



Request for Proposals

City of Sanford, Maine
919 Main Street
Sanford, ME 04073

Fiber Optic Network Construction

A project funded by the City of Sanford and the
U.S. Economic Development Administration

Economic Development Administration Award 01-01-14741

April 2018

Project Architecture, Engineering, and Management by



Tilson
16 Middle Street, 4th Floor
Portland, ME 04101

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1 Introduction

The City of Sanford seeks proposals from qualified respondents to construct a fiber optic network connecting approximately 85 community anchor institutions (CAIs) and private enterprises in the City and the neighboring village of Springvale. The City has decided that superior broadband access is essential to its economic development objectives. The region offers a number of attributes that are appealing to high tech industries in the region. However, the City believes that the current broadband offerings are insufficient to attract these industries. The City is therefore soliciting proposals to build a municipal broadband network.

Respondents shall describe in their response their approach and cost estimate for building the fiber optic network described in Appendix A and Section 4. Respondents are not expected or invited to invest their own capital in network construction.

The City expects the selected respondent to operate as a General Contractor. The General Contractor shall be responsible for network construction and materials purchasing. A full enumeration of the General Contractor's responsibilities is contained herein.

1.1 Federal Participation Disclosure

This project will be partially funded with Federal funds from the US Department of Commerce, Economic Development Administration, and therefore is subject to the Federal laws and regulations associated with that program.

2 Background

2.1 About Sanford

Sanford is a City in southern Maine's York County. Its non-native history began in 1661 when a lumberman named William Phillips purchased the land on which the City is situated from local Native American tribes. Sanford is now home to 21,000 people and is Maine's sixth largest municipality. An historic textile manufacturing city, the last textile mill closed in 1954.

The City government has identified ubiquitous, high quality broadband as a necessary utility for Sanford to remain economically competitive in the 21st century.

2.2 About the Network

Recognizing that high quality broadband access is critical to the future and growth of American cities in the 21st century, the City of Sanford has decided to build a fiber optic network to connect key City businesses and institutions to the statewide Three Ring Binder network, which bypasses Sanford. This network, called SanfordNet, is designed to be expandable in the future to serve as middle mile fiber for

other fiber to the premises connections. In January 2014, the Sanford Regional Economic Development Council hired Tilson to design a network connecting the major CAIs in the City to Three Ring Binder.

The City conducted an RFP process in 2015 to identify a network operator and construction contractor. From that effort, the City selected GWI to operate the network. It also selected a firm to build the network. In the interim, however, the City was advised that it had won a grant from the Economic Development Administration (EDA), a unit of the United States Department of Commerce. Since the grant had not been won until after the RFP process was complete, the EDA advised the City its prior construction bid process had not conformed to EDA requirements and needed to be re-run.

The project is to install approximately 40 miles of fiber optic cable within the City of Sanford, Maine and the Town of Wells, Maine, plus service drops. SanfordNet will connect approximately 85 community anchor institutions (CAIs) to the statewide Three Ring Binder middle mile fiber optic network via a dedicated lateral to the Three Ring Binder in Wells. Head-end facilities will be located at City Hall. It is envisioned that future stages of SanfordNet will allow for connections to residences and other businesses in the City. The list of CAIs to be connected is included in Section 0:

Appendix A – List of Addresses.

All fiber will be installed on existing poles and in existing conduit in the public right of way, except for a very short section (less than 100 feet) discussed . The City’s Architect & Engineering firm, Tilson, has completed a detailed engineering and design of the network, including building entrances. Building entrance designs are included in Exhibit P.

2.3 General Respondent Information

Respondents shall describe in their responses to this RFP their approach and firm, fixed price bid for constructing the full scope detailed herein. The City of Sanford does not wish to be exposed to the risk of building the network.

For bids consisting of teams of firms, one firm should identify itself as the General Contractor. The General Contractor shall be responsible for the scope of work detailed in this RFP, insurance, and bonding. Tilson, as Owner’s Project Manager (OPM), will oversee construction to ensure compatibility with the proposed network design.

3 General Information

3.1 Contact for this RFP

All questions and comments should be directed via email to:

Mark Buxton or David Radin
Tilson
16 Middle Street, 4th Floor
Portland, ME 04101
SanfordNet@tilsonotech.com

3.2 Notification of Intent to Respond

The City requests that prospective bidders who intend to respond so notify the City by the date noted in Section 3.6 of this RFP. Notifications should be sent via email to David Radin and Mark Buxton at SanfordNet@tilsonotech.com.

3.3 Questions and Inquiries

Prospective respondents should email questions to the designated contact by the dates noted in the below table. Responses to questions that involve a change or interpretation to the RFP will be issued in writing and emailed to all parties that have expressed an intent to respond to the RFP. Only written responses to questions will be considered binding.

Materials submitted in response to this request become the property of the City of Sanford and may become a part of any resulting contract. Respondents agree that they will bear all costs associated with responding to this RFP.

Any changes made to the RFP will be issued in writing and a change log similar to Exhibit T provided to all bidders who have notified Tilson of their intent to bid.

3.4 Response Delivery

Please email your complete response including all relevant attachments to the designated RFP contact in Section 3.1.

3.5 Bid Bond

All respondents shall include a bid bond in their response in an amount equal to 5% of their overall bid price. This bond must be in the form of a negotiable instrument. Only the winning bidder's bond will be cashed; all others will be returned.

3.6 Schedule

Event	Date
RFP Released	Monday, 2 April 2018
Questions due at 5pm Eastern	Wednesday, 11 April 2018
Optional Notification of Intent to Respond	Friday, 13 April 2018
Responses to Questions Posted on City Website	Thursday, 19 April 2018
RFP Responses due by 5pm Eastern	Wednesday, 2 May 2018
Award Announced	Wednesday, 14 May 2018

3.7 Method of Award

The City seeks firms that:

- Are capable of meeting or exceeding the project's aggressive timeline, with construction completing no more than four months from signed contract, including testing and turn up. Proposals agreeing to a shorter completion schedule will be looked upon favorably.
- Can demonstrate past performance and experience on similar size fiber builds.
- Are flexible and can efficiently work around the kinds of issues that often arise in construction projects.
- Are stable and well-capitalized enough to meet the insurance and bonding requirements mandated by the EDA.
- Have experience performing with federally-funded contracts and can meet the associated regulatory requirements.

In order to be considered, responses must adequately address all required scope items in section 4 of this document as well as EDA requirements in section 5.

Respondents that address the entire RFP will be evaluated by the City and its Architect/Engineering firm, Tilson, on each of the evaluation criteria in the below table:

Item	Points Possible
Project Understanding and Approach	25
Respondent's Experience Building Similar Networks	15
Respondent's Regulatory Plan	10
Respondent's Demonstrated Financial Wherewithal	15
Warranties and Documentation	10
Bid Price	25
Total	100

- Project Understanding and Approach. The City of Sanford seeks to partner with a contractor that understands the City's goals for the project; to wit, the creation of a backbone broadband network that will serve the identified Community Anchor Institutions and that can later form the core of a potential City-wide fiber to the premises network. Respondents should demonstrate their understanding of the project and its goals, and provide a project plan in sufficient detail to provide a high degree of confidence they will successfully construct the project as scoped, scheduled, and budgeted.

Method of Points Award

- Project schedule that conforms with the RFP requirements: 15 points (all or nothing)
 - Clearly articulated project plan supporting the schedule: 10 points (all or nothing)
- Experience Building Similar Networks. The ideal respondent will have at least five years of experience successfully deploying municipal-scale or similar fiber optic networks on time and on budget. Respondents should demonstrate ability to provide sufficient manpower and equipment rapidly enough to achieve the project's construction objectives.

Method of Points Award

- Experience in the last three years building at least two similar networks: 10 points (all or nothing)
 - Experience in the last three years building at least five similar networks: 5 points (all or nothing)
- Regulatory Plan. Respondents should demonstrate ability and experience in following appropriate regulatory requirements. Ideal respondents will have experience constructing federally-funded projects, but in any case, all respondents should show understanding of the EDA requirements outlined in this document and its Exhibits.

Respondents should not be currently debarred from participating in Federally-funded projects. Lastly, respondents should provide a plan for meeting the EDA's requirements, especially Davis-Bacon Act compliance (including payroll tracking and records retention).

Method of Points Award

- Demonstrated understanding of regulatory requirements: 5 points (all or nothing)
- Experience constructing federally-funded projects in the last three years: 5 points (all or nothing)
- Financial Wherewithal. Respondents should show at least five years of experience building fiber optic networks. In addition, respondents should provide assurance (confidentially if desired by so noting in their response) of their ability to secure the required performance, payment, and bid bonds, as well as insurance requirements.

Method of Points Award

- Demonstrated at least five years’ experience building fiber optic networks: 5 points (all or nothing)
- Demonstrated ability (e.g., bank letter or other confirmation) of ability to secure required bonding and insurance: 5 points (all or nothing)
- Warranties and Documentation. Respondents should demonstrate ability to warranty their design and work products and to generate documentation, such as as-builts, CAD drawings, and the like in accordance with industry standards.

Method of Points Award

- Warranty specifications included in response: 5 points (all or nothing)
- Confirmation to comply with required documentation aspects: 5 points (all or nothing)
- Bid Price. The all-in price bid for the project (not including the price bid for additional drops, described in Section 4.6.3).

Method of Points Award

- The lowest price received will earn 25 points.
- The highest price received will earn zero points.
- The spread between lowest and highest prices received will be divided into 4 equal tranches. For each tranche a bid price falls into below the top, it will have 5 points deducted from a starting value of 25 points.
Example: The highest bid received is \$2 million and the lowest bid received is \$800,000. The \$1.2 million difference between these two is divided into four equal tranches of \$300,000 each. The \$800,000 bid receives 25 points. A bid of \$1,000,000 falls within the first tranche and receives 20 points. A bid of \$1,900,000 falls within the lowest tranche and receives 5 points.

3.8 Proposal Acceptance

The City reserves the right to accept or reject any or all proposals as deemed to be in the best interest of the City of Sanford. The City may elect to negotiate with multiple respondents prior to making a final award decision.

3.9 Costs of Preparation

The Respondent shall be solely responsible for all expenses it incurs in responding to this RFP. This includes any presentations or demonstrations associated with the RFP.

3.10 Additional Documentation Provided to Winning Bidder

Tilson will provide some backup documentation to the winning bidder that might help in the construction of the network. Some of the below were used in the planning stage and may have further use, and some are being created to assist the project. All should be considered useful for reference, and the information provided should be verified by the winning bidder:

- Splice Reports
- Schematic design used in design
- Fulcrum PDF Pole report
- Backbone Reel Inventory / As-built document
- Full pre-construction package with signature from building representative and contact information

4 Project Scope and Criteria

Project scope is divided into two sections for convenience's sake. Scope A consists of fiber cable installation for the network and drops. Scope B consists of network electronics and equipment installation. Respondents must respond to both Scopes A and B to be considered.

4.1 Overall Description

The fiber optic network consists of a 288-count fiber backbone with multiple laterals and drops to serve approximately 87 Community Anchor Institutions. The 288-count fiber backbone connects the head end facilities in City Hall with the Three Ring Binder network point of interconnection in Wells and with FairPoint's network at their Sanford central office. CAIs will be connected via a home run architecture to the head end in City Hall. All fiber will be hung on existing poles, except for small stretches near the airport, which will be placed in existing conduit.

All fiber routes for the CAIs are home runs back to the head end in City Hall or to the remote terminal located near the airport.

4.2 Installation Materials

Contractor will be responsible for procuring all materials and providing warranty for the major materials. Required materials and quantities are listed in Exhibit J. Any and all substitutions made to this bill of materials must meet or exceed warranty specifications than that of the materials listed in Exhibit J.

The Contractor is held responsible for all materials through the City's acceptance of the network. If the materials supplied by the Contractor are found to be defective, or do not conform to the specifications upon testing, the City reserves the right to have the Contractor immediately replace the materials at the

Contractor's expense, and through its procurement process. Excess materials purchased but not used during the construction will become property of the City upon acceptance of the network.

4.3 Staging Area

If the Respondent determines that a staging area is necessary to meet the project requirements, it should clearly indicate this in its response. If the proposed staging area is on City property, or its access is otherwise controlled by the City, Respondent should make clear its requirements for access to the proposed staging area, including but not limited to desired term, hours, and others.

Proposed staging areas should be located within the geographic Project area. Respondents shall warrant that their use of the area for staging purposes will follow applicable regulations and laws.

4.4 Pole Licensing, Make Ready, and Permitting

The project will span approximately 240 poles in Wells, Maine, and 900 poles in Sanford. There are also certain limited stretches of conduit for which the City has secured pole and conduit licenses. Respondents will not be responsible for pole or conduit licensing or make ready.

Virtually all the fiber route is in the public right-of-way or on private property for which easements and agreements have already been secured, as needed. Two City of Sanford permits are required, however.

- Highway excavation permit to excavate a short stretch (approximately 70 feet) of road shoulder for the in-scope drop to W.S. Bessett, Inc., at 1923 Main Street, Sanford. A pre-filled-in highway excavation permit is included in the RFP package as Exhibit S.
- Traffic control permit (application is the same as the excavation permit)

For further information or questions on these permits or other requirements relating to them, please contact the City Engineer:

Matthew Hill, P.E.
Director of Public Works and City Engineer
156 School St.
Sanford, ME 04073
(207) 324-9135
mehill@sanfordmaine.org

4.5 Schedule

Construction shall begin no later than 1 July 2018, and be completed in 120 days or less including final testing and inspection.

4.6 Construction Scopes

This section outlines the scopes of construction for the project. Respondents are required to respond to all scopes outlined; they are separated here only for convenience's sake.

4.6.1 Construction Scope A: Fiber Network Cabling

SanfordNet will require connection to Maine Fiber Company's Three Ring Binder, which is primarily comprised of Corning SMF28e+ fiber. Fiber cable for SanfordNet shall be of equivalent quality to that used for Three Ring Binder and meet applicable industry guidelines, including Telcordia GR-20 and ITU-T G.652.D.

The City seeks respondents to perform the following:

1. Review the final, engineered design and determine a viable construction plan that satisfies the scheduling requirements outlined in this document.
2. Identify any probable constructability issues or concerns in the network design, and work with the City and Tilson to arrive at suitable remedies.
3. Procure adequate amounts of fiber optic cable conforming to the project's specifications to build the network as specified by the final engineered network design.
4. All required anchors or guying will be per pole owner guidelines as noted in the FairPoint Form 3, the make-ready determination (Exhibit R).
5. Install fiber optic cable aerially and in conduit, per the project design specifications in Exhibit K – Network Design and Exhibit M – Map Book.
6. Install service drops to each CAI as specified by the building entry designs in Exhibit P. A limited number of individual building owners (primarily hospitals or other healthcare facilities) may require construction personnel to participate in building-specific orientations or trainings. Contractor shall confirm the required protocol with each CAI.
7. Install a 50 foot service loop at each CAI.
8. Develop and execute a traffic management plan in coordination with the City's Public Works Director and in compliance with applicable regulations of the State of Maine, City of Sanford, and Town of Wells (see section 4.4).
9. Perform ongoing quality control checks of the as-built network throughout the construction period. Escalate issues to the City and Tilson as needed.
 - a. Submit weekly quality control report with the weekly progress/status report.
 - b. Perform OTDR testing on each fiber strand installed.
 - c. Complete through power testing on all terminated site to site strands, and report true span loss not to exceed 0.35 dB/km.
10. Perform all testing required by the City and Tilson after construction is completed or as required by EDA grant conditions.
11. The City will schedule a final inspection after construction has been completed, Tilson has completed its inspection, and all defects have been remedied. Representatives from Tilson and the City will conduct the final inspection. EDA must be notified in advance of the inspection date so it can send a representative to participate in the final inspection. The project is not considered final until the City, Tilson, and the Contractor complete the EDA Final Acceptance Report, attached for reference as Exhibit Q.
12. Document and deliver all as-built specifications as ESRI-compatible shapefiles.
13. Complete outstanding issues and close the project.

4.6.2 Construction Scope B: Network Electronics and Head End

The winning bidder shall construct the following:

1. Construct the head-end facilities in the network head end room designated in City Hall, per the project requirements.
2. Route drop cables into CAIs and to the designated ONT location per the building entry designs in Exhibit P.
3. Procure and install fiber enclosures on the exteriors of selected CAIs, per the building entry designs in Exhibit P. Note that the drawings in Exhibit P are ordered by the building number in the address.
4. Procure and install ONTs in CAIs per the designs in Exhibit P.

The proposed network shall support Gigabit Passive Optical Network (GPON) and Active Ethernet (AE) aka P2P, fiber access technologies. All equipment, transmission methods, and system must be “industry-standard”. Industry-standard is defined as the most current version of relative standard(s) set by an American National Standards Institute (ANSI) or International Organization for Standardization (ISO)-accredited Standards Developing Organization (SDO), such as the Institute of Electrical and Electronics Engineers (IEEE), Telecommunications Industry Association (TIA), International Telecommunication Union (ITU), or Electronic Industries Alliance (EIA).

The Bidder Price Worksheet accompanying this RFP includes example electronics equipment that meets the specifications in this section. Bidders may propose other makes and models that are functionally equivalent and meet the requirements.

4.6.2.1 Optical Network Termination

In addition to specific requirements outlined in this section, all ONTs shall be installed with at least eight (8) hours of battery backup or UPS capacity. All ONTs shall also conform to the following (e.g., Calix 717GE or equivalent):

- GPON and Active Ethernet auto-detect operation
- Minimum of two (4) POTS ports.
- Minimum of four (4) 10/100/1000 BaseT Ethernet ports
- ONTs must have roadmap for versions supporting next generation fiber standards, including XGS-PON and NG-PON2
- ONTs must have co-existence filters allowing overlay of XGS-PON and NG-PON2 wavelengths with no disruption of service to 2.5G GPON based ONTs.
- Technician driven ONT activation using Registration IDs. This process can utilize a voice response system embedded in the ONT, a web based version via an Ethernet connection, or an iOS-based app.

4.6.2.2 Optical Line Terminal

All Optical Line Terminal (OLT) equipment shall support the requirements outlined in this section.

The OLT architecture shall be available in two (2) different configurations to meet different deployment models.

1. Centralized OLT Architecture

The centralized OLT architecture shall be based upon a chassis-based design using interchangeable common control cards supporting switching, uplink, and management functions. The chassis backplane shall be engineered to support future higher density line cards without the need for a chassis backplane upgrade.

2. Distributed OLT Architecture

The distributed OLT architecture shall be based upon a hardened, modular, 1RU chassis using line cards that provide all subscriber facing ports, switching, uplink, and management functionality. Multiple chassis can be configured in a modular configuration allowing for centralized database and software management.

The OLT for both architectures shall take into consideration the following system requirements.

- OLT's shall support both GPON and AE ports.
- OLT's shall support both B+ and C+ GPON optics.
- GPON shall comply with the ITU G.984 group of standards.
- Capability to shape bandwidth in the downstream by the OLT up to 1Gps for each subscriber.
- Capability to shape traffic in the upstream (from the ONT) up to 1Gps for each subscriber.
- Support for VLAN per service and VLAN per port provisioning models.
- GPON shall support 2.488 Gbps downstream and 1.244 Gbps upstream standard rates.
- GPON shall support GPON Encapsulated Mode (GEM).
- AE based on the IEEE 802.3ah standard Ethernet in the First Mile Fiber (EFMF) shall provide symmetrical bandwidth of up to 1 Gbps per port.
- The OLT should be available in versions for use at a headend and remote locations not temperature controlled or hardened (-40° F to +149° F), including an optional version of strand or pole mounted sealed OLT.
- The OLT must support Type B PON G.984.1 protection which provides redundancy of the optical distribution network between an OLT and a remote 2xN splitter. Using Type B PON protection the system can switch from the protected PON interface to the protecting PON interface within milliseconds of the detection of a failure in the protected path. Services shall be restored within 100ms of a fail-over to the protecting path.
- OLT system must have roadmap for migration to next generation fiber standards, including XGS-PON and NG-PON2.
- GE SFP, 2.5GE SFP, 10GE SFP+, and 10GE XFP CWDM and DWDM pluggable transceiver modules shall be supported for the network transport/uplinks.
- The system shall operate on -48VDC power, redundant A & B Feed.
- OLT shall accept external reference timing.
- Network modules shall support standards based network topology protocols for use in aggregation, ring-based transport, and uplink such as:
 - ITU G.8032 Ethernet Ring Protection Switching (ERPS).
 - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP).
 - IEEE 802.3ad/802.1AX Link Aggregation.

In addition, the proposed system shall support the following:

- TR101 VLAN Service Model.
- VLAN tagging support per IEEE802.Q.
- VLAN stacking support per IEEE802.ad.
- CoS Prioritization support per IEEE 802.1p.
- DHCP support per RFC 2131.
- MEF 9 and MEF 14 (EPL, EVPL, ELAN) Support. .
- For Video services the system shall support multicast management via RFC 2236 IGMP v2, or RFC 2376 IGMP v3, and RFC 4541 IGMP snooping.

4.6.2.3 Network Management System (NMS) Requirements

The NMS shall provide Fault, Configuration, Accounting, Performance and Security (FCAPS) management for the OLTs and ONTs. The key management functions shall include:

- Alarm aggregation and forwarding via email and SNMP
- Configuration management
- Browsing, grouping and filtering of standing alarms and events
- Historical alarm and even reporting
- Firmware management and configuration backup/restore for disaster recovery
- Network configuration including link and ring protection domains
- Global service profile management
- Service configuration and activation
- In addition to FCAPS functionality, the NMS shall 1) back up configuration data in the cloud, 2) collect and create reports on port utilization for capacity planning, and 3) integrate network data utilization into cloud tools.

4.6.2.4 Head End

The Head End facility will be located in a purpose-built room at Sanford City Hall. Two circuits of 20A each at 208VAC are present in the room.

Contractor shall procure and install the following:

- -48VDC power system with sufficient capacity to power all head end equipment
- Four 19-inch equipment racks

The racks shall be configured as follows:

- Pre-spliced 288ct fiber panel installed mid-rack and used exclusively for the Sanford Fiber network terminations
- 288ct fiber panel installed mid-rack on an adjacent rack to the "Sanford Fiber Network Panel". This panel will be used to populate GPON splitters

- 36+ct indoor fiber should be installed from the “Sanford Fiber Network” panel to the City of Sanford IT cabinet located in the Head-end. This connection will facilitate the Sanford municipal dark fiber network. The fiber should be terminated at both ends.
- Electronic equipment should be installed above the “Splitter Fiber Panel”
- Horizontal fiber management above each active rack-mount component that provides service
- Vertical fiber management on both sides of each rack
- Horizontal fiber management above and below each fiber panel
- Horizontal fiber management to span both racks

4.6.3 Additional Drops

In addition to the 87 Community Anchor Institutions, bidders are asked to provide a price to install additional drops to premises along the route that request service, as directed by the Network Operator. The price bid for these additional service drops is outside the scope of the City- and Federally-funded network construction and will be paid by the Network Operator.

Additional service drops under this scope are limited to those to be constructed at the same time as initial network construction. The price bid herein is only considered binding during this time, and not after the network construction is complete.

Bidders are encouraged to identify a quantity discount mechanism whereby the price for all drops could be reduced as the number of additional drops increases. Bidders’ responses to this scope should include:

1. A firm fixed price per additional drop, specifying labor and materials breakdown. Multiple prices can be quoted for varying drop lengths or underground/aboveground. Drop price can also be quoted per foot if preferred.
2. Required amount of advance notice of an additional drop to be constructed
3. Suggested quantity discount mechanism, if any

4.6.4 EDA Requirements

In addition to the above, respondents shall:

1. Comply with all EDA Standard Terms & Conditions for Construction Projects (see Exhibit A).
2. Comply with all Economic Development Administration Summary of EDA Construction Standards (see Exhibit B)
3. Comply with all EDA Contracting Provisions for Construction Projects (see Exhibit C)
4. Develop weekly progress reporting including representatives from the City and Tilson
 - a. Progress reporting should include weekly submission of Wage & Hour Division Form WH347 (Exhibit D).
5. Maintain payroll records for a minimum of three years from contract completion and provide requested records on demand to the City or the Economic Development Administration.

4.7 Other Installation Requirements

1. All construction is to be per industry standards including, but not limited to, Telcordia Blue Book and NESC code.
2. All fiber optic cable shall be installed per manufacturer's best practices and tensioned per manufacturer's specifications.
3. The Contractor is responsible to install all necessary pole hardware suitable for the provided cable.
4. High visibility cable tags or markings containing the Owner's information shall be installed at every pole, splice enclosure, and riser guard, and be visible while standing on the ground.
5. High visibility cable tags or markings containing the Owner's information shall be installed every 20 – 30 feet of fiber inside a commercial building.
6. All fiber optic cable installed beyond 50LF of the building entry must be transitioned to riser rated cable.
7. Industry approved cable lubrication shall be used as required during cable placement in innerduct or conduits.
8. All conduits shall be weather sealed at both ends.
9. Serving terminals are to be installed approximately 18 inches to the right of the pole, and drop ports are to be installed on the left side of the terminal.
10. An 8-foot slack loop shall be placed at all serving terminal locations for splicing. The remaining slack not used for splicing is to be coiled in the back of the serving terminal for storage and proper access to the fibers.
11. Only working fibers are to be spliced into ports for active fibers. The remaining fibers are allocated per design terminal counts for future use as required.
12. Labeling of the cable sizes and direction is required. All fiber strands spliced into ports will be tagged and identified per terminal splice design.
13. At each aerial splice location 150 feet of cable will be left on each cable end for splicing, or as otherwise indicated on the construction drawing. The cable ends must be sealed watertight to prevent water from entering the cable.

4.8 Splicing Requirements

- 1) All fibers and connector assemblies (pigtails) shall be fusion spliced.
 - a) All splices are to be organized and secured within an approved fiber optic splice closure.
 - b) The Contractor shall follow the manufacturer's recommended cable preparation and routing procedures for cable entry into the provided fiber optic splice closure.
- 2) All splicing shall be completed as per splice details provided prior to the start of construction for each identified splice location.
 - a) Any changes shall be approved by Tilson prior to completion.
- 3) The Contractor shall maintain a Splice Log Book for each splice enclosure.
 - a) Each splice enclosure will have a unique identifier as per the design prints and shall be large enough to be visible from the road. The splice enclosure identifier shall also be referenced on the Splice Log Book cover.
 - b) The Splice Log Book shall include a copy of the original splice detail sheet, a red-lined copy of the as-built detail, LID readings from the fusion splicer, Optical Time Domain Reflectometer (OTDR)

- Test results of the fibers spliced at that location, pictures of the organization and layout of the interior of the enclosure, and pictures of the enclosure on the cable or strand.
- c) The Splice Log Book shall also include any additional pertinent information not listed.
 - d) The Splice Log Book shall be delivered to the OPM electronically upon request and at the end of the project.
- 4) All splicing shall be monitored with an OTDR and tested to ensure acceptable splice loss values are achieved.
 - 5) Labeling of the cable sizes and direction is required. All fiber strands spliced into ports will be tagged and identified per terminal splice design. Please refer to Appendix O: Outside Plant Labeling & Naming Standards.
 - 6) All tools and equipment used shall be in excellent working order.
 - a) The Contractor's cleaving, splicing and cable preparation equipment will be reviewed and approved by the OPM prior to beginning any splicing work.
 - b) All splicing equipment shall be calibrated within 6-months of use on this project.
 - 7) Certificates of calibration for splice equipment shall be submitted to the OPM for review and approval.

4.9 Testing Requirements

Contractor shall test the network in accordance with the testing requirements detailed in Exhibit L.

4.10 Change Orders

If a need arises to change the scope of the project in a reasonably significant way, a change order shall be requested in writing prior to starting work or incurring costs. Change orders shall clearly state the Contractor's expected profit and overhead accruing from the associated change in scope. Please see section 5.8, on page 18, for further information.

All change orders shall be subject to approval by the City, Tilson, and the Network Operator.

4.11 Documentation Requirements

Contractor shall provide as-built documentation to the City at the project completion. This shall include at minimum the following:

- As-built drawings, in either AutoCAD or ESRI shapefiles, including any and all changes implemented. Drawings provided to respondents by the City or Tilson may be used as the basis of as-built drawings.
- Detailed splicing report consisting of:
 - Network
 - FDH
 - POP
 - Splice cases
 - Terminals
- Fiber span footages
- Terminal splice locations
- Strand grounding locations

- Multi-port locations
- Slack loop locations
- Routes of all wire/cables installed (in ESRI shapefile format)
- Test results for optical fiber testing
- Warranty Package to include dates (Product Warranty)
- Certificate of Acceptance (pre- and post-installation)
- Summary sheet of test results for quick reference
- POP Shelter and Compound diagrams

4.12 Job Completion

Job completion occurs when the following conditions are satisfied:

1. Contractor submits last invoice.
2. Contractor notifies the City and Tilson that construction is complete.
3. Final inspection has occurred.
4. All punch list items have been completed.
5. All equipment and materials warranties have been transferred to the City.
6. All construction materials and fiber reels have been returned to the City with a list of remaining items.
7. All the Documentation for the Fiber Project is submitted:
 - a. Design As-Builts
 - b. Reel Documentation and test data
 - c. Fiber Organization Drawing
 - d. Fiber testing results end to end for attenuation and continuity
 - e. OTDR results, including each individual Splice Enclosure Log Book.

4.13 Warranty Requirements

1. The Contractor shall warrant that all materials furnished shall be new, and free from defects.
2. The Contractor shall warrant that the materials and workmanship used in this installation are as herein specified, and shall provide all material and labor required to make good any defects due to faulty materials or workmanship which become apparent within a one-year period from substantial completion.
3. The equipment and materials manufacturers are expected to recognize that they are responsible for the failure of their products to perform in accordance with data furnished by them or their authorized representatives, as well as misrepresentations of such data.
 - a. When the products have been installed in accordance to the manufacturer's published or written instructions and recommendations, and such products fail, then the Contractor and the manufacturers are responsible for replacement of the products and all associated work and materials without additional cost to the Owner.
4. Warranty information is required for all materials supplied by the Contractor.
5. Damage by vandals, fire, traffic accidents or "acts of God" is excluded from warranty.

4.14 Hospital Insurance

The Southern Maine Healthcare (SMHC) system may require additional insurance coverage from the winning contractor. A contact at SMHC will be provided for the winning respondent to seek clarification on specific requirements. Insurance requirements dictated by SMHC are in addition to any other requirements outlined in this document, including those mandated by the EDA in section 5.2.

5 Economic Development Administration Requirements

5.1 General Requirements

Respondents should affirm they can and will comply with all regulations and requirements for this project, including but not limited to:

- EDA Construction Standard Terms & Conditions (Exhibit A)
- EDA Summary of Construction Standards (Exhibit B)
- EDA Contracting Provisions for Construction Projects (Exhibit C)
- Notice of Requirement for Affirmative Action (Exhibit D)

Following sections call out specific requirements included in the above documents.

5.2 Bonding and Insurance Requirements

All bidders must include with their response a bid guarantee equal to 5% of the bid price. Per EDA requirements, this shall consist of a firm commitment, such as a bid bond, certified check, or other negotiable instrument accompanying the bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified. Bid guarantees will be returned to respondents that are not selected.

In addition, the winning bidder shall furnish a performance bond in an amount equal to at least one hundred percent (100%) of the Contract price as security for the faithful performance of the Contract and also a payment bond in an amount equal to one hundred percent (100%) of the Contract price or in a penal sum not less than that prescribed by State, Territorial, or local law, as security for the payment of all persons performing labor on the Work under the Contract and furnishing materials in connection with the Contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law. Before final acceptance, each bond must be approved by EDA.

Finally, the winning bidder will be required to provide, and ensure all subcontractors provide, Workmen's Compensation Insurance, Public Liability Insurance, and any other types of insurance required by Maine or local law.

For more information, please see Section (L)(4), "Insurance and Bonding", on page 42 of the EDA Construction Standard Terms & Conditions, included in this package as Exhibit A. The selected bonding/surety company or companies must be listed on the US Treasury's Circular 570.

5.3 Project Construction Site Sign

The selected contractor is required to erect and maintain a project sign, preferably free-standing, at a conspicuous location agreed to with the City but not located on public highway rights-of-way. The sign's design should conform to the specifications in the sign specifications document included in this RFP package as Exhibit F.

5.4 Lobbying Restriction Form

The winning bidder must complete the Lobbying Restriction Form (Form CD-512), included as Exhibit G.

5.5 Davis-Bacon Compliance

The winning bidder will be required to ensure compliance with the Davis-Bacon Act, as amended (40 USC § 276a *et seq.*). Wage rates paid for labor must be at least the rates specified in the Wage Rate Determination (Exhibit H). This will be updated 10 days prior to closing the RFP advertisement.

5.6 Records Retention

The winning bidder shall keep payroll records for at least three years after project completion and produce them for inspection by the EDA, City, or their representatives upon demand.

5.7 Liquidated Damages

In recognition of the importance of the project to the City's economic development, the winning bidder shall agree to pay liquidated damages due to schedule overruns in accordance with the contract terms of \$500 per day that the project is not finished on schedule.

5.8 Profit and Overhead for Change Orders

The selected contractor shall be permitted up to 5% profit on change orders for work it does directly. Subcontractor work that arises from a change order may be marked up 3%.

5.9 Payment Retainage

Each invoice submitted to the City by the selected contractor shall be subject to 10% payment retainage. The 10% of the invoice that the City retains shall be paid to the contractor upon project completion.

6 General Conditions

The following are required of General Contractors responding to this solicitation.

6.1 Bid Submission

Final responses are due via email by the date and time specified in Section 3.6 to the RFP point of contact (POC) email address, which is **SanfordNet@tilsontech.com**. The City reserves the right to reject any bids that fail to meet this deadline. The City reserves the right to issue extensions to this deadline at its discretion. Responses should be submitted as Adobe PDF files. Schedules and cost estimates can be included in the PDF or detailed in an accompanying Excel workbook.

6.2 Proposal Life

Respondents shall assert that their proposals are valid for 120 days post bid deadline. If the deadline is extended, proposals shall remain valid for 120 days post the extended deadline. This includes all equipment costs, labor costs, and other costs associated with the network construction.

6.3 Disclosure of Proprietary Records

Bidders may preserve proprietary rights as to confidential or business process information provided that: (i) Bidder shall inform the City upon submission of its Bid, in writing, that such records are going to be furnished, are proprietary and are not to be disclosed; and (ii) said records shall be sufficiently identified; and (iii) Bidder shall state the reasons why the information should be exempted from disclosure; and (iv) designation of said records as exempt from disclosure is reasonable and accepted by the City. Acceptance of the claimed materials does not constitute a determination on the exemption request, which determination will be made in accordance with statutory procedures.

7 Response Format and Content

7.1 Cover Letter

Respondent(s) must submit a cover letter signed by an authorized representative with power to legally bind the respondent. The cover letter must include the following:

- 1) Indicate the number of years the entity has been in business.
- 2) Provide an overview of the experience and background of the entity and its key personnel.
- 3) Identify the legal name of the entity, its headquarters address, its principal place of business, and its legal form (i.e. corporation, joint venture, limited partnership, etc.).
- 4) Identify the name, address, and telephone number(s) of the principal contact for all communications pertaining to the RFP.

7.2 Executive Summary

Provide an executive summary, which explains the respondent's understanding of the City's objectives, lists the capital cost estimate, and describes the business model at a high level. This summary should discuss the respondent's approach to implementing their solution, their approach to project management, strategies, tools, and safeguards for ensuring performance of all required services. Respondents should include any additional factors they wish considered in the summary.

7.3 Professional Qualifications and Experience to Perform

The respondent shall provide a detailed description of its experience building fiber optic networks and working on projects funded by government grants. The respondent shall provide names and resumes of key personnel to be involved in the project.

7.3.1 Past Performance

The Respondent shall list relevant past performance building fiber optic networks. In their description of past performance, the respondent shall list:

- 1) Description of the technology employed
- 2) The number of premises served
- 3) Description of the physical environment (urban, rural)
- 4) Description of available speeds at premises
- 5) Dates of performance
- 6) Project size (in subscribers and cost)
- 7) Customer contact information (name, title, phone, email, physical address)

7.3.2 References

Respondent shall provide at least three references for similar projects completed within the last five years. Similar projects include construction of municipal-scale fiber networks, projects involving EDA grants, or both.

7.4 Timeline for Completing Work

The respondent shall discuss its proposed timeline and how it will meet the deadlines cited in this RFP. Specifically, construction should be performed and completed within 120 calendar days. Demonstration of ability to complete construction in less than 120 days without an increase in cost will be looked upon favorably in evaluating responses.

7.5 Capital Cost Proposal

The bidder shall use the attached spreadsheet for providing their capital cost proposal for building the network in compliance with the specification outlined in Appendix A. All bids shall be not-to-exceed or flat fee.

In addition, bidders shall demonstrate that they have access to all materials required in order to complete the project within the project schedule.

7.6 EDA Requirements

Bidders shall affirm they have read, understood, and can meet all the requirements outlined in Section 5 of this RFP.

8 Appendix A – List of Addresses

Site Description	Street Address	City
Advanced Building Products	95 Cyro Dr	Sanford
Anderson Learning Center	21 Bradeen Street	Springvale
Atlantic Pump & Engineering	51 Eagle Drive	Sanford
AWOS	0 Airport	Sanford
Benton Maint building	21 Roberts St	Sanford
Big Fish Fence Supply	16 Clearzone Drive	Sanford
Black Sheep	37 Cottage Street	Sanford
Built by Adams Inc. (Grondin & Hertz)	22 Smada Drive	Sanford
Cancer Care Center of York County	27 Industrial Ave	Sanford
Carl J. Lamb School	233 Shaws Ridge Road	Springvale
Casco Bay Molding	32 Smada Dr	Sanford
Central Tire Company Inc.	122 Cyro Road	Sanford
Central Tire Company Inc.	1307 Main St	Sanford
Cobb Stadium	678 Main St	Sanford
Ekto Manufacturing Corporation	83 Eagle Drive	Sanford
Eric Stone Mill	72 Emery Street	Sanford
Evonik Cyro LLC	1796 Main Street	Sanford
Expanded Rubber Products, Inc.	41 Industrial Drive	Sanford
Expanded Rubber Products, Inc.	81 Industrial Avenue	Sanford
Getchell Ice	1913 Main St	Sanford
Goodall Library	952 Main Street	Sanford
Goodall Park	38 Roberts Street	Sanford
Grace Street Services	69 Eagle Drive	Sanford
Green Light	12 Smada Drive	Sanford
GVS North America (Maine Mfg)	63 Community Drive	Sanford
Heritage Place	469 Main Street	Sanford
Historical Society Building	505 Main Street	Sanford
International Woolen	10 International Drive	Sanford
Jagger Brothers Yarn	5 Water St	Springvale
Lafayette School	69 Brook Street	Sanford
Ledgemere Transportation	100 Cyro Drive	Sanford
Lowe's	1900 Main St	Sanford
Maine Behavioral Health	474 Main St	Springvale
Maine Families/Partners for Healthy Communities	1137 Main Street	Sanford
Margaret Chase Smith School	248 Twombly Road	Sanford
Mark Motors Autoplex	1754 Main Street	Sanford
Marland Hall	31 Bradeen St	Sanford

Mayflower Place Assisted Living	27 Mayflower St	Sanford
Memorial Gym	688 Main	Sanford
Nasson Community Ctr	457 Main St	Sanford
Nasson Health Care/ Kennedy Ctr	15 Oak Street	Springvale
Natco Products (Flemish Master Weavers)	96 Gatehouse Road	Sanford
New England Steel Fab	1893 Main Street	Sanford
New England Truck Tire Ctr	38 Rainbow Ln	Sanford
Oceanside Rubbish	19 Clearzone Road	Sanford
Patterson Companies	1293 Main Street	Sanford
Patterson Companies (Hussey & Hawkeye)	90 Community Drive	Sanford
Province Automation	31 Smada Drive	Sanford
Public Works Office Bldg	156 School St.	Sanford
Roy's Motor Sports	9 Roy Drive	Sanford
Rubb Building Systems	1 Rubb Lane	Sanford
Sanford Central Fire Station	972 Main Street	Sanford
Sanford City Hall	919 Main Street	Sanford
Sanford Family Dental	0 Country Club Road	Sanford
Sanford High School	52 Sanford High School Blvd.	Sanford
Sanford Jr. High School	708 Main Street	Sanford
Sanford Medical Center & The Pavilion	25 June Street	Sanford
Sanford Police Department	935 Main Street.	Sanford
Sanford Regional Technical Center (SRTC)	52 Sanford High School Blvd.	Sanford
Sanford Seacoast Regional Airport	167 Airport Road Suite D	Sanford
Sanford Sewer District	281 River Street	Sanford
Sanford Water District	243 River Street	Sanford
Seacoast Hardwood Lumber & Plywood	60 Cyro Drive	Sanford
Shaker Pond Ice Cream	6 Smada	Sanford
Site of New High School and Tech Center	1250 Main St	Sanford
SMHC Eldercare Services - The Newton Center	35 July Street	Sanford
SMHC Physicians	25A June Street	Sanford
SMHC Sports Performance Center	1 Emile Levasseur Drive	Sanford
SMHC Therapy Center & WorkWell	13 July Street	Sanford
Smith-Wasco Mill	22 Pioneer Avenue	Sanford
South Sanford Fire Station	1847 Main Street	Sanford
Southern Maine Aviation	199 Airport Rd	Sanford
Southern Maine Communications	9 Kostis Lane	Sanford
Southern Maine Health Care	1 Eagle Drive	Sanford
Springvale Fire Station	5 Oak Street	Springvale
Springvale Public Library	443 Main Street	Springvale
Stenton Trust	13 River Street	Sanford
Super 8 Motel	1892 Main Street	Sanford

Surplus Business Assets Mill	3 Weaver Drive	Sanford
The Baker Company	161 Gate House Road	Sanford
The Sanford Mill	61 Washington Street	Sanford
Transfer Station	81 Rushton Street	Sanford
W.S. Bessett, Inc.	1923 Main St	Sanford
Willard School	669 Main Street	Sanford
York County Community College	60 Community Dr	Sanford
York Hospital Walk-In Care Center	1474 Main Street	Sanford
York Manufacturing Inc	43 Community Dr	Sanford