

CAPITOL REGION COUNCIL OF GOVERNMENTS

**REQUEST FOR PROPOSAL (RFP)
FOR NETWORK INFRASTRUCTURE SERVICES**

Issue Date: May 5, 2014

Response Date/Time: June 3, 2014 (11:00 a.m.)

**Response Location: Capitol Region Council of Governments
241 Main Street, 4th Floor
Hartford, CT 06106**

CAPITOL REGION COUNCIL OF GOVERNMENTS

REQUEST FOR PROPOSAL (RFP) FOR NETWORK INFRASTRUCTURE SERVICES

1 Introduction

Intent

The Capitol Region Council of Governments (CRCOG) is soliciting responses from qualified and experienced firms who have experience in any of the technologies used to build out a network, including fiber optic cabling. The intent of this RFP is to solicit sealed proposals to establish through competitive negotiation a contract for fiber optic and network cabling services to CRCOG as an agency and to member communities of CRCOG's IT Services Cooperative. CRCOG's IT Services Cooperative consists of members of CRCOG, the Capitol Regional Purchasing Council (CRPC), the Council of Small Towns (COST), and other fee-for-service members. With the opportunity for municipalities to connect to the Nutmeg Network as well as available state grants for that purpose, CRCOG anticipates an increase in demand by municipalities for these services. All terms and conditions negotiated between CRCOG and the vendor for the work in the Scope of Services will apply to all Network Infrastructure Services performed under the final contract.

2 Council Background

The Capitol Region Council of Governments (CRCOG) is the largest of Connecticut's regional planning organizations. We are established under the Connecticut General Statutes as a voluntary association of municipal governments serving the City of Hartford and 29 surrounding suburban and rural communities.

Our region is more than 800 square miles in size and it houses approximately 750,000 people. CRCOG is dedicated to expanding the concept of voluntary cooperation among its member municipalities as the means to successfully respond to many of the region's pressing governmental and public challenges.

COST is an advocacy organization committed to giving small towns a strong voice in the legislative process. Its members are Connecticut towns with populations of less than 30,000.

CRPC is a voluntary purchasing cooperative serving 97 municipalities, boards of education, and public agencies within the Capitol Region and beyond.

3 Scope of Services

3.1 Executive Summary

CRCOG is seeking to connect to the Nutmeg Network at the CEN POP at 24 Sequassen Avenue in Hartford, CT. CRCOG's connection will require two strands of fiber.

CRCOG IT Services Cooperative members have a variety of network build needs. The successful vendor will establish a master contract with CRCOG for services that also allows individual members to opt into and pay for services directly with the vendor. If other services not mentioned herein are offered, please include that information with your RFP response.

The vendor has two solution options: Municipal Gain Option or Managed Fiber Option

3.2 Municipal Gain Option - Detailed Specifications

3.2.1 Fiber optic Cable Plant

3.2.1.1 This cable-plant will utilize the Cable lashed to a separate Messenger technique.

3.2.2 Cable Installation Guidelines

3.2.2.1 Placement of the cable itself on the utility poles shall be made in accordance with NESC and Bellcore guidelines for separation from existing power and communications attachments to the poles at locations on each pole as specified by the bolt hole location on the Pole Data Sheet provided by the Pole owner. The fiber optic cables will be installed on the Utility Poles in the Municipal Gain Space, which is defined as the top of the Communications Gain and 40" below the lowest electrical gain. Note that the Municipal Gain may be moved to a different location on the pole by the pole owners.

3.2.2.2 The cable plant shall be installed in the municipal gain section of utility poles or conduits along the route. On poles, this is typically the top communications gain. Wherever the fiber optic cable is installed in underground or other conduit, it shall be installed within a 1.25" ID or larger inner-duct that the contractor must install in the conduit if existing inner-duct is not available. In situations where the underground conduit is less than 2.5" in diameter then innerduct is not required, but only one cable can utilize such conduit space unless noted in the appropriate building layout page in appendix B. The applicable NESC, BICSI, and Bellcore requirements and guidelines for pole attachments shall be applied in the installation of the cable plant both on utility poles and in underground ducts. All attachment hardware and messaging materials shall meet NESC Grade "B" requirements. When placing cable in new conduits a new pull rope for future installation will be installed at the same time.

3.2.2.3 Cable lashing will meet the following requirements;

- Cables installed over roadways or railways will be double lashed.
- Multiple cables lashed together to the messenger will be double lashed.
- Lashed cable will have a maximum of twelve inch interval between wire lashes.
- Lashing wire will be terminated at each pole with a lashing wire clamp.

3.2.2.4 Cable routed through building walls into the building interior shall be placed in plenum-rated interior-grade inner-duct and routed to its final interior destination (e.g., distribution frame).

3.2.2.5 If Exterior rated fiber optic cable extends into the interior space of a building from its point of entrance more than 50' then conversion to a riser or plenum rated cable as applicable will be required.

3.2.2.6 Cable and pole-hardware manufacturers' recommendations and guidelines shall be followed with respect to appropriate connections to utility poles (e.g., in consideration of offset angle and in compliance with the requirement to install a double dead-end minimally every 20 poles or 2000 feet, whichever occurs first). If appropriate, extension arms shall be used to provide NESC- and Bellcore-compliant clearance to other pole attachments and/or to achieve acceptable offset angles. The installation contractor must follow the cable manufacturer's recommendations and guidelines for the actual stringing and tensioning of the fiber optic cable. Pole attachment hardware will meet or exceed Grade "B" requirements as defined in the NESC requirements.

3.2.2.7 All cable will have a label attached to it at each utility pole identifying the cable as CRCOG Fiber Optic cable and this label shall be visible at ground level in compliance with the Pole Attachment Agreements in force with the Pole Owners.

3.2.3 Aerial Storage Loops

3.2.3.1 A 75-foot aerial storage loop of fiber optic cable for repairs and other future use shall be installed in the cable plant approximately every 1,500 feet (with a minimum of one storage loop in each fiber segment), using an aerial lash-back approach and centered either on a specific pole or on the nearest suitable pole (e.g., a storage loop may not be installed over a crossing street; installation of a storage loop over a driveway is to be avoided as well). An in-line storage device (e.g., a set of 2 "snowshoes") that is in compliance with the cable manufacturer's recommendations and requirements shall be used for each aerial storage loop. Locating storage loops near wherever a connection to a future network site is anticipated and four way intersections that might be subject to vehicular accidents is preferred.

3.2.4 Grounding (Bonding)

3.2.4.1 All Equipment with conductive material must be grounded ("bonded") in compliance with NESC guidelines.

3.2.5 Intra-Segment Cable Continuity

Each segment of fiber cable that is installed between building endpoints and defined cable splice points outlined in this document shall be continuous without any additional splicing.

3.2.6 Exterior Installation

Exterior installation of the fiber optic cable shall include, where necessary, penetrating the exterior masonry wall of a building at the segment endpoint in a manner compliant with the building code of the Town in which work is performed, and inserting said cable.

Penetration is defined as drilling or boring to gain access into the building, and it shall include installing sleeves and sealing for weatherproofing and traffic control protection as per local building and traffic control codes.

3.2.7 Interior Installation

Interior installation and routing of the fiber optic cable shall include all internal wall penetrations and sleeves (e.g., internal conduits and leaders). Plenum-grade inner-duct shall be used from the exterior wall penetration up to the specified communications room (distribution frame) within the building at the segment endpoint. Note: Unless otherwise specified, 50 feet of fiber optic cable shall be stored in the communications room for future repairs and modifications. This excess of fiber optic cable shall be rolled into a 36-inch-diameter coil and tie-wrapped, and then secured to the nearest wall by means of a removable strap such as a tie-wrap.

3.2.8 Termination and Splicing of Fiber Strands

The selected contractor shall perform all terminating of the fiber strands at the interior location of the networking end-equipment (i.e., distribution frame) within each segment-endpoint building. At a given site each fiber strand that actually serves networking end-equipment in that building shall be fusion-spliced to a factory-prepared SC SMF connector pigtail. SC Connectors are to meet or be less than .5dB loss. Those fiber strands that are not SC terminated shall simply remain unconnected (i.e., “unterminated”) or be spliced to other strands based on the strand layout drawings in Appendix A. All splices are to be fusion type and should meet or be less than .1 dB loss.

3.2.9 Readiness of Utility Poles and Conduits for Cable Attachment

It shall be the responsibility of the selected installation contractor to coordinate the deployment of his installation services personnel in conjunction with the utility companies’ performance of any “make-ready” work upon which the aforesaid installation contractor is relying.

3.2.10 Testing of the Installed Cable Plant

3.2.10.1 The installation contractor shall conduct appropriate testing of the installed cable plant to assure the continuity of all fibers and their viability as conductors of optical signals and to demonstrate performance of the fiber optic cable to manufacturer's specification. The installation contractor shall:

- perform standard bi-directional, dual-wavelength Optical Time Domain Reflectometry (OTDR) testing on all SC-terminated fiber strands;
- perform dual-wavelength OTDR testing on the unterminated fiber strands; and
- perform dual-wavelength OTDR testing on the spliced-and-passed-through fiber strands end-to-end (i.e., across multiple segments).

3.2.10.2 Segment length and end-to-end attenuation must be measured. Losses shall be no greater than:

- .35 dB per kilometer at 1310 contributed by the cable itself
- .25 dB per kilometer at 1550 contributed by the cable itself
- 0.1 dB for each fusion splice
- 0.5 dB per connector pair
- Results should be within 10% of the fiber budget specified in the table at 4.3.7 of this document.

3.2.10.3 The installation contractor shall provide an electronic report on all test results.

3.2.10.4 All fiber discontinuities and damage shall be repaired by the contractor via fusion splicing (and weatherproof containment of outdoor splices), at no additional expense to CRCOG. While broken fibers are not expected in a professionally executed cable-plant installation, reasonableness dictates that at most one broken-and-repaired fiber shall be tolerated per segment. The results of all tests shall be conveyed, in printed or electronic format for approval and acceptance.

3.2.11 Description of Fiber Optic Strands

3.2.11.1 The fiber optic cable for this project will be exclusively single mode fiber cable. Note that the cable specified is an enhanced fiber cable with lower attenuation specifications and houses six strands per buffer tube. The cable shall meet or exceed the following requirements.

3.2.11.2 A germania-doped silica core surrounded by a concentric silica glass cladding shall comprise each optical fiber. The fiber shall be a matched clad design manufactured by the outside vapor deposition process (OVD). Each optical fiber refractive index profile shall be step indexed.

3.2.11.3 Each fiber shall be proof tested by the fiber manufacturer at a minimum of 100 kpsi (0.7 GN/m²). The fiber shall be coated with a dual acrylate protective coating and the coating shall be in physical contact with the cladding surface. The single-mode fiber shall meet EIA/TIA-492CAAB, "Detail Specification for Class IVa Dispersion-Unshifted Single-

Mode Optical Fibers with Low Water Peak,” and ITU-T G.652.C, “Characteristics of Single-Mode Optical Fiber Cable.” Fiber shall have a mode field diameter of $9.20 \pm 0.40 \mu\text{m}$ at 1310 nm and $10.40 \pm 0.50 \mu\text{m}$ at 1550 nm. Fiber core-clad concentricity shall be $\leq 0.5 \mu\text{m}$. Fiber cladding diameter shall be $125.0 \pm 0.7 \mu\text{m}$. Fiber cladding non-circularity shall be $\leq 0.7\%$. Fiber coating diameter shall be $245 \pm 5 \mu\text{m}$.

3.2.11.4 The attenuation specification shall be a maximum value for each cabled fiber at $23 \pm 5^\circ\text{C}$ on the original shipping reel. The cabled fiber attenuation for Loose Tube and Ribbon cable constructions shall be $< 0.35 \text{ dB/km}$ at 1310 nm and $< 0.25 \text{ dB/km}$ at 1550 nm. For Tight Buffered constructions the cabled fiber attenuation shall be $\leq 0.65 \text{ dB/km}$ at 1310 nm and $\leq 0.5 \text{ dB/km}$ at 1550 nm. The attenuation at the water peak (1383 nm) shall not exceed the 1310 nm attenuation value. The cabled fiber shall be capable of operating in the 1360 nm to 1480 nm water peak region.

3.2.11.5 The attenuation due to 100 turns of fiber around a $50 \pm 2 \text{ mm}$ diameter mandrel shall not exceed 0.05 dB at 1310 nm and 0.05 dB at 1550 nm. The attenuation due to 100 turns of fiber around a $60 \pm 2 \text{ mm}$ diameter mandrel shall not exceed 0.05 dB at 1625 nm. There shall be no point discontinuities greater than 0.05 dB at 1310 nm and 1550 nm. The maximum dispersion shall be $\leq 3.5 \text{ ps}/(\text{nm}\cdot\text{km})$ from 1285 nm to 1330 nm and shall be $\leq 18 \text{ ps}/(\text{nm}\cdot\text{km})$ at 1550 nm. The cabled fiber shall support Gigabit Ethernet (GbE) operation according to the 1000BASE-LX (1310 nm) specifications up to 5000 m in accordance with the GbE standard. The cabled fiber shall support laser-based 10 Gigabit Ethernet (10GbE) operation according to the 10GBASE-LX4 (1300 nm region), 10GBASE-L (1310 nm) and 10GBASE-E (1550 nm) specifications for distances of 11.2 km, 10 km and 40 km, respectively.

3.2.11.6 The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications.

3.2.12 Description of Fiber Cable

3.2.12.1 Cable shall be all-dielectric, stranded loose-tube design with dry waterblocking for outdoor duct and aerial installations in fiber counts from two to 288. Each fiber shall be distinguishable by means of color coding in accordance with TIA/EIA-598-B, "Optical Fiber Cable Color Coding." The fibers shall be colored with ultraviolet (UV) curable inks. Buffer tubes shall be made from polypropylene. Each buffer tube shall contain a water swellable yarn or water blocking element for water blocking protection. The water-swellable yarn or water blocking element shall be non-nutritive to fungus, electrically non-conductive, and homogeneous. It shall also be free from dirt or foreign matter. This yarn or water blocking element will preclude the need for other water blocking material; the buffer tube shall be gel free. The optical fibers shall not require cleaning before placement into a splice tray or fan out kit. The buffer tube shall be manufactured to a nominal diameter of 2.5mm or 3.0 mm, regardless of fiber count, to reduce the number of required installation and termination tools.

- 3.2.12.2 Buffer tubes containing fibers shall be color coded with distinct and recognizable colors in accordance with TIA/EIA-598-B. Buffer tube colored stripes shall be inlaid in the tube by means of co extrusion when required. The nominal stripe width shall be 1 mm. Buffer tubes in a hybrid cable (cable containing more than one type of fiber) shall contain only one fiber type. Identification of fiber types in a hybrid cable shall correspond to fiber core diameter (or mode field diameter) from smallest to largest in accordance with TIA/EIA-598-B. Buffer tubes shall be stranded around the dielectric central member using the reverse oscillation stranding process. Two polyester yarn binders shall be applied contra helically with sufficient tension to secure each buffer tube layer to the dielectric central member without crushing the buffer tubes. The binders shall be non hygroscopic, non wicking, and dielectric with low shrinkage. Water swellable yarn(s) shall be applied longitudinally along the central member during stranding. For dual-layer cables, a second (outer) layer of buffer tubes shall be stranded over the original core to form a two-layer core. A water swellable tape shall be applied longitudinally over both the inner and outer layer. The water-swellable tape shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter. Cable shall be comprised of water-swellable yarns and/or tapes, dielectric strength members (as required), ripcord(s) and an MDPE jacket containing carbon black to provide ultraviolet light protection while inhibiting the growth of fungus.
- 3.2.12.3 Cable jacket shall be marked with the manufacturer's name, month and year of manufacture, sequential meter or foot markings, a telecommunication handset symbol as required by Section 350G of the National Electrical Safety Code® (NESC®), fiber count, and fiber type. The actual length of the cable shall be within -0/+1% of the length markings. The print color shall be white, with the exception that cable jackets containing one or more coextruded white stripes, which shall be printed in light blue. The height of the marking shall be approximately 2.5 mm. Cable shall contain reverse oscillation lay (ROL) markings as needed. Cable shall have a storage temperature range of -40° to 70°C, an installation temperature range of -30° to 70°C, and an operating temperature range of -40° to 70°C. Cable shall have a short-term tensile rating of 2700 N. No fiber strain shall occur over the service life of the cable when subjected to a maximum, long-term tensile rating of 890 N.
- 3.2.12.4 Cable shall meet the functional requirements of Rural Utilities Service (RUS) 7 CFR 1755.900 and be fully compliant with ICEA S-87-640. Manufacturer shall be ISO 9001 and TL 9000 registered. Cable manufacturer shall have a minimum of 20 years in manufacturing optical fiber cable in order to demonstrate reliable field performance. Cable shall be Corning Cable Systems part number 048EU4-64100D20 or equivalent. Note that this an enhanced fiber cable with 6 strands per tube.

3.2.13 Description of Pole Mount Hardware and Messenger

- 3.2.13.1 Pole mount hardware must be approved for use on the selected Fiber Optic Aerial cable. All attachment hardware and messaging materials shall meet NESC Grade "B" requirements. All hardware must meet Bellcore, NESC, and BICSI standards and recommendations. All metal components must be appropriately treated for corrosion resistance such as hot dipped galvanizing.

3.2.13.2 Messenger cable must be able to support up to 4 fiber optic cables with strand counts of 144 strands each at every location.

3.2.14 Description of Aerial Storage Devices

Set of 2 “snowshoes” and associated mounting h/w for aerial storage of 300 feet of Fiber Cable that meets or exceeds NESC Grade “B” requirements.

3.2.15 Description of Fiber Cable Termination/Splice Housings

3.2.15.1 Rack Mount Housings shall be mountable in an EIA-310 compatible 465- or 592 mm rack. Housings shall be available in both 1U, 2U and 4U sizes. One EIA rack space or panel height (denoted as 1U) is defined as being 44.45 mm in height. The unit shall meet all applicable design requirements listed in ANSI/TIA/EIA-568, ANSI/TIA/EIA-942, and the polymer compounds flammability requirements of UL 94 V-0. Manufacturer shall be ISO 9001 and TL 9000 registered. Housings shall be manufactured using 16-gauge aluminum or equivalent for structural integrity. All joints shall be welded and finished in a workman-like manner. Installation fasteners shall be included and shall match the housing color. The unit shall include a clamshell-type cable clamping mechanism to provide cable strain-relief.

The front and rear doors shall be lockable when used with an optional key lock kit. The Connector Housings shall have a labeling scheme that complies with ANSI/TIA/EIA-606. The housings shall be available with factory-installed connectorized cable stubs in multiple cable and connector types. The housing shall have the ability to accommodate fusion splicing with additional hardware. The housing shall be 16 inches deep for extra cable routing.

The 1U housing shall be Corning Cable Systems part number PCH-01U or equivalent, and shall have a removable top lid for easier access. For the 1U housing, the housing shall be Corning Cable Systems part number PCH-01U. The splice tray holder required for pigtail splicing is PC1-SPLC-04R and shall hold (4) Type 2R or (2) Type 4R splice trays.

The 2U housing shall be Corning Cable Systems part number PCH-02U or equivalent, and shall have integrated jumper routing guides. The splice tray holder required for pigtail splicing is PC2-SPLC-6SR and shall hold (6) Type 2S and (3) Type 4S splice trays.

The 4U housing shall be Corning Cable Systems part number PCH-04U or equivalent, and shall have integrated jumper routing guides. The splice tray holder required for pigtail splicing is PC4-SPLC-12SR and shall hold (12) Type 2S and (6) Type 4S splice trays.

3.2.15.2 Wall-Mountable Connector Housings shall be available for cross-connecting or interconnecting purposes. The units shall provide for direct connectorization or pigtail splicing. The Wall-Mountable Connector Housing shall be available in 2-, 4-, 6-, and 12-connector panel versions to provide for varying fiber counts.

The unit shall meet the design requirements of ANSI/TIA/EIA-568 and the polymer compounds flammability requirements of UL 94 V-0. Manufacturer shall be ISO 9001 and TL 9000 registered. Housings shall be manufactured using 16-gauge aluminum or equivalent for structural integrity and shall be finished with a powder coat for durability.

The 2P Connector Housing shall have metal doors. The 4P through 12P housings shall have a tinted polycarbonate jumper door(s) and a metal main door covering the splice/cable strain-relief area. The Connector Housings shall have a labeling scheme that complies with ANSI/TIA/EIA-606. The connector housings shall be available with factory-installed connectorized cable stubs in multiple cable and connector types. Brackets shall be available that allow rack mounting of the Wall-Mount Housings. An optional offset bracket kit shall be available that allows mounting the housing away from the wall to give space for cable routing behind the unit.

Wall-Mountable Connector Housing (WCH) shall be Corning Cable Systems part number WCH-02P, WCH-04P, WCH-06P, or WCH-12P or equivalent for 2-, 4-, 6-, or 12-panel versions respectively.

If the product to be supplied is other than the Corning product listed a sample product must be submitted for approval before installation.

3.2.16 Splice Bracket for Fiber Optic Housing

Splice Bracket equivalent to Corning PC4-SPLC-12SR. (one per splice Tray) for rack mount applications or WCH-SSH-4-12 for wall-mount applications.

3.2.17 Splice Tray for Fiber Optic Housing

Splice Tray equivalent to Corning M67-048. (one per 12 strand Loose Tube)

3.2.18 Description of Fiber Connector Panel

Fiber Optic Twelve Port Panel with six Duplex SC connectors and pigtails, equivalent to Corning CCH-CP12-59-P03RH. (one per splice Tray)

3.2.19 Description of Outside Plant Closures

3.2.19.1 The SCF splice closures shall be available in canister (butt) and in-line styles to fit most applications. All end-caps feature two express ports for uncut feeder cables. Mechanical Seal drop ports allow for rapid and easy installation during initial build or future expansions.

3.2.19.2 The Splice Closure Housing shall be non-metallic. It shall be resistant to solvents, stress cracking and creep. The housing materials shall also be compatible with chemicals and other materials to which they might be exposed in normal applications. The optical fiber closure shall be capable of accepting any optical fiber cable commonly used in interoffice, outside plant and building entrance facilities. As an option, the ability to double the cable capacity of an installed canister splice closure by use of a kit shall be available. Such a conversion shall not disturb existing cables or splices.

3.2.19.3 Encapsulation shall not be required to resist water penetration. The splice closure shall be re-enterable. The closure end-cap shall be capable of accepting additional cables without removal of the sheath retention or strength-member-clamping hardware on previously installed cables or disturbing existing splices. The optical fiber splice closure shall provide

a clamping mechanism to prevent pistoning of the central member or strength members and to prevent cable sheath slip or pullout. The splice closure shall have appropriate hardware and installation procedures to facilitate the bonding and grounding of metal components in the closure and the armored cable sheath. The cable bonding hardware shall be able to accommodate a copper conductor equal to or larger than 6 AWG.

3.2.19.4 Aerial splice closures shall have available the necessary hardware to attach and secure the closure to an aerial strand. The closure shall accommodate splice trays suitable for single-fiber, single fiber heat-shrink, mechanical or ribbon heat-shrink splices. The small splice closure shall accommodate up to 72 single-fiber splices or 144 ribbon fiber splices using 12-fiber ribbons. The medium-sized closure shall accommodate up to 288 single-fiber splices or 432 ribbon-fiber splices. The large closure shall accommodate up to 480 single-fiber splices or 864 ribbon-fiber splices. The installation of the splice closure shall not require specialized tools or equipment, other than those normally carried by installation crews.

3.2.20 Description of Outdoor Inner-duct

Inner-duct, exterior-grade, 1.25" I.D. Length in feet.

3.2.21 Description of Indoor Inner-duct

Inner-duct, interior-grade, plenum-rated, 1.25" I.D. Length in feet

3.2.22 Description of Risers

PVC riser, 4" ID

3.2.23 Description of Cable Ties

Nylon cable ties for use with Aerial Storage Device, 11.5" length, 50-lb strength, binds up to 3" bundle, weather- and UV-resistant, equiv. to Panduit P/N PLT3S-C0. Use 200 ties per 300' of stored cable.

3.2.24 Maintenance and Protection of Traffic

3.2.24.1 **Description:** Unless other provisions are made on the plans or in the Special Conditions, the Contractor shall keep the roadway open to traffic for the full length of the project and shall provide a sufficient number of travel lanes and pedestrian pathways to move that traffic ordinarily using the roadway. The travel lanes and pedestrian pathways shall be drained and kept reasonably smooth and in suitable condition at all times in order to provide minimum interference with traffic and consistent with proper execution of the work.

Suitable ingress and egress shall be provided at all times where required for all intersecting roads and for all abutting properties have legal access.

3.2.24.2 **Construction Methods:** When a scheme for maintenance of traffic that may include detours is shown on the plans or approved by the Legal Traffic Authority, this shall govern unless an alternate scheme acceptable to the municipality (in this case, Hartford) is offered by the Contractor at no additional cost. If no scheme is shown on the plans or described in the Special Conditions of the Contract and the Contractor wishes to deviate from the

provisions of maintaining traffic as described in this Section, the Contractor must submit, and the municipality may approve, a schedule showing a proposed sequence of operations and a compatible method of maintaining traffic.

3.2.24.3 Traffic Signs and Barricades: The Contractor will furnish signs, barricades, traffic cones, and traffic delineators to forewarn traffic of the construction. The Contractor will also provide such safety measures, pavement markings, warning devices, and signs as deemed necessary to safeguard and guide the traveling public through detours ordered by the municipality or included in the approved scheme for maintenance of traffic. Signs and barricades will be delivered adjacent to the project and traffic cones and delineators will be provided when required, at no cost to CRCOG. The Contractor shall erect, maintain, move, adjust, relocate and store these signs, barricades, traffic cones, and delineators when, where, and in accordance with the “Manual on Uniform Traffic Control Devices”, or as directed by the municipality.

The use of unauthorized or unapproved signs, barricades, traffic cones, or traffic delineators will not be permitted.

The Contractor shall keep all signs in proper position and clean and legible at all times. Care shall be taken so that weeds, shrubbery, construction materials or equipment, and soil are not allowed to obscure any sign, light, or barricade. Signs that do not apply to existing conditions shall be removed or adjusted so that the legend is not visible to approaching traffic.

3.2.24.4 Basis of Payment: Maintenance and Protection of Traffic will be paid for at the Contract Lump Sum price for “Maintenance and Protection of Traffic”. This price shall include all costs for labor, equipment, and services involved in the erection, maintenance, moving, adjusting, relocating and storing of signs, barricades, traffic cones, and traffic delineators furnished by the Contractor, as well as all cost of labor and equipment involved in the maintenance of traffic lanes and detours ordered or included in the approved scheme for maintenance of traffic.

NOTE: The municipality’s LEGAL TRAFFIC AUTHORITY, shall be the sole and final authority for the Maintenance and Protection of Traffic.

3.2.25 Traffic Person

3.2.25.1 General: This item shall conform to Section 9.70 TRAFFICPERSON, of the Form 816. (Appendix C)

3.3 Managed Fiber Option

3.3.1 Speed

Please specify the speed. CRCOG is requesting a standard of 1 Gbps full duplex and options for 100Mbps

3.3.2 Service Level Agreement (SLA)

3.3.2.1 Specify the performance and uptime guarantee

3.3.2.2 Specify the remedy should the SLA not be met.

3.3.2.3 Specify any maintenance window or planned downtime information

3.3.2.4 Specify the response time and repair time if an outage occurs. Guarantees and other estimates

3.3.2.5 Specify a QOS option cost, if applicable that addresses latency and packet loss

3.3.3 Other

3.3.3.1 Specify equipment installed on premises and the handoff types offered

3.3.3.2 Specify any monitoring service that is included

3.3.3.3 Specify the approach and time schedule in which the work shall be completed

4 Preparing a Response

By submitting a response, respondents represent that they have thoroughly examined and become familiar with the scope of services outlined in this RFP and are capable of performing the work to achieve the objectives.

4.1 PRE-PROPOSAL CONFERENCE

A voluntary pre-proposal conference will be held on May 14, 2014 at 2 p.m. E.T. at CRCOG's offices at 241 Main St., 4th Floor, Hartford, CT. <http://www.crcog.org/about/directions.html>

4.2 CRITICAL DATES

Pre-proposal conference: May 14, 2014 at 2 p.m. E.T.

Questions Deadline: May 27, 2014 at 11:00 a.m. E.T.

Proposal Deadline: June 3, 2014 at 11:00 a.m. E.T.

4.3 COMPLETENESS AND FORMAT OF PROPOSAL

Respondents are asked to organize their responses in the order requested, in accordance with the following format:

1. **Letter of Introduction.** Provide a letter of introduction with a brief description of your firm, experience in the industry, number of years providing fiber optic cabling and network infrastructure services. Include company name, address, contact name, title, phone number, fax number, email and website address.
2. **Current Users and References.** Include a description of three (3) projects completed by the bidding company with references to demonstrate successful experience with similar projects.
3. **Qualifications:** Any bidder, in order to be considered, shall be engaged primarily in the business of Fiber Optic Cabling with a minimum of five (5) years' experience and have a valid contractor's license in the State of Connecticut. Please indicate whether you are a state certified SBE or MBE.
4. **Product Description.** Provide a detailed description of each of the products/services your company offers that could support the scope of work provided in this RFP, along with related marketing materials. Please specify service levels for maintenance. If there are multiple service levels based on pricing, please identify and list separately in 6. Estimated Costs.
5. **Implementation Details.** Provide an outline of your implementation approach and timetable.
6. **Estimated Costs.** Furnish all inclusive total costs for services specified including personnel costs, materials, and any other requirements as may be required to furnish the work. Please furnish two options: leased vs. owned. CRCOG's specific project can be used as an example.

- a. Option 1: Members will own the installed network once it is installed. Maintenance pricing should be included as an option.
- b. Option 2: Members will lease the installed network for a 48 month period. Include maintenance costs (Managed Fiber Option).

7. **Response Page.** See ATTACHMENT A.

8. **Signed Non-Collusion Statement.** See ATTACHMENT B.

Sealed responses must be received no later than **11:00 a.m. on Tuesday, June 3, 2014.** Responses should be delivered to the Capitol Region Council of Governments, located at 241 Main Street, 4th Floor, Hartford, CT 06106. **Any responses received after this date and time will not be considered.**

All submissions should be clearly marked "*Network Infrastructure Services RFP.*" **You must include three (3) copies of your proposal along with the original.** CRCOG will only accept submittals for all parts of the project. No partial submittals will be accepted.

5 TERMS AND CONDITIONS

Questions

General questions should be directed to Pauline Yoder, Special Projects, at the:
Capitol Region Council of Governments
241 Main Street, 4th Floor
Hartford, CT 06106
Fax: (860) 724-1274
E-mail address: pyoder@crcog.org

However, **no oral interpretations shall be made to** any respondent as to the meaning of any of the documents. Every request for an interpretation shall be made in writing, addressed and forwarded either to the address above, **faxed to (860) 724-1274 or emailed to pyoder@crcog.org.** To receive consideration, such questions must be received at least seven (7) calendar days before the established date for receipt of responses.

CRCOG staff will arrange as addenda, which shall be made a part of this Request for Proposal and any resulting contracts, all questions received as above provided and the decisions regarding each. At least three (3) days prior to the receipt of bids, CRCOG staff will post a copy of any addenda to CRCOG's website, located at <http://www.crcog.org/about/rfqs.html>. **It shall be the responsibility of each respondent to determine whether any addenda have been issued and if so, to download copies directly from the agency's website.**

5.1 Freedom of Information

Respondents are advised that any and all materials submitted in response to this RFP shall become the sole property of the Capitol Region Council of Governments and shall be subject to the provisions of Section 1-210 of the Connecticut General Statutes (re: Freedom of Information).

5.2 Incurred Costs

This request for proposals does not commit the Capitol Region Council of Governments to award a contract or to pay any costs incurred in the preparation of a response to this request. The Capitol Region Council of Governments will not be liable in any way for any costs incurred by respondents in replying to this RFP.

5.3 Severability

If any terms or provisions of this Request for Proposal shall be found to be illegal or unenforceable, then such term or provision shall be deemed stricken and the remaining portions of this document shall remain in full force and effect.

5.4 Oral Presentation

Respondents who submit a proposal in response to this RFP may be required to give an oral presentation of their proposal to the Capitol Region Council of Governments. This provides an opportunity for the respondent to clarify or elaborate on the proposal. These are fact-finding and explanation sessions only and do not include negotiation. The Capitol Region Council of Governments will schedule the time and location of these presentations. Oral presentations are an option of the Capitol Region Council of Governments and may or may not be conducted.

5.5 Subcontracting

The successful respondent may utilize the services of specialty subcontractors on those portions of the work that under normal contracting practices are performed by specialty subcontractors. The successful respondent shall not award any portion of the work to a subcontractor without **prior written approval** of the Capitol Region Council of Governments. The acceptance of any and all subcontractors shall reside with the Capitol Region Council of Governments, and the Capitol Region Council of Governments decision shall be final. The successful respondent shall be fully responsible to the Capitol Region Council of Governments for the performance, finished products, acts, and omissions of his subcontractors and persons directly or indirectly employed thereby.

5.6 Assigning/Transferring of Agreement

Any successful firm is prohibited from assigning, transferring, conveying, subletting or otherwise disposing of the resulting agreement or its rights, title, or interest therein or its power to execute such an agreement to any other person, company or corporation without prior consent and approval in writing from the Capitol Region Council of Governments.

5.7 Acceptance or Rejection by the Capitol Region Council of Governments

CRCOG reserves the right to accept and or reject any or all responses submitted for consideration or to negotiate separately in any manner necessary to serve the best interests of the CRCOG. Respondents whose responses are not accepted shall be notified in writing.

5.8 Amending or Canceling Request

CRCOG reserves the right to amend or cancel this RFP, prior to the due date and time, if it is deemed to be in its best interest to do so.

5.9 Waiver of Informalities

The Capitol Region Council of Governments reserves the right to accept or reject any and all responses to this Request for Proposal, or any part thereof, and to waive any informalities and/or technicalities that are deemed to be in its best interest.

5.10 Collusion

By responding, the firm implicitly states: that his/her proposal has not been made in connection with any other competing firm submitting a separate response to this RFP; is in all respects fair; and has been submitted without collusion or fraud. It is further implied that the firm did not participate in the RFP development process, had no knowledge of the specific contents of the RFP before its issuance, and that no employee of CRCOG either directly or indirectly assisted in the vendor's proposal preparation.

5.11 Termination

CRCOG may terminate any contract(s) or any part of any contracts resulting from this process at any time for: cause, default or negligence on the part of the vendor; or if the vendor fails, in the opinion of the Member, to meet the general terms and conditions of any resulting contract or to provide a level of service that is deemed to be in the best interest of the Member.

5.12 Ethics

The conduct of any contracted vendor shall be subject to the CRCOG Ethics Policy (found online at: <http://www.crcog.org/about/rfqs.html>).

5.13 Affirmative Action

CRCOG and its members are equal opportunity employers and require an affirmative action policy from all contractors and vendors as a condition of doing business with the towns, as per Federal Order 11246. By signing the proposal sheet for this bid, all vendors and contractor agree to this condition of doing business with the towns and should the towns choose to audit their compliance, the vendor agrees to cooperate fully.

6 Evaluation and Award

Proposals shall be evaluated by the Capitol Region Council of Governments after the response deadline. All information will remain confidential until a contract award is made.

Selection shall be made of one respondent deemed to be fully qualified and best suited among those submitting proposals for the scope of services and in the response format requested this Request for Proposals. Negotiations shall be conducted with the respondent so selected. After negotiations have been conducted with the respondent so selected, the Capitol Region Council of Governments shall select the respondent which, in its opinion, has made the best proposal.

CRCOG shall determine in its sole discretion which respondent is fully qualified, or that one respondent is clearly more highly qualified than the others under consideration, and a contract may be negotiated and awarded to that respondent. The award document will be a contract incorporating by reference all the requirements, terms and conditions of the solicitation and the contractor's proposal as negotiated.

ATTACHMENT A

RESPONSE PAGE

**Capitol Region Council of
Governments
REQUEST FOR PROPOSALS**

**DATE ADVERTISED:
May 5, 2014**

**DATE / TIME DUE: June 3, 2013
By 11:00 a.m.**

NAME OF PROPOSAL

RFP for Network Infrastructure Services

Type or Print Name of Individual

Doing Business as (Trade Name)

Signature of Individual

Street Address

Title

City, State, Zip Code

Date

Telephone Number / Fax Number

E-mail Address/Website

SS # or TIN#

ATTACHMENT B

CAPITOL REGION COUNCIL OF GOVERNMENTS

NON-COLLUSION STATEMENT

The company responding to this Request for Proposal certifies that it is being submitted without any collusion, communication or agreement as to any matter relating to it with any other respondent or competitor. We understand that this response must be signed by an authorized agent of our company to constitute a valid response.

Date: _____

Name of Company: _____

Name and Title of Agent _____

By (SIGNATURE): _____

Address: _____

Telephone Number: _____

Connecticut Department of Transportation

Standard Specifications for

Roads, Bridges

And

Incidental Construction

SECTION 9.70

TRAFFICPERSON

9.70.01—Description: Under this item the Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, as the Engineer approves for the control and direction of vehicular traffic and pedestrians.

On a weekly basis, the Contractor shall inform the Engineer of their scheduled operations for the following week and the number of Trafficpersons requested. The Engineer shall review this schedule and approve the type and number of Trafficpersons required.

If the Contractor changes or cancels any scheduled operations without prior notice of same as required by the agency providing the Trafficpersons, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment at no cost to the Department of any show-up cost for any Trafficperson not used because of the change. Exceptions, as approved by the Engineer, may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons assigned to a work site are to only take direction from the Engineer.

Trafficpersons shall consist of the following types:

State Police Officers: State Police Officers shall be uniformed off-duty sworn Connecticut State Police Officers. Their services will also include the use of official State Police vehicles and associated equipment.

State Police Officers will be used on all limited access highways. State Police Officers will not be used on non limited access highways unless specifically authorized in writing by the Engineer. State Police Officers with official State Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites. On limited access highways, the Engineer may determine that State Police Trafficpersons will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments.

Uniformed Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties from the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle when requested by the Engineer. Uniformed Municipal Police Officers will be used on all non limited access highways. If Uniformed Municipal Police Officers are unavailable, other Trafficpersons may be used when authorized in writing by the Engineer.

Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.

Uniformed Flagger: Uniformed Flaggers shall be persons who have successfully completed flagger training by the ATSSA, National Safety Council or other programs approved by the Engineer. A copy of the Flagger's training certificate shall be provided to the Engineer before the Flagger performs any work on the project. Services of Uniformed Flaggers shall include the following equipment: garments (including high visibility headgear) so as to be readily distinguishable as a Flagger in accordance with Standard 6E-2 of the MUTCD, and these specifications, and a STOP/SLOW paddle that is at least 18 inches (450 millimeters) in width with letters at least 6 inches (150 millimeters) high, mounted on a handle of sufficient length so that the bottom of the sign will be 6 feet (1.8 meters) above the ground, and conforms to Standard 6E-3 of the MUTCD and catalog number 387-80-9950 of the Catalog of Signs CDOT.

Uniformed Flaggers will only be used on non limited access highways when authorized in writing by the Engineer. Uniformed Flaggers will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations.

General: Uniformed Law Enforcement Personnel being used as Trafficpersons may conduct motor vehicle enforcement operations in and around work areas as directed and approved by the Engineer.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the following:

Uniformed Law Enforcement Personnel shall wear the high visibility safety garment provided by their law enforcement agency. If no high visibility safety garment is provided, the Contractor shall provide the law enforcement personnel with a garment meeting the requirements stated below for the Uniformed Flaggers' garment.

Uniformed Flagger: The base material for the safety garment shall be a fluorescent color of orange, yellow, or strong yellow-green. The garment shall have vertical and horizontal stripe markings of contrasting color to the base material to enhance noticeability of the wearer. These markings shall be made of retroreflective or combination of retroreflective and non-retroreflective materials. The retroreflective material shall be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and shall have a minimum width of 5/8 inch (15 millimeters). A minimum area of 40 square inches (25800 square millimeters) of retroreflective material must be visible when the garment is viewed from either the front or back and a minimum area of 12 square inches (7740 square millimeters) of retroreflective material must be visible from any other normal observation angle. The safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches (50 millimeters)).

Worn/faded safety garments that are no longer highly visible shall not be used. The Engineer shall direct the replacement of any worn/faded garment at no additional cost to the State.

A Trafficperson shall assist in implementing the traffic control specified in the Maintenance and Protection of Traffic contained elsewhere in these specifications or as directed by the Engineer. Any situation requiring a Trafficperson to operate in a manner contrary to the Maintenance and Protection of Traffic specification shall be authorized in writing by the Engineer.

Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency, and Engineer to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project.

In the event of an unplanned, emergency, or short term operation, the Engineer may approve the use of properly clothed, non-certified Trafficpersons until such time as a certified Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

9.70.04—Method of Measurement: Only Trafficperson services approved by the Engineer will be measured for payment. Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services in accordance with these specifications. Services of Trafficpersons utilized by the Contractor for which the Engineer did not approve and deems not necessary for the proper completion of the project or at locations where traffic is unnecessarily restricted by the Contractor's method of operation, will not be measured for payment.

The minimum hours of payment for each Trafficperson supplied by a law enforcement agency or Trafficperson subcontractor in any one day shall be four hours. No Uniformed Trafficperson shall work more than twelve hours in any one day. In case such services are required for more than twelve hours, the Contractor may request additional Trafficpersons. In cases where the Trafficperson is an employee on the Contractor's payroll, payment for the Trafficperson will be made only for those hours when the Contractor's employee is performing Trafficperson duties.

Travel time charged by State Police Officers, up to one hour per day, will be measured for payment. No travel time will be allowed or paid for Uniformed Municipal Police Officers or Uniformed Flaggers.

Safety garments and STOP/SLOW paddles will not be measured for payment.

9.70.05—Basis of Payment: The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

"Trafficperson" will be paid for at the actual hourly rate charged for Trafficperson services (monthly statement or receipted bills) by the entity which actually provided the service which have been approved by the Engineer plus a 5% markup. In situations where the Uniformed Flagger is an employee on the Contractor's payroll, payment will be made in accordance with Article 1.09.04(a) of the Standard Specifications. Use of a Municipal police vehicle requested by the Engineer will be paid at the actual rate charged by the Municipality plus a 5% markup. The rate charged by the Municipality for use of a Uniformed Municipal Police Officer and/or an official Municipal Police vehicle shall not be greater than the rate it normally charges others for similar services.

There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles will be considered as being included in the general cost of the Contract.