, the most cost-effective approach. Almost

the entire lifetime cost of the system was expensed during the first year—tower construction and the purchase of the wireless radios and other hardware. Ongoing operating costs, by year, are estimated as follows. The TRHN’s operating budget, funded by the eight member hospitals, will cover these costs.

Year	Estimated Annual Maintenance Costs (primarily repairing damage caused by lightning strikes and monitoring the system) for Nine-Tower Network
1	\$31,000
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	Source: David West

- RFP 02 – Statewide Broadband Network.** MPHI is requiring the vendor to maintain the quoted cost structure for a minimum of five years. Each participating health care provider has contractually agreed to participate in the network for a minimum of five years. After the first two years of operation, each HCP site will be expected to pay 100 percent of the operating costs allocated to it. Prior to committing to the network, the HCP was informed of the costs so it could make an informed decision and budget accordingly. HCPs carefully considered the competing offers—if there were any in their mostly rural locations—before committing to the project.

The economies of scale of negotiating a 78-site consortium have driven down the ongoing costs. MPHI will use Pilot Program funds to pay for the expensive capital investment up front and make the ongoing cost affordable for the sites. This cost is less than what the HCPs are currently paying for Internet service. In addition, the statewide health care network will be tailored to meet the *unique* requirements of the health care industry.

The annual operating budget follows. Costs are *not* expected to increase upon expiration of the five-year contract due to competitive pressure.

Year	Annual Operating Costs (all inclusive, including USF taxes) for 78 Sites (e = estimated)
1	\$1,437,729
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- RFP 03 – Private Fiber Networks for Four Hospital Systems.** RFP 03 helps hospital systems obtain fiber optic *infrastructure*. Each of the four networks will be operated under a 20-year IRU contract. All construction and maintenance costs (over the 20-year life of the lease) will be prepaid in a single lump sum. Upon expiration of the contract, assets will be returned to the telecomm service provider. Given the nature of the contracts, the annual cost to *maintain* each hospital system’s telecomm network during the next 20 years is expected to be close to zero. The only unpredictable *maintenance* costs are those of a *Force Majeure* nature, e.g., if a locality requires that all fiber optic cables be moved from one side of the street to the other.

Annual Maintenance Costs - Cost to *Maintain* the Fiber Optic Network Leased with Pilot Program Assistance

In all four cases, the source of the income used to defray the maintenance costs is the hospital's IT budget.

Year	Hospital System (differences based on cable mileage)			
	Covenant, Saginaw, MI	Memorial, Owosso, MI	Portage, Hancock, MI	Sparrow, Lansing, MI
1	\$1,000	\$10,000	\$0	\$14,000
2	\$1,075	\$10,750	\$0	\$15,050
3	\$1,156	\$11,556	\$0	\$16,179
4	\$1,242	\$12,423	\$0	\$17,392
5	\$1,335	\$13,355	\$0	\$18,697
6	\$1,436	\$14,356	\$0	\$20,099

7	\$1,543	\$15,433	\$0	\$21,606
8	\$1,659	\$16,590	\$0	\$23,227
9	\$1,783	\$17,835	\$0	\$24,969
10	\$1,917	\$19,172	\$0	\$26,841
11	\$2,061	\$20,610	\$0	\$28,854
12	\$2,216	\$22,156	\$0	\$31,019
13	\$2,382	\$23,818	\$0	\$33,345
14	\$2,560	\$25,604	\$0	\$35,846
15	\$2,752	\$27,524	\$0	\$38,534
16	\$2,959	\$29,589	\$0	\$41,424
17	\$3,181	\$31,808	\$0	\$44,531
18	\$3,419	\$34,194	\$0	\$47,871
19	\$3,676	\$36,758	\$0	\$51,461
20	\$3,951	\$39,515	\$0	\$55,321

Covenant Medical Center, Memorial Healthcare, and the Edward W. Sparrow Hospital Association will lease *fiber strands* under 20-year IRUs. Each vendor is being prepaid to maintain the fiber network. Each hospital system will be liable to repair problems caused by Force Majeure events and to share in the cost of fiber relocations that cannot be anticipated, e.g., by the mandate of local authorities.

Portage Health is leasing service *capacity* through a 20-year IRU. The vendor will be responsible for maintaining the network under all circumstances, foreseen and unforeseen.

Terms of Membership in the Network

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network was required to sign two (2) three-way contracts. The first, to construct four towers, was with MPHI and Thumb Radio, which built the towers. The second was with MPHI and CDW-Government, which supplied the wireless radios and other hardware for the nine-tower network. Financial and other commitments are described elsewhere in this document. The system was built with enough capacity to handle TRHN’s current and foreseeable bandwidth needs. The network includes only eligible HCPs.
- ***RFP 02 – Statewide Broadband Network.*** Each of the original 72 participating HCPs was required to sign a *Commitment Agreement* with MPHI. This contract more or less committed the HCP to participation while details of cost and network size were being determined. MPHI then signed a contract with the service provider, Great Lakes Comnet (GLC); this contract finalized costs, network size, the construction schedule, etc. Finally, with those details known, GLC and each participating HCP signed a *Network Construction and Service Agreement with Addendum*. This contract irrevocably committed the HCP to participation. Financial and other commitments are described elsewhere in this document.

Generally, each HCP purchased the largest bandwidth connection it could afford, consistent with its expected future needs. However, MPHI believes that, in all cases, bandwidth requirements will eventually outstrip the bandwidth purchased.

The network includes only eligible HCPs.

The six add-on HCPs signed a *Network Construction and Service Agreement with Addendum* with GLC; due to the passage of time and the resolution of unknowns, it was unnecessary for the HCPs to sign a *Commitment Agreement* with MPHI. MPHI then amended its contract with GLC to add the six sites.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each of the four hospital systems will sign a 20-year contract with its service provider. This contract will contain Pilot Program-specific clauses detailing the USAC invoicing process, etc. Financial and other commitments are described elsewhere in this document. Generally, each hospital system obtained enough fiber capacity to handle its telecomm bandwidth needs over the next 20 years. Each network includes only eligible HCPs.

Excess Capacity

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** As the term is used by USAC, there is no excess capacity. The network was built for the sole use of the Thumb Rural Health Network. No unused capacity will be offered to organizations or sites that are not members of the TRHN.
- ***RFP 02 – Statewide Broadband Network.*** As the term is used by USAC, there is no excess capacity. First, the network will be owned by the vendor, and the vendor will offer a well-defined service to each HCP. Second, any surplus capacity or bandwidth supplied to an HCP will be reserved *for its own use*, as health care telecommunications requirements are expected to explode over time. Third, the vendor will not use Pilot Program funding to build excess bandwidth or capacity that will be offered to organizations that are not members of the network.
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** As the term is used by USAC, there is no excess capacity. Each hospital network is being leased for the hospital's exclusive use. No unused capacity will be offered to sites that are not owned by the hospital system and explicitly listed in Pilot Program documents.

Ownership Structure

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network (TRHN) owns the towers, the wireless radios mounted on the towers, and all other hardware purchased to operate the network. As the network's owner, TRHN is responsible for operating and maintaining the network.
- ***RFP 02 – Statewide Broadband Network.*** The telecomm network consists of at least five components: the fiber backbone located in the State of Michigan; the last-mile fiber connections from the backbone to each participating site; the

vendor equipment located at each site; the HCP equipment located at each site (traffic and VPN routers); and the network operations center and other infrastructure required to operate and maintain the network. MPHI considered many different ownership structures. After consultation with State government, the participating HCPs, and other health IT non-profits, MPHI decided that the best ownership structure was vendor ownership. The vendor is best positioned technologically to operate the network and will have appropriate contractual and financial incentives to maintain and upgrade the network as necessary. No other candidates appeared to have the technological and organizational sophistication to build and operate the network. In addition, Michigan state law forbids non-telecomm service providers from building in the public right-of-way, effectively eliminating ALL other candidates from constructing the network. Given all that, the RFP explained the envisioned ownership structure and made it a requirement for bidding. The vendor will own all components described above except the HCP equipment located at each site; that equipment will be owned by the vendor (so that the vendor is required to maintain it) *until* the end of five years or a site leaves the network (whichever occurs first), at which point ownership is transferred to the HCP.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each hospital system is signing a 20-year IRU agreement with a telecomm service provider. Three hospital systems are simply leasing fiber strands. The vendor will own everything between the fiber termination points at each pair of sites. The fourth hospital system will have a 20-year, guaranteed service arrangement with a telecomm service provider. This will function exactly like a standard IRU, except a one Gbps *capacity* is being leased instead of actual fiber *strands*. This is due to the minimal competition among service providers in the Upper Peninsula of Michigan and the state laws that require telecomm service providers to own any fiber placed in the public right-of-way. The telecomm service provider will own everything between the fiber termination points at each pair of sites.

MPHI’s preference would have been to build hospital-owned fiber for each of the four hospital systems, but State law forbids “private networks”—even those owned by not-for-profit hospitals—to use public right-of-way. MPHI protested to State government officials but was told that there was no recourse.

Sources of Future Support

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The ongoing costs to operate the network—discussed above—are minimal. Dues paid by the member hospitals to the Thumb Rural Health Network will cover these minimal operating costs.
- ***RFP 02 – Statewide Broadband Network.*** Each HCP’s monthly operating costs will be paid from its general revenues. Given that (1) the health care sites are totally dependent on telecommunications to operate and (2) the fees being paid for participation in the Pilot Program network are historically less than what the HCPs have paid in the past for far lower bandwidth, the HCPs should be able to financially support the network. The HCPs are contractually committed for only

five years, but, after that, the financial economies and operational utility of the Pilot-funded network should compel the HCPs to continue using it.

Many of the Pilot-eligible, rural, not-for-profit health care providers participating in RFP 02 are eligible for the Primary Program. To help offset the network's ongoing cost, after the first two years of operation, eligible rural HCPs will be migrated from the Pilot Program into the traditional Rural Health Care Primary Program. To facilitate this, MPHI has requested that USAC grant "evergreen" status to the contracts that result from Michigan's RHCPP projects. To MPHI's knowledge, once Pilot Program subsidies end, no state or federal funding (other than the FCC's RHC Primary Program) will be used to defray the HCP's telecomm network costs.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Under the IRU arrangements negotiated for the four hospital systems, there will be no ongoing costs for 20 years, other than:
 - The costs detailed under "Principal Factors & Budget" above
 - The hospital's share of the cost to repair problems caused by *Force Majeure* events
 - The hospital's share of the cost of fiber relocations that cannot be anticipated, e.g., by the mandate of local authorities

Management of the Network

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network operates and maintains the tower-based wireless network. It occasionally hires tower climbers to retrieve and install radios mounted at the tops of the towers, but, otherwise, it is operationally self-sufficient. The TRHN's operating budget covers this minimal cost.
- ***RFP 02 – Statewide Broadband Network.*** The vendor, Great Lakes Comnet (GLC), will manage the network, and the cost will be incorporated into the participants' ongoing monthly service fees. MPHI's and the HCPs' contracts with GLC require it to operate the network. Those contracts contain a Service Level Agreement (SLA) and appropriate penalties for failing to abide by the SLA. The monthly service fees will be covered by each HCP's IT operating budget.
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** The three hospital systems that lease actual fiber strands will manage their own networks. The telecomm service providers will be required to maintain the fiber, cable, conduit, pole attachments, and all other infrastructure and, under SLAs, ensure that any interruptions in service are immediately addressed. The hospital systems should not incur any significant operating costs over the 20 years.

For the hospital system that is leasing one Gbps connections between its sites, the service provider will manage and maintain the system, again under an SLA with appropriate penalties.

Michigan Public Health Institute (MPHI)

Appendix F

Sustainability Plan

For RFPs 00 and 01 (8-hospital Thumb Rural Health Network), RFP 02 (78-site State of Michigan Broadband Network), and RFP 03 (Private Fiber Networks for Four Hospital Systems Encompassing 34 Sites)

Background

RFPs 00 and 01 – Tower-based Wireless Network. Due to delays the main RFP 02 encountered (see below), MPHI decided to move forward with two small RFPs for the Thumb Rural Health Network (TRHN). The TRHN is a consortium of eight (8) RHCPP-eligible hospitals located in the thumb region of Michigan’s Lower Peninsula. These two RFPs expanded an existing tower-based wireless network by adding four more towers (RFP 00) and purchasing telecomm equipment for all nine towers within the network (RFP 01). The funding commitments totaled **\$519,193.02**.

- ***History of RFP 00 – TRHN Tower Construction.*** This RFP built four telecommunications towers. RFP 00 was posted in early May 2009. Six qualified bids were submitted. A vendor (Thumb Radio Inc. of Bad Axe, MI)—the lowest bidder—was chosen in late June 2009, and a contract was signed on September 2. (The RFP requested quotes for five towers, but TRHN was unable to acquire the land for one of the five, so it decided to lease space on a nearby tower, reducing the number of towers to be built to four.) RFP 00’s FCL was issued on September 24, 2009, and the Support Acknowledgement Letter was issued on October 2. Work on the towers was completed in early June 2010, and the final invoice was paid in mid-June 2010. Therefore, the RFP 00 project is complete.
- ***History of RFP 01 – TRHN Network Equipment.*** This RFP purchased telecommunications equipment (radios, switches, routers, the network server, etc.) for the nine towers that are part of the TRHN network. RFP 01 was posted at the beginning of June 2009. Four bids were received, although two contained significant deficiencies. A vendor (CDW-Government, Inc.)—the lowest bidder among the four—was chosen in late July, and a contract was signed on September 15, 2009. RFP 01’s FCL was issued on October 21, 2009, and the Support Acknowledgement Letter was issued on November 12. All of the equipment was delivered in December 2009, and the invoices were paid in January 2010. Therefore, the RFP 01 project is complete.

RFP 02 – Statewide Telecomm Network. This RFP will build a statewide healthcare network linking a total of 78 health care facilities throughout Michigan (with the exception of nine southeastern counties that include the metropolitan areas of Detroit, Flint, Lansing, Jackson, Ann Arbor, and Monroe). This network will use fiber optic cable (95 percent of the connections), T-1 lines, and other traditional “wired” technology.

- **RFP 02 – Original and Rescind-and-Reissue FCLs.** MPHI submitted its RFP 02 and the list of approximately 521 *potential* participating sites (draft Form 465 Attachment) to USAC for an informal review in late October 2008. The RFP received immediate approval, but review of the 521 sites took five months. The American Recovery and Reinvestment Act (ARRA) was announced in February 2009, and it soon became clear that funding would be made available to construct broadband infrastructure. Once plans for Michigan’s stimulus-funded, middle-mile broadband infrastructure—which RFP 02 intends to build upon—were clear, MPHI submitted the RFP 02 465 package. MPHI posted the RFP on November 10, 2009. Seven vendors submitted proposals on February 15, 2010. For the total, five-year cost of the project, the high bid was 431% larger than the low bid. The RFP 02 Evaluation Committee met in March 2010 and narrowed the competing vendors to two finalists (the two that had submitted the lowest cost bids). These vendors were given a two-week window during which they were permitted to adjust, or fine-tune, their cost figures to account for any networking or ARRA-funded project developments that had occurred in the first quarter of 2010. The revised cost figures were received on April 15, 2010. One vendor did not make any significant changes to its bid, while the other—already the low-cost bidder—dropped its aggregate five-year operating costs by another 9%. On April 19, the Evaluation Committee chose the latter vendor, Great Lakes Comnet (GLC) of East Lansing, MI, as the tentative winner.

Great Lakes Comnet’s “Estimated Price” figures were provided to the HCPs in late April 2010. The HCPs were asked to determine which sites they wanted to keep in the project and commit to participation by signing a contract. Ninety (90) sites committed by early August. Great Lakes then calculated “Actual Prices” (final prices) based on the smaller size of the network, and MPHI communicated those prices to the HCPs. Seventeen (17) sites had the option to leave the project (without penalty) because their Actual Prices exceeded the corresponding Estimated Prices by more than 10 percent. Three (3) sites chose to opt out.

During the fourth quarter of 2010, a construction schedule for the participating sites, which is dependent on the MERIT-REACH 3MC, ARRA-funded project, was finalized. GLC and MPHI signed a contract on March 30, and “Network Construction and Service Agreements,” to be signed by GLC and each of the participating HCPs, were mailed to the 27 participating HCPs (89 sites) on March 31. Twenty-three (23) HCPs, representing 72 sites, contractually committed.

MPHI submitted the FCC Form 466-A package in June 2011. The *initial* FCL was received on July 29, 2011. The funding commitment was \$7,988,067.60. That funding

commitment included a “gross-up” to cover likely USF taxes on both construction and service charges. However, in late 2011, MPHI learned that the service provider, GLC, had provided inaccurate information about which items were subject to the USF and which were not. The errors were sizable enough that MPHI felt compelled to rescind the original FCL. On January 29, 2012, MPHI requested several revisions to the original Form 466A and submitted a replacement NCW. The rescind-and-reissue FCL was dated March 15, 2012. The new funding commitment is \$7,372,299.98, which includes a gross-up to cover likely USF taxes on part of the service charges.

- **RFP 02 “Round 2.”** In late 2011 and early 2012, several RHCPP-eligible sites that rejected participation in 2010, plus two more data centers, requested to participate. In April and May 2012, five organizations signed Network Agreements with GLC to participate. These organizations added two data centers and four sites that had already been vetted as part of the RFP 02 Form 465 process. These additions increased the total number of participating organizations from 23 to 26 and the total number of sites from 72 to 78. An additional six (6) RHCPP-eligible sites that may benefit from a data center’s participation are listed as \$0-cost participants on the Form 466A Attachments and NCW.

MPHI submitted the FCC Form 466-A package on May 31, 2012. The requested funding commitment is \$863,953.07. That funding commitment includes a “gross-up” to cover likely USF taxes on part of the service charges. This is Michigan’s final RHCPP funding request.

Construction on RFP 02 began in the summer of 2011. The first invoicing for completed legs of the project began in August of 2012. USAC has paid \$147,604.03 on this RFP through December 2012.

RFPs 03 – Fiber Build Project. MPHI’s May 2007 application proposed creating “telehealth and telemedicine infrastructure and services in the areas of Michigan where the need is the most acute.”⁷ MPHI listed slightly less than 400 health care sites as potential candidates for networking.⁸ Three years later, it now appears that MPHI will be able to network only 93 sites: the eight sites networked by RFPs 00 and 01, and the 87 sites networked by RFP 02 (including two RFP 00/01 sites). The reasons for this shortfall are Michigan’s poor economy, the three-year gap between the RHCPP announcement and RFP 02’s marketing phase, the complexity of USAC programs in general and MPHI’s RHCPP-funded statewide network in particular, and the high cost of the statewide network. To use the remaining RHCPP funding awarded to MPHI, to extend the statewide network created by RFP 02, and to help achieve the infrastructure goals of the RHCPP, MPHI has conceived an RFP 03, which will fund the installation of hospital-owned, fiber optic spans linking hospitals to their satellite sites and/or to other hospitals. The RFP 03 concept was marketed to Michigan HCPs during the fourth

⁷ “Pilot Program for Enhanced Access to Advanced Telecommunications and Information Services: Application to the Federal Communications Commission Submitted by the Michigan Public Health Institute,” May 7, 2007, p. 31.

⁸ *Ibid.*, pp. 34-38.

quarter of 2010. Five hospital systems (45 sites) committed to the project, two in Michigan's Upper Peninsula west of Marquette, and three in the central part of Michigan's Lower Peninsula.

USAC reviewed the RFP 03 scoping document and the 465 Attachment during January 2011, and the RFP was posted on February 2, 2011. On April 11, MPHI received bids from eight (8) vendors. Evaluation Committees for four hospitals met the week of April 18 and tentatively chose winning bidders; the fifth hospital withdrew from the project due to the high cost of the lone bid it received. Contract negotiations between each participating hospital system and the winning bidder began in May. The status of each follows:

- Portage Health. The contract was signed on Sep. 14, 2011, and the 466A package was informally submitted on Oct. 6. The requested funding commitment was \$5,517,314. The FCL was received on Jan. 12, 2012. A Form 467 was submitted on Jan. 17, and the Acknowledgement Letter was received on Jan. 24.
- Memorial Healthcare. The contract was signed on Oct. 31, 2011, and the 466A package was informally submitted on Nov. 9. The requested funding commitment was \$2,091,756. The FCL was received on Feb. 16, 2012. A Form 467 was submitted on Feb. 17, and the Acknowledgement Letter was received on March 1.
- Covenant Medical Center. The contract was signed on Dec. 7, 2011, and the 466A package was informally submitted on Dec. 12. The requested funding commitment was \$518,302. The FCL was received on Feb. 23, 2012. A Form 467 was submitted on Feb. 27, and the Acknowledgement Letter was received on March 15.
- Edward W. Sparrow Hospital Association. The contract was signed on Dec. 20, 2011, and the 466A package was submitted on Jan. 3, 2012. The requested funding commitment is \$2,651,989. The FCL was received on March 1, 2012. A Form 467 was submitted on March 6, and the Acknowledgement Letter was received on March 15.

The four projects will cover 34 sites under 20-year IRUs. The funding commitments total **\$10,779,361**.

Invoicing began in June of 2012. USAC has paid \$2,452,139.48 on this RFP in 2012.

How Do These Three Networks Interact?

The eight RFPs 00/01 sites networked by the Thumb Rural Health Network's tower-mounted wireless radio network are directly connected to the 78-site, RFP 02 statewide network because two sites are members of both. This creates an 84-site network.

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the entire lifetime cost of the system was expensed during the first year—tower construction and the purchase of the wireless radios and other hardware. Ongoing operating costs, by year, are estimated as follows. The TRHN’s operating budget, funded by the eight member hospitals, will cover these costs.

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	Source: David West

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The annual operating budget follows. Costs are *not* expected to increase upon expiration of the five-year contract due to competitive pressure.

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<p>Annual Maintenance Costs - Cost to <i>Maintain</i> the Fiber Optic Network Leased with Pilot Program Assistance</p> <p>In all four cases, the source of the income used to defray the maintenance costs is the hospital's IT budget.</p>

Year	Hospital System (differences based on cable mileage)			
	Covenant, Saginaw, MI	Memorial, Owosso, MI	Portage, Hancock, MI	Sparrow, Lansing, MI
1	\$1,000	\$10,000	\$0	\$14,000
2	\$1,075	\$10,750	\$0	\$15,050
3	\$1,156	\$11,556	\$0	\$16,179
4	\$1,242	\$12,423	\$0	\$17,392
5	\$1,335	\$13,355	\$0	\$18,697
6	\$1,436	\$14,356	\$0	\$20,099

7	\$1,543	\$15,433	\$0	\$21,606
8	\$1,659	\$16,590	\$0	\$23,227
9	\$1,783	\$17,835	\$0	\$24,969
10	\$1,917	\$19,172	\$0	\$26,841
11	\$2,061	\$20,610	\$0	\$28,854
12	\$2,216	\$22,156	\$0	\$31,019
13	\$2,382	\$23,818	\$0	\$33,345
14	\$2,560	\$25,604	\$0	\$35,846
15	\$2,752	\$27,524	\$0	\$38,534
16	\$2,959	\$29,589	\$0	\$41,424
17	\$3,181	\$31,808	\$0	\$44,531
18	\$3,419	\$34,194	\$0	\$47,871
19	\$3,676	\$36,758	\$0	\$51,461
20	\$3,951	\$39,515	\$0	\$55,321

Covenant Medical Center, Memorial Healthcare, and the Edward W. Sparrow Hospital Association will lease *fiber strands* under 20-year IRUs. Each vendor is being prepaid to maintain the fiber network. Each hospital system will be liable to repair problems caused by Force Majeure events and to share in the cost of fiber relocations that cannot be anticipated, e.g., by the mandate of local authorities.

Portage Health is leasing service *capacity* through a 20-year IRU. The vendor will be responsible for maintaining the network under all circumstances, foreseen and unforeseen.

Terms of Membership in the Network

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network was required to sign two (2) three-way contracts. The first, to construct four towers, was with MPHI and Thumb Radio, which built the towers. The second was with MPHI and CDW-Government, which supplied the wireless radios and other hardware for the nine-tower network. Financial and other commitments are described elsewhere in this document. The system was built with enough capacity to handle TRHN’s current and foreseeable bandwidth needs. The network includes only eligible HCPs.
- ***RFP 02 – Statewide Broadband Network.*** Each of the original 72 participating HCPs was required to sign a *Commitment Agreement* with MPHI. This contract more or less committed the HCP to participation while details of cost and network size were being determined. MPHI then signed a contract with the service provider, Great Lakes Comnet (GLC); this contract finalized costs, network size, the construction schedule, etc. Finally, with those details known, GLC and each participating HCP signed a *Network Construction and Service Agreement with Addendum*. This contract irrevocably committed the HCP to participation. Financial and other commitments are described elsewhere in this document.

Generally, each HCP purchased the largest bandwidth connection it could afford, consistent with its expected future needs. However, MPHI believes that, in all cases, bandwidth requirements will eventually outstrip the bandwidth purchased. The network includes only eligible HCPs.

The six add-on HCPs signed a *Network Construction and Service Agreement with Addendum* with GLC; due to the passage of time and the resolution of unknowns, it was unnecessary for the HCPs to sign a *Commitment Agreement* with MPHI. MPHI then amended its contract with GLC to add the six sites.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each of the four hospital systems will sign a 20-year contract with its service provider. This contract will contain Pilot Program-specific clauses detailing the USAC invoicing process, etc. Financial and other commitments are described elsewhere in this document. Generally, each hospital system obtained enough fiber capacity to handle its telecomm bandwidth needs over the next 20 years. Each network includes only eligible HCPs.

Excess Capacity

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** As the term is used by USAC, there is no excess capacity. The network was built for the sole use of the Thumb Rural Health Network. No unused capacity will be offered to organizations or sites that are not members of the TRHN.
- ***RFP 02 – Statewide Broadband Network.*** As the term is used by USAC, there is no excess capacity. First, the network will be owned by the vendor, and the vendor will offer a well-defined service to each HCP. Second, any surplus capacity or bandwidth supplied to an HCP will be reserved *for its own use*, as health care telecommunications requirements are expected to explode over time. Third, the vendor will not use Pilot Program funding to build excess bandwidth or capacity that will be offered to organizations that are not members of the network.
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** As the term is used by USAC, there is no excess capacity. Each hospital network is being leased for the hospital's exclusive use. No unused capacity will be offered to sites that are not owned by the hospital system and explicitly listed in Pilot Program documents.

Ownership Structure

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network (TRHN) owns the towers, the wireless radios mounted on the towers, and all other hardware purchased to operate the network. As the network's owner, TRHN is responsible for operating and maintaining the network.
- ***RFP 02 – Statewide Broadband Network.*** The telecomm network consists of at least five components: the fiber backbone located in the State of Michigan; the last-mile fiber connections from the backbone to each participating site; the

vendor equipment located at each site; the HCP equipment located at each site (traffic and VPN routers); and the network operations center and other infrastructure required to operate and maintain the network. MPHI considered many different ownership structures. After consultation with State government, the participating HCPs, and other health IT non-profits, MPHI decided that the best ownership structure was vendor ownership. The vendor is best positioned technologically to operate the network and will have appropriate contractual and financial incentives to maintain and upgrade the network as necessary. No other candidates appeared to have the technological and organizational sophistication to build and operate the network. In addition, Michigan state law forbids non-telecomm service providers from building in the public right-of-way, effectively eliminating ALL other candidates from constructing the network. Given all that, the RFP explained the envisioned ownership structure and made it a requirement for bidding. The vendor will own all components described above except the HCP equipment located at each site; that equipment will be owned by the vendor (so that the vendor is required to maintain it) *until* the end of five years or a site leaves the network (whichever occurs first), at which point ownership is transferred to the HCP.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Each hospital system is signing a 20-year IRU agreement with a telecomm service provider. Three hospital systems are simply leasing fiber strands. The vendor will own everything between the fiber termination points at each pair of sites. The fourth hospital system will have a 20-year, guaranteed service arrangement with a telecomm service provider. This will function exactly like a standard IRU, except a one Gbps *capacity* is being leased instead of actual fiber *strands*. This is due to the minimal competition among service providers in the Upper Peninsula of Michigan and the state laws that require telecomm service providers to own any fiber placed in the public right-of-way. The telecomm service provider will own everything between the fiber termination points at each pair of sites.

MPHI's preference would have been to build hospital-owned fiber for each of the four hospital systems, but State law forbids "private networks"—even those owned by not-for-profit hospitals—to use public right-of-way. MPHI protested to State government officials but was told that there was no recourse.

Sources of Future Support

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The ongoing costs to operate the network—discussed above—are minimal. Dues paid by the member hospitals to the Thumb Rural Health Network will cover these minimal operating costs.
- ***RFP 02 – Statewide Broadband Network.*** Each HCP's monthly operating costs will be paid from its general revenues. Given that (1) the health care sites are totally dependent on telecommunications to operate and (2) the fees being paid for participation in the Pilot Program network are historically less than what the HCPs have paid in the past for far lower bandwidth, the HCPs should be able to financially support the network. The HCPs are contractually committed for only

five years, but, after that, the financial economies and operational utility of the Pilot-funded network should compel the HCPs to continue using it. Many of the Pilot-eligible, rural, not-for-profit health care providers participating in RFP 02 are eligible for the Primary Program. To help offset the network's ongoing cost, after the first two years of operation, eligible rural HCPs will be migrated from the Pilot Program into the traditional Rural Health Care Primary Program. To facilitate this, MPHI has requested that USAC grant "evergreen" status to the contracts that result from Michigan's RHCPP projects. To MPHI's knowledge, once Pilot Program subsidies end, no state or federal funding (other than the FCC's RHC Primary Program) will be used to defray the HCP's telecomm network costs.

- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** Under the IRU arrangements negotiated for the four hospital systems, there will be no ongoing costs for 20 years, other than:
 - The costs detailed under "Principal Factors & Budget" above
 - The hospital's share of the cost to repair problems caused by *Force Majeure* events
 - The hospital's share of the cost of fiber relocations that cannot be anticipated, e.g., by the mandate of local authorities

Management of the Network

- ***RFPs 00 and 01 – Tower-based Wireless Network.*** The Thumb Rural Health Network operates and maintains the tower-based wireless network. It occasionally hires tower climbers to retrieve and install radios mounted at the tops of the towers, but, otherwise, it is operationally self-sufficient. The TRHN's operating budget covers this minimal cost.
- ***RFP 02 – Statewide Broadband Network.*** The vendor, Great Lakes Comnet (GLC), will manage the network, and the cost will be incorporated into the participants' ongoing monthly service fees. MPHI's and the HCPs' contracts with GLC require it to operate the network. Those contracts contain a Service Level Agreement (SLA) and appropriate penalties for failing to abide by the SLA. The monthly service fees will be covered by each HCP's IT operating budget.
- ***RFP 03 – Private Fiber Networks for Four Hospital Systems.*** The three hospital systems that lease actual fiber strands will manage their own networks. The telecomm service providers will be required to maintain the fiber, cable, conduit, pole attachments, and all other infrastructure and, under SLAs, ensure that any interruptions in service are immediately addressed. The hospital systems should not incur any significant operating costs over the 20 years.

For the hospital system that is leasing one Gbps connections between its sites, the service provider will manage and maintain the system, again under an SLA with appropriate penalties.

Health Care Connect Fund could be utilized by HCP's to further subsidize their telecom network costs.