REQUEST FOR INFORMATION (RFI)

NETWORK DESIGN AND ENGINEERING SERVICES FOR CHESTERTON FIBER OPTIC NETWORK (CFON) PROJECT

December 28, 2015
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GENERAL INFORMATION

Introduction

The Town of Chesterton, Indiana by and through its Chesterton Redevelopment Commission (Town) is soliciting proposals from providers (referred to hereafter as Network Consultant) for Outside Plant Network Design & Specification, Fiber Route Planning, and Permitting that will enable construction of a fiber optic network in the Town. This dark fiber network will be called the Chesterton Fiber Optic Network or CFON.

The Town intends to install a dark fiber backbone network in underground conduit capable of providing gigabit+ communications and backhaul connectivity to sites (Attachment A) located throughout the Town. The network will be a redundant loop of approximately 10.1 miles with two connection points to Spread Networks Backbone Network or to an alternate Backbone Provider with equal performance and latency to that of Spread Networks. A list of buildings and locations that must be connected to CFON as part of the initial deployment may be found in Attachment A. A list of all businesses in Town is in Attachment B.

The Town’s primary goal is to construct a redundant, stable, secure and scalable dark fiber optic network along with associated communications infrastructure that will accommodate the current and future telecommunication needs of the Town in order to enhance capabilities to existing businesses and attract new businesses to the community.

When complete, CFON will provide a resilient core network capability for current and future operations allowing for growth, expansion and scalability.

The required completion date for CFON construction, testing and full operation is: December 1, 2017.

There will be three (3) phases of the project:

- Phase I: Network Design Consultant Selection
  The Request For Information (RFI) process will be used by the Town to select a Network Consultant who will complete all necessary CFON Route Planning, Network Design, Engineering, Optical Equipment Specification, Communications Protocol Specification, prepare Construction Drawings, obtain all required Construction Permitting, define all Optical Performance Testing & Acceptance Testing Requirements, prepare a Complete Bill of Material and Cost Estimates for a fully functional CFON network within defined performance criteria, Inspection Services for Phase III and Construction Oversight Services for Phase III.

- Phase II: Operator Selection
  The Town will use an appropriate process under Indiana law to select a qualified entity to be the Operator for CFON after construction is completed. The Operator will perform post construction Operations, Maintenance, Performance Monitoring,
Problem Resolution, Customer Billing, New Customer Marketing, Last Mile Connectivity to onboard New Customers and manage Network Expansion. These services will be provided to the Town in the context of an agreed to revenue sharing model and a CFON Operator agreement with the Town.

- **Phase III: Construction Contractor Selection**
  The Town will use an appropriate process under Indiana law to select a qualified entity to construct and install CFON per the Network Design and Specifications documents completed in Phase I. The CFON Operator that will be selected in Phase II along with Town representatives will participate in CFON construction and deployment monitoring per the network design plan with the selected Construction Contractor. The Construction Contractor will install all conduit, fiber optic cable, all communications equipment, handholes, laterals and perform the optical testing per the CFON Network Design specification documents from Phase I.

This document focuses on Phase I of the CFON project and defines the Request For Information (RFI) process the Town will use to solicit proposals for Phase I and for selection of the Network Consultant who will be responsible for completion of Phase I deliverables. The Town may decide to prepare a separate Request For Proposal (RFP) to solicit proposals for Phase II and Phase III of the CFON project. The Network Consultant chosen for Phase I is also eligible for consideration of Phase II and Phase III of the CFON project.

Respondents are encouraged to indicate any other value-added arrangements, unique business features, sponsorship arrangements, special services, discounts or terms and conditions in their proposed solution to meet the needs of the Town.

The Town intends to select a Network Consultant for Phase I from respondents to this RFI by **February 22, 2016** and to negotiate contract terms as soon thereafter as possible.

**Reasons for the Project**

The Town seeks to provide gigabit+ connectivity to Town administration facilities, Police, Fire, Education, Government, Medical, Business and Public buildings in order to provide carrier neutral, integrated, redundant, reliable and efficient high speed network communication for daily operations. The Town also seeks to accommodate the current and future telecommunication needs of the Town in order to enhance capabilities to existing businesses and attract new businesses to the community.

**Goals of the Project**

The Town’s primary goal is to provide high-speed network connectivity to Town governmental, education, medical and business facilities and to drive economic development by attracting new businesses.

The Town intends to construct CFON infrastructure that meets the following goals:

- Retain Town ownership of CFON conduit and fiber optic network with contracted
(third-party) maintenance and operational support;

- Ensure CFON network neutrality, universal access and carrier equal access;
- Select a qualified (third-party) entity for CFON operations, maintenance and marketing;
- Select a qualified (third-party) entity for CFON construction and implementation;
- Facilitate collaboration, economic development, stimulate innovation, reduce long-term expenses, and reduce operational risks;
- Leverage any existing Town infrastructure and resources, if feasible;
- Provide a secure, scalable, resilient network that is readily expandable; and
- Incorporate smart design techniques for future uses and integration of technology.

The Town’s Role
- Upon selection of the Network Consultant, the Town will provide mapped and electronic information about existing infrastructure including; information about Town owned conduit, and existing water and sewer utilities infrastructure so the proposed CFON fiber route(s) can be designed and deployed efficiently.
- The Town will help ensure access to existing infrastructure where appropriate.
- The Town will provide access to Town-owned property that will allow the selected Network Consultant to reach required areas within the Town.
- The Town may choose to purchase CFON materials.
- Town representatives will be available to monitor and participate in all phases of the CFON project with the selected Network Consultant.

Schedule
RFI Responses submitted to the Town should define an appropriate schedule and project plan in accordance with the requirements of the Proposed Work Plan in Section II. The schedule for this RFI process follows:

<table>
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<th>Completion Date</th>
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<tr>
<td>Publish RFI</td>
<td>Jan 4, 2016</td>
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<tr>
<td>Pre-Response Meeting</td>
<td>Jan 25, 2016 2:00 p.m.</td>
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<td>Proposal Due Date</td>
<td>Feb 1, 2016 5:00 p.m.</td>
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<td>Selection</td>
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The above schedule is for information purposes only and is subject to change at the Town’s discretion.
Reservation of Rights

1. The Town reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part.

2. The Town reserves the right to waive, in its sole discretion, any informalities or irregularities in terms or conditions of any proposal if determined by the Town to be in its best interest.

3. The Town reserves the right to request additional information from any or all Respondents and consultants.

4. The Town reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within this RFI.

5. The Town reserves the right to determine whether the scope of the project will be entirely as described in this RFI, a portion of the scope, or a revised scope may be implemented.

6. The Town reserves the right to select one or more consultants to perform services.

7. The Town reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the Respondent of the conditions contained in this RFI, unless clearly and specifically noted in the proposal submitted.

8. The Town reserves the right to disqualify proposals that fail to respond to any requirements outlined in this RFI, or failure to enclose copies of the required documents outlined within RFI.

Town Contact Details Regarding Response to RFI and Questions

Responses to this RFI should be submitted to the Town Manager no later than 5:00 PM February 1, 2016.

Questions regarding any aspect of this RFI document, the Chesterton Fiber Optic Project or the Town of Chesterton should be submitted in writing to:

C. Bernard Doyle, CPM
Town Manager
1490 Broadway, Suite 4
Chesterton, IN 46304
Work Phone: 219-926-1098
Mobile Phone: 219-242-5475
Email: berniedoyle@chestertonin.org
NETWORK CONSULTANT QUALIFICATIONS

Each Respondent must complete the Network Consultant Qualifications Worksheet found at Attachment D. In addition, the Respondent will provide a document and supporting information titled Network Consultant Qualifications describing the following requirements:

1. Has completed three (3) or more projects of at least 80% of the size or value of the network design project outlined in this RFI.
2. Has access to all necessary equipment and has organizational capacity and technical competence necessary to do the work properly and expeditiously.
3. Maintains a permanent place of business in the State of Indiana.
4. Maintains a minimum of ten (10) full time employees or full time equivalents.
5. Provide financial statements in a form acceptable to Town, which evidences the Respondent has adequate financial resources to complete the work being proposed, as well as all other work the Respondent is presently under contract to complete.
6. A minimum of three (3) like project references from within the last two (2) years are required to accompany response and must include project description, point of contact, mailing address, telephone number and email addresses.
7. Has a record of satisfactorily completing past projects. Criteria that will be considered in determining satisfactory completion of projects by the Network Consultant will include:
   1. Completed contracts in accordance with the Contract Documents.
   2. Diligently pursued execution of the Work and completed contracts according to the established time schedule.
   3. Fulfilled guarantee requirements of the Contract Documents.
8. Provide evidence of satisfactory insurance coverage for this project.

B. The Town will make such investigations as is deemed necessary to evaluate the ability of the Respondent to perform the work. The Respondent shall furnish to the Town all such information and data for this purpose as the Town may request. Before selection of the Network Consultant will be approved, the Town shall be satisfied that the Respondent involved meets the above requirements. The Town reserves the right to reject any Respondent if the evidence submitted by, or investigation of, the Respondent fails to satisfy the Town that the Respondent is responsible and qualified to carry out the obligations defined in this RFI and to complete the work contemplated therein.

C. Respondents must present satisfactory evidence that they are familiar with the class of work specified, and that they have the necessary capital, tools, machinery and other equipment necessary to conduct the work and complete the required deliverables within the time specified in a good and workmanlike manner and to the satisfaction of the Town.
EVALUATION CRITERIA

Selection of the Network Consultant for Phase I of the project will be made on the basis of Proposals submitted. Any submitted Proposal will be evaluated on many criteria deemed to be in the Town’s best interests, including, but not limited to the following:

- Completeness of the Proposal
- Financial stability and viability of Respondent
- References for Respondent and references for like projects completed by Respondent
- Phase I project plan and delivery timeline including identified person accountable for each project deliverable and task.
- Total cost to complete Phase I
- Miles of fiber optic network designed by Respondent
- Service Offering Overview and Pricing Schedule
- Network design team overview and executive management profile and experience
- Project manager profile and experience that will be responsible for completion of Phase I deliverables.
MINIMUM INFORMATION REQUIRED IN PROPOSAL

PROPOSAL FORMAT

Respondents should organize Proposals into the following Sections:

A. Professional Qualifications
B. Past Involvement with Similar Projects
C. Proposed Work Plan
D. Fee Proposal (include in a separate sealed envelope clearly marked “Fee Proposal”)
E. Authorized Negotiator (s)
F. Service Offering Overview and Suggested Pricing Schedule
G. Evidence of satisfactory insurance coverage for this project.
F. Exhibits

The following describes the elements that should be included in each proposal.

A. Professional Qualifications/Quality of Work

1. State the full name and address of your organization and, if applicable, the branch office or other subsidiary element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include whether it is licensed to operate in the State of Indiana.

2. Include the name of executive and professional personnel by skill and qualification that will be employed in the work. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify only individuals who will do the work on this project by name and title. Resumes and qualifications are required for all proposed project personnel, including all subcontractors. Qualifications and capabilities of any subcontractors must also be included.

3. Provide overview and history of the organization, in terms of length of existence, types of services provided, etc. Identify the technical details that make the organization uniquely qualified for this work.

4. Provide examples of previously designed networks that are currently operational today. Time permitting broker an on-site tour of said network.

5. Describe the organization’s change control process.

6. Include examples of Final As-Built Drawings and Permitting Submittals for similar projects.
B. Past involvement with Similar Projects

The written proposal must include a minimum of three (3) examples of specific experience and indicate proven ability in designing similar projects for the firm and the individuals to be involved in the project. The proposal should also indicate the ability to have projects completed within the budgeted amounts. A summary of related projects with the original deadline and cost estimate versus the actual design completion date and final cost of the design is required with this section. A complete list of client references must be provided for similar projects recently completed. It shall include the firm name, address, telephone number, project title, and contact person.

C. Proposed Work Plan

Provide a detailed and comprehensive description of how the Respondent intends to provide the services requested in this RFI. This discussion shall include, but not be limited to: how the project(s) will be managed and scheduled, how and when data will be delivered to the Town, communication and coordination, the working relationship between the Respondent and Town staff, and the company’s general philosophy in regards to providing the requested services.

D. Fee Proposal

1. Fee quotations shall be submitted in a separate, sealed, envelope as part of the proposal. Refer to ATTACHMENT E for a Fee Proposal Form. In addition to completing the Fee Proposal Form found in ATTACHMENT E, Fee quotations are to include the names, title, hourly rates, overhead factors, and any other details, including hours of effort for each team member by task, and sub-task, by which the overall and project element costs have been derived. The fee quotation is to relate in detail to each item of the proposed work plan. Respondents shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, material and time.

2. The fee proposed must include the total estimated cost for the project when it is 100% complete. This total may be adjusted after negotiations with the Town and prior to signing a formal contract, if justified.

E. Authorized Negotiator

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the Town.

F. Service Offering Overview and Suggested Pricing Schedule

Provide a detailed and comprehensive overview of the service offering to be made available to the Town and customers using CFON. This discussion should include the types of services to be offered initially as well as a discussion of the type of services that will be offered in the future and when. Provide a CFON capacity plan that estimates initial CFON capacity by service offering type and bandwidth utilization for each service.
type. Include a CFON growth projection in the capacity plan by service offering type and bandwidth utilization. Provide an overview of the CFON revenue model and pricing model that includes usage estimates and suggested pricing for each service type offered.

G. Insurance Coverage

Provide a detailed and comprehensive overview and evidence of satisfactory insurance coverage for this project including but not limited to E&O insurance coverage.

H. Exhibits

Legal Status of Respondent, Attachment D – Network Consultant Qualifications Worksheet, and Attachment E – Fee Proposal Form must be completed and returned with the proposal. These elements should be included as Exhibits to the proposal submission.
MINIMUM NETWORK DESIGN REQUIREMENTS

The selected Respondent to this RFI, the selected Network Consultant, must include the following deliverables in the CFON Phase I Network Design and Specification work product:

1. The proposed fiber optic network design and route will be comprised of underground fiber in conduit, aerial fiber, or a combination thereof. Underground installation will be preferred wherever possible.

2. The locations listed in Attachment A are required sites to be included in the network design and route plan. The list of sites may expand at the discretion of the Town after consultation with the selected Network Consultant.

3. The Design must include recommendation(s) for location and placement of the headends along with detailed specifications and equipment required for connectivity to Spread Networks Backbone (or alternate backbone network provider of equal performance and latency). The Design must also specify all necessary communications, optical, and integration equipment. Final determination of the network route will be made by the Town after reviewing submitted proposals and discussions with the Network Consultant. The Network Consultant must provide a detailed cost estimate for the network route selected by the Town.

4. In addition to the required sites, the Network Consultant will be requested to engage in some long-term planning discussions with Town representatives to assist in assessing future network alternative deployments. The final deliverable for Phase I will not incorporate the design or engineering for the future network alternatives but will assist the Town and Network Consultant in understanding how to position the CFON network design to accommodate future expansion.

5. The Network Consultant will evaluate the existing Duneland School Corporation fiber network and provide recommendations for how best to integrate or replace the current network. This analysis will include review and evaluation of existing technology, topology, communications equipment, ongoing support costs, capital cost and outage history. Additionally, this analysis will include review and evaluation of the existing ENA contract that provides Duneland School Corporation with carrier access using discounts via the E-Rate process.

6. The Network Consultant will provide alternatives and a recommendation for a robust Community Connectivity Strategy that allows for easy access from any device. Fundamental to a Community Connectivity Strategy would be how high speed network access is provided to students within and outside of the schools using technologies like wireless and mesh networks to provide hotspots at key locations throughout the Duneland School District and Town.

7. Provide network route options in the design package and include a complete Bill-of-Materials necessary for the recommended design(s).
8. Provide a detailed cost estimate for all proposed network design(s) to single source the Permitting and Construction portion (Phase III) of the project.

9. The selected Network Consultant for Phase I may submit proposals on Phase II or III.

10. The Network Consultant must produce comprehensive computerized design maps, detailed CAD drawings and any necessary construction drawings for the selected CFON route, including any aerial-to-underground splice-closures, hand-hole placements and location and specification of any communications and optical equipment necessary to meet the performance standards of a fully functional CFON network. The drawings and specifications produced by the Network Consultant from Phase I need to include everything necessary for permitting and construction of CFON in Phase III of the project.

11. The Network Consultant will provide the design and specification for all underground CFON facilities including but not limited to conduit design, conduit detailing, hand-hole detailing, prepare all forms and documentation necessary for conduit construction and installation of fiber cable, and specify all acceptance testing and performance testing required to verify the as-built network in the context of the proposed design.

12. The Network Consultant will be required to manage the permitting process with various entities under the direction of Town.

13. The Network Consultant will be required to identify all conduit design requirements and permitting requirements necessary to transit Coffee Creek and any wetlands that are on the proposed fiber route.

14. The Network Consultant is required to act on the Town’s behalf in rights of way negotiations and communicate with local and state governmental jurisdictions so aerial and underground infrastructure permit requirements are met.

15. The Network Consultant will inspect the installation of CFON during Phase III of the project and provide construction oversight during Phase III. The Network Consultant will identify when and how inspections and construction oversight will take place during Phase III of the project.

16. Route engineering will include make-ready recommendations and any required pole attachment applications per the design recommendation.

17. The Network Consultant is required to provide consolidated field notes and electronically store them in a format approved by the Town.

18. Network design documents and specifications must be provided in an electronic format approved by the Town.

19. The Network Consultant will provide detailed site drawings, detail permit drawings...
and overview maps in an electronic format approved by the Town.

20. The Network Consultant will receive and consolidate red-line engineering drawings during Phase III to create a final as-built documentation package in an electronic format approved by the Town.

21. The Network Consultant will input all pole attachment inventories included in the selected CFON network route and any pole attachment agreements between the Town and Utilities into an electronic format approved by the Town.

22. All network components (cabling, splice enclosures, etc.) will be appropriately labeled based upon industry best practices and adhere to labeling requirements of third-party owners (e.g., AT&T, railroad, etc.) and the Town labeling requirements.

23. The Network Consultant will be responsible for staking the route and producing computerized maps in an electronic format approved by the Town.

24. The Network Consultant will provide GPS points of reference for all conduit, hand holes, splice points, laterals, communication equipment, vaults and utility poles for the selected network route(s). The Network Consultant will provide photo images of any utility poles that the fiber will be attached to. The Network Consultant will provide GPS points of reference for hand holes, street crossings, and splice enclosures.

25. The Network Consultant will provide a Service Offering recommendation, profile and overview for the proposed CFON network. This should include a detailed and comprehensive overview of the service offering to be made available to the Town and customers using CFON. This discussion should include the types of services to be offered initially as well as a discussion of the type of services that will be offered in the future and when. Provide a CFON capacity plan that estimates initial CFON capacity by service offering type and bandwidth utilization for each service type. Include a CFON growth projection in the capacity plan by service offering type and bandwidth utilization. Provide an overview of the CFON revenue model and pricing model that includes usage estimates and suggested pricing for each service type offered.

26. The Network Consultant will provide a recommendation for revenue sharing models, alternatives and revenue estimates to be considered by the Town for the proposed design.

27. The Network Consultant will provide a fiber loss budget for the proposed network.
TECHNICAL SPECIFICATIONS

General

The Town requires the use of Corning single-mode SMF-288e+ and SMF-144e+ optical fiber that is compliant with the new International Telecommunication Union (ITU) standards for low water-peak fibers, ITU G.652.C, as well as Telecommunications Industry Association and Electronic Industries Alliance (TIA/EIA) standards. The fiber will provide the Town versatility and flexibility to grow network systems as the demand grows.

The Town requires the deployment of a hybrid CWDM (Course Wave Division Multiplexing) / DWDM (Dense Wave Division Multiplexing) fiber optic network that will deliver a host of broadband connectivity options in a very cost effective manner. The network design must be flexible enough to allow the Town to offer Ethernet, leased fiber, and wave services to anyone where capacity is available.

The Town prefers to utilize hand-hole makes, models and sizes that are consistent with industry practice. It should be noted that conduits entering handholes through the sidewall (as opposed to being swept up and entering from the bottom) that the hole in the wall of the handhole must be sealed with concrete to prevent dirt and debris from entering the handhole. This includes new handholes, or connecting into any existing handholes. Any vacant conduits must be plugged/sealed.

In the absence of explicit specifications contained within in this RFI, Respondents must adhere to industry best practice and follow all applicable local, state and federal regulations, including bonding and grounding guidelines and requirements.
COMMUNICATIONS CABLE AND EQUIPMENT

APPLICABLE STANDARDS

Applicable standards are as follows:

2. NFPA 70-2008 - National Electrical Code
3. TIA/EIA Standards
5. EIA 445 Fiber Optic Test Procedures (FOTP)

In the absence of explicit specifications contained within this RFI, Respondents must adhere to industry best practice and follow all applicable local, state and federal regulations, including bonding and grounding guidelines and requirements.

SUMMARY OF WORK

1. The work includes design and provision of a turnkey outside plant fiber optic cabling system and associated equipment of approximately 10.1 miles in the Town.
2. Dual Corning 288 and 144 SM fiber optic cable (or equivalent) and associated equipment should be for CFON.
3. The work includes network route design and specifications for underground conduit, handholes, splice enclosures, fiber termination components, laterals and all necessary communications equipment along the proposed fiber route(s).
4. All communication equipment and miscellaneous materials required for a turnkey installation shall be specified by the Network Consultant.
5. The Network Consultant will design, provide specifications for and provide detailed cost estimates for a Meet Me Room (MMR) for carrier interconnection. The Network Consultant will provide the Town on the location, design, all necessary equipment specifications and construction drawings for the MMR.
6. The handhole location will be depicted on the network design plan. The Network Consultant will locate all wall mounted patch panels on design drawings.
7. The Network Consultant shall be responsible for the acquisition of the appropriate permits, licenses and/or franchise agreements required to occupy the public rights of way from the various governmental organizations and any utilities.
8. The Network Consultant will be authorized by the Town to act as its agent for this purpose. The Network Consultant shall include in their proposal the cost related to the permits acquisition.
9. CFON shall include, but not be limited to, single mode fiber optic cable, underground conduit, splicing hardware, termination hardware and patch panels.
10. The Network Consultant shall provide specifications for optical performance, installation and testing for the proposed network route(s) and specifications for all communications infrastructure.
11. The Network Consultant shall locate, specify and document all handholes along the proposed network route(s) that will be used for splicing and pulling points. All cables shall be properly racked in the handhole design plan.

12. The Network Consultant will specify and document the optical testing plan, the acceptance testing plan for the network as well as the labeling plan for the fiber optic cable plant. All testing plans and associated documentation for the proposed network design and engineering shall be documented, arranged, and provided to the Town in a hard copy and soft form in the final work product.

13. The Network Consultant shall place marker poles that identify the proposed network route for conduit and the cable and mark at all splice points within the proposed route.

NETWORK DESIGN & SPECIFICATION DELIVERABLES

The Network Consultant shall provide five (5) sets of the items described below in hard and soft format:

NETWORK DESIGN

1. Drawings and documentation shall provide details of the proposed network route and all required equipment necessary to provision a functioning turnkey system. These include conduit, fiber optic cable, location of proposed handholes and splice point, connectivity diagram and all other detail specifications required to document and provision the network design to ensure that CFON will function properly as a system. The network design and specification package shall include all documents necessary to construct and deploy a fully functional CFON network to meet the required performance, redundancy, scalability and stability requirements.

2. The Network Consultant is required to design, specify, document and provide detail cost estimates for all infrastructure necessary to construct a fully operational CFON to meet or exceed defined performance standards.

3. The Network Consultant shall be responsible for the acquisition of the appropriate permits, licenses and/or franchises required to occupy the public rights-of-way of the various organizations involved. The Network Consultant will be authorized by the Town to act as its agent for this purpose. There may be several jurisdictions within the Town area that may have different permit processes. It will be the Network Consultants’ responsibility to secure and pay for these permits.

4. The Network Consultant shall prepare all necessary documentation required to obtain the required permission and permits from organizations controlling the rights-of-way. This includes all drawings, details, letters, and/or application forms required by the permitting or authorizing agency.

5. The Network Consultant shall include the permit fees in the cost estimate.

6. The Network Consultant shall be responsible for fully coordinating with the Town all of the various parts of the work included under this document, and any such other work as it may affect the Town, throughout the network design (Phase I) process.

7. It shall be the responsibility of the Network Consultant to verify the locations of all equipment such as existing conduit, traffic control cabinets, exiting Town infrastructure/utilities and all other apparatus along the proposed CFON route.
8. The Network Consultant shall be responsible for providing locating services for outside plant fiber optic cable to others, until Final Acceptance of the project.

UNSPECIFIED EQUIPMENT AND MATERIAL

Any item of equipment or material not specifically listed in the materials list and required to provide a complete and functional fiber optic system installation shall be specified and documented by the Network Consultant as part of the Phase I work product delivered to the Town.

INSPECTION

1. The Network Consultant has responsibility to examine all exterior areas and conditions for all proposed network route(s).
2. The Network Consultant has responsibility to verify all field measurement and pathway routing conditions.
3. Beginning work on the proposed network route design indicates the Network Consultant has examined in detail and accepts all existing conditions along the proposed network route(s). Accordingly, the Network Consultant will design and specify infrastructure for the proposed network route in the context of all existing conditions in the Town.

PROTECTION OF EXISTING UTILITIES, STRUCTURES AND NEW WORK

1. The Network Consultant must account for and protect all existing utilities and structures in Town and meet requirements of the Town for protection of same when designing the proposed network route(s) and specifying the location of all associated communications infrastructure.
2. The Network Consultant must provide construction specifications for excavation, backfilling and settlement of the backfill for the proposed network route(s).
3. The Network Consultant must provide specifications for how to protect newly backfilled areas and adjacent structures, slopes, or grades from traffic, erosion settlement, or any other damage along the proposed network route during construction.

GROUNDING

The Network Consultant shall locate, specify and document all ground rods, ground rod connections along the proposed network route(s) and document installation procedures.

FIBER OPTIC CABLE

The Network Consultant shall specify, locate, and document all fiber optic cable to be deployed along the proposed network route(s) and document installation procedures.
OUTDOOR FIBER SPLICE ENCLOSURE

The Network Consultant shall locate, specify and document all outdoor fiber splice enclosures along the proposed network route(s) and document installation procedures.

CABLE SLACK

The Network Consultant shall locate, specify and document all other handholes used along the proposed network route(s) and document installation procedures. All cable slack requirements must to be specified for each handhole along the proposed network route(s).

TEST STATION

The Network Consultant shall locate, specify and document all test stations along the proposed network route(s) and document installation procedures.

INSTALLATION PRACTICES FOR FIBER OPTIC CABLE

The Network Consultant shall specify and document all installation practices and procedures for all fiber optic cable proposed along the proposed network route(s).

Fiber optic cable is a high-capacity transmission medium with qualities and characteristics, which can be degraded when it is subjected to excessive pulling tension, sharp bends, and crushing forces.

The Network Consultant shall adhere to the fiber optic cable manufacturer’s methods, recommendations, materials, and techniques for installation and splicing.

The Network Consultant shall specify splicing equipment for the proposed network route(s) that meet all industry standards and safety regulations.

The fiber optic cable preparation, splice enclosure installation, and splicing shall be accomplished in accordance with industry standards.

INSPECTION OF EXISTING CONDUIT

The Network Consultant must inspect any existing Town conduit to determine feasibility to incorporate the existing conduit into the proposed network route(s).

CABLE TERMINATION - FIBER OPTIC

The Network Consultant shall locate, specify and document all fiber optic cable terminations and connector types along the proposed network route(s) and document installation procedures. All fibers shall be terminated using the specified connector type. No mechanical splice is allowed.
ACCEPTANCE TEST CRITERIA

Testing

The Network Consultant shall specify and document all on-reel OTDR tests for each fiber strand of each reel from the manufacturer that must be executed prior to deployment of the reel and fiber to the field for installation.

The Network Consultant shall specify and document all post network implementation acceptance testing procedures and provide an acceptance testing schedule and plan. The acceptance testing plan shall utilize a Manufacturer-recommended “OTDR Trace Analysis” and a “Power Meter Report” software program or a single software program that is a combination of “ODTR Trace Analysis” and “Power Meter Report”. The Network Consultant shall identify the software to the Town as part of the Project Documentation Submittal.

Tests After Installation

The Network Consultant shall specify and document all required testing after network and cable plant installation and document testing execution procedures and schedule.

Upon completion of cable installation and termination, the Fiber Optic cabling shall be tested to include at a minimum:

1. Optical Attenuation (“Insertion Loss” Method)
2. Verification of Link Integrity (OTDR)
3. Optical return loss (ORL)

The Network Consultant shall specify and document all performance requirements for the proposed network route(s) as well as the acceptance testing procedures and expected test results for all specified tests that are part of the acceptance test plan. Test documentation must be stored on a disk and printed as a hard copy with all test results labeled. All testing is to be done through connectors. Appropriate corrective action must be specified and documented by the Network Consultant for any cable that fails acceptance testing.

GPS COMPONENT AND UTILITY LOCATION DATA

The Network Consultant must collect location coordinates for each proposed splice point, handhole and underground cable, including cable to be installed in conduits and empty conduits for the proposed network route(s) using a GPS receiver capable of sub-foot accuracy.
DOCUMENTATION

Proposed Network Route drawings

The following requirements apply to all network route drawings:

1. Location coordinates for each splice point, handhole and underground cable shall be indicated on the route drawings.
2. The route drawings shall be maintained at the Network Consultants’ expense.
3. All such drawings shall be provided as necessary for clarification.
4. The route drawings shall be in 1”-30’ scale.
5. The Network Consultant shall indicate on the drawings the fiber optic cable location with the reference to the center of the street.
6. The route drawings shall be provided to Town on completion of the work and are subject to the approval of the Town.
7. The route drawings shall be submitted in the following formats:
   1. In one blue line set
   2. In one reproducible set
   3. In one CAD 2000 set
8. Drawings shall be submitted to the Town within the timeline outlined in the project plan.

Test Records

Specifications and execution procedures shall be provided for all acceptance testing. Procedures must specify test readings that shall be recorded along with the annotation that these are post-installation readings. Printed copies of these readings shall be provided to the Town upon completion of the project. Records are to include date of testing, name of technician, and readings of all above-described test results.

The objective of fiber optic cable test documentation is to document OTDR and Power Meter test results to verify that these results meet specifications, as well as to document the link loss, fiber optic cable distance between splices and terminations, and the fusion splice losses.

The following provisions shall apply to fiber optic test documentation:

1. The Network Consultant shall provide post installation testing documentation on a CD.
2. The Network Consultant shall provide and specify the execution and documentation format to record power meter and OTDR test data, fiber count, and fiber routing of the cable and cable runs.
The testing documentation provided by the Network Consultant must measure and record the following values for all fiber optic strands:

1. Fiber optic cable length markings at all splice and termination locations on the fiber optic schematics.
2. Fiber optic cable index of refraction.
3. Attenuation of each fiber optic splice in both directions and average attenuation.
4. Event notes for each trace. These notes shall identify each splice location and shall be consistent with each fiber optic schematic vault location.
5. Attenuation of each fiber optic link, in both directions, as measured with a light source and power meter at 1550 nm wavelength for SM.
6. Manufacturer’s reel (spool) test documentation that is shipped with the fiber optic cable spool.

LABELING

The Network Consultant shall specify and document a labeling plan for all proposed fiber optic cables along the network route that meet industry best practice standards.

FIBER OPTIC SYSTEM ACCEPTANCE

The Network Consultant shall specify and document all criteria that must be met in order for the Town to accept CFON after installation.

PROPOSAL WORK PLAN

Within the proposal for Phase I, each Respondent must prepare a project plan for Phase I that includes the following elements and deliverables:

1. Tasks - List how the specific tasks and subtasks will be accomplished fulfilling goals, objectives, and scope of work, together with the required sequence of tasks.

2. Data/Documentation Requirements - Identify all technical data/documentation requirements, including the intended use of data.

3. Project Schedule/Timeline - Respondents must include a detailed project plan and timeline to complete the network design and engineering for CFON. Project plan and timeline must be submitted in a MS Project compatible format.

4. Fiber route plan map set of raw data in agreed upon format of where to build the CFON network (including existing conduit, utility poles, new conduit) and areas to avoid (water, sewer and electric lines, etc.).

5. Estimated attenuation, loss specifications and dispersion specifications.

6. Set of complete construction drawings and engineering specifications necessary for CFON construction.
7. Detail CFON cost estimate.

8. Bill-of-Materials with pricing estimates for recommended engineering design, design options and design alternatives.

9. Recommend design options to accommodate future network expansion.

10. Regular status meetings and progress reporting - In-person meetings with Project Manager and Design Team: Kick off meeting; discover meetings; discuss process and timeline; Design progress review meeting at 60%.

11. Copies of all Permits required for Construction – The Network Consultant must apply-for, on behalf of the Town, and secure all necessary permits from utilities, county, local, and state agencies for construction of the network.

12. Service Offering Plan for CFON

13. CFON Capacity Plan

14. CFON Revenue Plan

15. CFON Loss Budget

16. Meet Me Room (MMR) design and specification

17. Communications Equipment specification, location and cost estimate for CFON


19. All other Key Deliverables required for the design and specification of a fully functioning CFON consistent with this RFI and industry standards.

20. Analysis & Recommendation for Duneland School Corporation Integration Plan

NETWORK CONSULTANT RESPONSIBILITIES

1. Fiber Route Planning – Conduit and fiber optic cable must be designed and specified to accommodate current conditions and future needs with minimal disturbance to Town operations and the community as a whole. Network Consultant will provide proposed route(s) for conduit and fiber cable using Geographic Information Systems (GIS) data sets and will provide network design specifications.

2. Site Work - The Network Consultant will provide on-site field/site surveys as required.

3. Engineering Design - The locations listed in ATTACHMENT A are required sites to be included in the design and construction of the network. The network may include additional sites at the discretion of the Town.

4. Head-End Placement - Determination and design of connection to Spread Networks backbone (or alternative backbone of equal performance and latency). Include design options and alternatives for placement of two connection points for redundancy.

5. Meetings – The Network Consultant and the Town will conduct meetings to discuss project status, progress and issues on an on-going basis. Meetings will occur with the Network Consultant and the Town to review both the draft deliverables and final deliverables before project completion.

6. Permitting for “Make Ready” Construction - Network Consultant must apply-for, on behalf of the Town, and secure all necessary permits from municipal, county, state and local authorities for construction of the network. It is the sole responsibility of the Network Consultant to secure all permits for the construction of the network. Working experience with municipal, county, state and local authorities is a plus and the Network Consultant should provide this information in detail within the Professional Qualifications element of the RFI submittal.

7. Documentation and Deliverables - Defines the requirements for documenting project completion including work from concept to completion as specified in this RFI. Deliverables identify the Network Consultant delivery requirements precisely and include details about the type and quantity of all deliverables. For instance, such details must be provided for loss calculations, drawings, documentation, reports, or other data.

8. Technical considerations - Set forth technical considerations that may influence the Network Consultant’s approach. Any known specific phenomena, techniques, methodologies, or results of previous related work that may influence a Network Consultant's efforts or direction of approach must be delineated and specified.
## Attachment A
### CFON Phase I Town of Chesterton Locations

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>STREET ADDRESS</th>
<th>CITY, STATE, ZIP CODE</th>
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<td></td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>CHESTERTON MUNICIPAL COMPLEX</td>
<td>1490 BROADWAY</td>
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<tr>
<td>2</td>
<td>CHESTERTON FIRE DEPARTMENT</td>
<td>702 BROADWAY</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>3</td>
<td>CHESTERTON POLICE DEPARTMENT</td>
<td>790 BROADWAY</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>4</td>
<td>CHESTERTON TOWN HALL</td>
<td>726 BROADWAY</td>
<td>CHESTERTON, IN 46304</td>
</tr>
<tr>
<td>5</td>
<td>TOWN OF CHESTERTON UTILITY</td>
<td>300 N LEAGUE LN</td>
<td>PORTER, IN 46304</td>
</tr>
<tr>
<td>6</td>
<td>CHESTERTON UTILITY</td>
<td>609 GRANT ST A&amp;B</td>
<td>CHESTERTON, IN 46304</td>
</tr>
<tr>
<td><strong>EDUCATION SECTOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>DUNELAND SCHOOL ADMINISTRATION</td>
<td>601 W MORGAN AVE</td>
<td>CHESTERTON, IN 46304</td>
</tr>
<tr>
<td>8</td>
<td>DUNELAND SCHOOL HWC HEALTH &amp; WELLNESS CENTER</td>
<td>411 S 5TH ST</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>9</td>
<td>BAILEY ELEMENTARY SCHOOL</td>
<td>800 S 5TH ST</td>
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<td>WESTCHESTER INTERMEDIATE SCHOOL</td>
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<td>11</td>
<td>BRUNMIT ELEMENTARY SCHOOL</td>
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<td>CHESTERTON, IN 46304</td>
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<tr>
<td>12</td>
<td>DUNELAND SCHOOL CORPORATION (BUS BARN)</td>
<td>1012 N OLD SR 49</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>13</td>
<td>LIBERTY ELEMENTARY SCHOOL</td>
<td>50-1 W 900 N</td>
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<tr>
<td>14</td>
<td>CHESTERTON MIDDLE SCHOOL</td>
<td>651 W MORGAN AVE</td>
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<td>15</td>
<td>CHESTERTON HIGH SCHOOLS</td>
<td>2125 S 11TH ST</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>16</td>
<td>LIBERTY INTERMEDIATE SCHOOL</td>
<td>50 W 900 N</td>
<td>CHESTERTON, IN 46304</td>
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<td>17</td>
<td>JACKSON ELEMENTARY SCHOOL</td>
<td>811 N 400 E</td>
<td>VALPARAISO, IN 46383</td>
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<td>18</td>
<td>YOST ELEMENTARY SCHOOL</td>
<td>100 W BEAM ST</td>
<td>PORTER, IN 46304</td>
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<td><strong>MEDICAL SECTOR</strong></td>
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<td></td>
<td></td>
</tr>
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<td>19</td>
<td>CHESTERTON HEALTH &amp; EMERGENCY CENTER</td>
<td>770 INDIAN BOUNDARY RD</td>
<td>CHESTERTON, IN 46304</td>
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<td>CHESTERTON MEDICAL CENTER</td>
<td>650 DICKINSON RD</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>21</td>
<td>ADDISON POINTE HEALTH &amp; REHABILITATION CENTER</td>
<td>680 DICKINSON RD</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>22</td>
<td>PORTER HEALTH SYSTEMS</td>
<td>442 SAND CREEK DR N STE 103</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>23</td>
<td>FRANCISCAN OMNI HEALTH &amp; FITNESS - CHESTERTON</td>
<td>810 MICHAEL DR</td>
<td>CHESTERTON, IN 46304</td>
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<td>24</td>
<td>WATERS OF DUNELAND</td>
<td>110 BEVERLY DR</td>
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<td>25</td>
<td>NORTHWEST INDIANA PET/CT CENTER</td>
<td>1505 S CALUMET RD STE 7</td>
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<td>AT HOME QUALITY CARE</td>
<td>751 E PORTER AVE STE 9</td>
<td>CHESTERTON, IN 46304</td>
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<tr>
<td>27</td>
<td>STEEL FAMILY HEALTH CENTER</td>
<td>2203 KELLE DR</td>
<td>CHESTERTON, IN 46304</td>
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<td>28</td>
<td>DAVITA CHESTERTON DIALYSIS</td>
<td>711 PLAZA DR STE 6</td>
<td>CHESTERTON, IN 46304</td>
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<td>29</td>
<td>LAKESHORE BONE &amp; JOINT INSTITUTE</td>
<td>601 GATEWAY BLVD</td>
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<td><strong>BUSINESS SECTOR</strong></td>
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<td>URSCHL LABORATORIES</td>
<td>1200 CUTTING EDGE DR</td>
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<td><strong>GREEN SPACE FOR NEW BUSINESS DEVELOPMENT</strong></td>
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<td>31</td>
<td>AREAS OF GREEN SPACE TO BE DETERMINED BY TOWN</td>
<td>TBD</td>
<td>CHESTERTON, IN 46304</td>
</tr>
</tbody>
</table>
Attachment B
Town of Chesterton All Business Locations
Attachment C
Potential CFON Route Map
Attachment D
Network Consultant Qualifications Worksheet

A. Information about the Respondent

1. Company Name

2. Legal Name (if different)

3. Number of Years In Business

4. Number of years performing network design similar to this project

5. Contact Person

6. Full Mailing Address

7. Telephone Number

8. Fax Number

9. Email Address

10. Name and Phone Number of Bonding Company

11. Number of Full-Time Employees

12. Number of Network Design personnel (minimum of 2)

13. Names and titles of personnel who would work on this project (attach brief experience listings for each focusing on similar projects):

14. Name of person who would be Project Manager for this project (attach experience listing with similar projects):

B. Qualifications and Requirements

No exceptions may be taken to the following:

1. If more than one (1) company is involved in the network design, there must be a Prime Contractor. This Prime Contractor assumes responsibility for all other entities involved.
2. List Prime Contractor here:

3. The response must include a statement from all involved agreeing that the configuration will work as specified and that all will work under the Prime Contractor to resolve any problems during the network design process at no additional cost to the client. Write statement below.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

C. Experience and Existing Customers

1. How many similar systems has the Respondent designed within 200 miles of the Town of Chesterton, IN? How many statewide? How many nationwide?

Area___________ Statewide _______ Nationwide___________

D. Workload

1. How many network design projects of this type are currently underway by your company?

________________________________________________________________________

2. How many projects do you estimate your company will be doing concurrently with this project?

________________________________________________________________________

E. References

To be a qualified Network Consultant the Respondent must include below three (3) references for similar projects. Preference will be given to Respondents with references for projects of similar size and complexity. References will be contacted – please verify information before submitting. All references will be called. Please inform your contacts that a 10-15 minute call may be anticipated.

1. Reference 1

Organization Name _____________________________________________________

Address ______________________________________________________________

_____________________________________________________________________

Type of Business_______________________________________________________

Contact Person ________________________________________________________

Telephone Number _____________________________________________________
Email Address ________________________________
Secondary Contact Person _______________________
Telephone Number ______________________________
Email Address ________________________________
Dates of Installation ___________________________
Description of System __________________________
____________________________________________________________________
____________________________________________________________________

2. Reference 2
Organization Name ______________________________
Address _______________________________________
Type of Business ________________________________
Contact Person _________________________________
Telephone Number ______________________________
Email Address ________________________________
Secondary Contact Person _______________________
Telephone Number ______________________________
Email Address ________________________________
Dates of Installation ___________________________
Description of System __________________________
____________________________________________________________________
____________________________________________________________________

3. Reference 3
Organization Name ______________________________
Address _______________________________________
____________________________________________________________________
____________________________________________________________________

34
Type of Business _____________________________________________________

Contact Person _____________________________________________________

Telephone Number _____________________________________________________

Email Address _______________________________________________________

Secondary Contact Person ___________________________________________

Telephone Number _____________________________________________________

Email Address _______________________________________________________

Dates of Installation ________________________________________________

Description of System ______________________________________________

_____________________________________________________________________

_____________________________________________________________________

F. Subcontractors/Partners

1. The applicable terms and provisions of the contract documents shall bind every subcontractor. Further information about subcontractors may be requested prior to award.

2. Identify all subcontractors or partners used for any purposes. Failure to disclose subcontractors/partners may lead to disqualification. Include separate sheet(s) labeled “Subcontractors/Partners” if necessary.

<table>
<thead>
<tr>
<th>Business Name</th>
<th>Years Experience</th>
<th>Function</th>
<th>Minority Status</th>
</tr>
</thead>
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<td></td>
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</tr>
</tbody>
</table>

G. References for Subcontractors/Partners

Include below two (2) references for EACH subcontractor (duplicate this page if needed for multiple subcontractors). Again, preference will be given to Respondents with references for similar projects.

1. Reference 1
Organization Name _____________________________________________________
H. Service After Network Design

1. How many project management personnel trained in project management and project construction oversight does Respondent employ in the client’s area? Please indicate location closest to the client.

   Service Personnel ____________ Location ___________________

2. List names and job titles of project management personnel who would be assigned to this project for construction management:
3. Provide the address of Respondent’s office(s) closest to the Town:
   Company ______________________________________________________
   Address ______________________________________________________
   _________________________________________________________________
   Telephone Number _______________________________________________

4. Who will maintain documentation inventory and project deliverables? At what location?
   Company _______________________________________________________
   Address _______________________________________________________
   _________________________________________________________________
   Telephone Number _______________________________________________

5. What critical project deliverables or components are kept at this location?
   _________________________________________________________________
   _________________________________________________________________

6. What response time can Respondent supply in an emergency situation?
   Phone Response: _______ hours On-site response ________ hours

7. What response time does Respondent offer in a non-emergency situation?
   Phone Response: _______ hours On-site response ________ hours
ATTACHMENT E
COMPENSATION AND FEE PROPOSAL FORM

General

The selected Network Consultant shall be paid for those Services performed pursuant to an executed CFON Phase I Agreement between the selected Network Consultant and Town inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below/attached states the nature and amount of compensation the Network Consultant may charge the Town.

FEE PROPOSAL FORM

Project: CFON Phase I - Fiber Optic Network Design and Engineering Services

Respondents’ Name: ____________________________________________

Notes:

1. All Respondents shall provide a Total Price for all RFI items specified below based upon a time and materials basis.

2. The Total Price is a Not-to-Exceed Price based upon actual time and materials expensed to complete the Project as defined in the RFI Scope of Work. Additional rows can be added to Fee Proposal Form as necessary.

3. The Town, at its sole discretion, may elect to delete any portion of the work delineated below. Work shall be determined based upon the availability of funds.

4. Any item not provided in the following list shall be considered incidental.

5. Contract shall be based on the Total Price or any combination of a base bid and alternate bid in any manner the Town believes to be in its best interest.

6. The selected Network Consultant agrees to complete the Project and all related work, as specified in the Scope of Work within this RFI and within the timeframe specified in the Phase I project plan.
## FEE PROPOSAL SCHEDULE

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Staff Name, Staff Title</th>
<th>Hourly Rate</th>
<th>Estimated Hours</th>
<th>Amount ($)</th>
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<tr>
<td>1</td>
<td>Project Management</td>
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<td>2</td>
<td>Fiber Route Planning</td>
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<td>3</td>
<td>Site Work</td>
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<td>4</td>
<td>Engineering Design</td>
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<td>5</td>
<td>Documentation and Deliverables</td>
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<td>6</td>
<td>Construction Oversite for Phase III</td>
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<tr>
<td>7</td>
<td>Permitting for &quot;Make Ready&quot; Construction</td>
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<tr>
<td>8</td>
<td>Other - Please itemize any other work requiring cost estimate</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Total Cost**

---

Total Price (Not-to-Exceed):

Dollars ($______________) (Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

Signature of Authorized Representative of Respondent
ATTACHMENT F
DUNELAND SCHOOL CORPORATION FIBER NETWORK

General Overview

The Duneland School Corporation has an existing and operational fiber optic network in place that provides telecommunications connectivity between its school and administration facilities. See Attachment A for a list of these facilities and addresses. This network is primarily an aerial fiber network that is on utility poles. An agreement is in place with NIPSCO to lease utility pole space. A third party technology company provides operational support and maintenance of the network in the event of an outage. Internet access is provided by the third party technology company which uses Comcast. Challenges for the existing network include lack of redundancy with single points of failure along the network topology. In addition, the network has scalability challenges.

Future Technology Requirements and Direction

A high-level technology goal for the Duneland School Corporation, as we look three, five and ten years into the future is to have each student "integrated with technology". Technology integration for each student in the Duneland School Corporation is supported by and driven by three key technology requirements that include:

1 Bandwidth - Availability and scalability of high-speed bandwidth that includes quick turn up of added bandwidth. Support for integrated services including but not limited to data, voice, and video is needed.

2 Connectivity - A robust Community Connectivity Strategy that allows for easy access from any device. Fundamental to a Community Connectivity Strategy would be how high speed network access is provided to students within and outside of the schools using technologies like wireless and mesh networks to provide hotspots at key locations throughout the Duneland School District and Town.

3 Redundancy - Provide a stable, redundant and efficient high-speed network.

An efficient price fixed cost structure with a robust Service Level Agreement (SLA) would need to be part of any decision to become a CFON client.

Existing Network Technology Overview & Topology

To be provided by Duneland School Corporation