

LEGAL NOTICE

TOWN OF VERNON, CT
REQUEST FOR PROPOSAL
[Contract #938-10/05/09](#)

Sealed Responses for specifications and costs for a Municipal Gain project consisting of two major components (optical fiber and GB switches) for the Town of Vernon will be received in the office of the Town Administrator, Vernon Town Hall (Memorial Building), 14 Park Place, Vernon, CT until 2:00 pm on October 5, 2009 at which time proposals will be opened and read aloud publicly. Late proposals will not be accepted.

Proposal forms and specifications may be obtained at the office of the Town Administrator from 9:00 AM to 4:30 PM, Monday through Wednesday, Thursday, 9:00 AM to 7:00 PM and Friday 9:00 AM until 1:00 PM.

The Optical Fiber RFP will also be posted on the Town's website: www.vernon-ct.gov and may be downloaded from there.

There will be a question and answer session, and a walk-thru of the fiber paths on September 28, 2009. The Q&A session will be conducted at 1:00pm and the fiber walk-thru and building points entry will be provided via video.

Five copies of the RFP response and any related materials must be received in the Town Administrator's office by 2:00 PM on Monday, October 5, 2009 Eastern Standard Time. The envelope should be clearly marked as "Response to Town of Vernon – Optical Fiber Project, RFP Contract "938-10/05/09" and submitted to: Mr. John D. Ward, Town Administrator.

Requests for clarification on the RFP must be in writing and may be submitted to John Ward by email at jward@vernon-ct.gov or fax at (860) 870-3580. No requests will be received after September 30th, 2009 at 2:00 P.M. Eastern Standard Time. All questions and answers will then be posted by October 1, 2009 on the Town's website.

**John D. Ward
Town Administrator**

Town of Vernon

Request For Proposal (RFP)

Two Optical Fiber Links

September 11, 2009

The Town of Vernon (“TOV”) is requesting proposals for two major Municipal Wide Area Network (MUNI-WAN) infrastructure components:

- (1) The first component consists of two optical fiber links. One will extend from the Annex Data Center (5 Park Street) to Rockville High School (70 Loveland Hill Road) and the second from the Annex Data Center (5 Park Street) to the Vernon Police Department (725 Hartford Turnpike). There will be two separate entry points into the Annex building which houses the TOV’s Primary Data center. These two optical fiber links are the first two legs of a long-term high-speed backbone configuration which will include two additional high-speed optical fiber links that will complete a bi-directional ring. In the future additional fiber will be ringed off four main hubs connecting all the Town, Public Safety and School buildings (see page 18).
- (2) The second component consists of high-speed 10 Gigabit Ethernet backbone switches in the three sites (Annex Data Center, Rockville H. S. and the Police Dept.) being connected by fiber. Because, in the future, additional fiber will be extended from these sites, the switches must have a sufficient number of spare GBICs ports to handle the additional fiber connections (see page 18).

NOTE: Vendors may bid on both the fiber and switching project components, just the fiber component or just the switching component.

GENERAL INFRASTRUCTURE INFORMATION:

Vernon currently has 12 strands of optical fiber connecting five of the key buildings in a star configuration from the Annex Data Center (5 Park Street) to:

- **Town Hall Building, 14 Park Place** (Mayor & Administrative Offices, Planning, Engineering, Town Clerk, Registrar of Voters, Probate Judge, Finance, Accounting and Personnel)
- **Board of Education, 30 Park Street** (Administrative Offices)
- **Building Department, 55 West Main Street** (Building, Fire Marshal and Code Enforcement)
- **Senior Center, 26 Park Place** (Senior Activities and Meeting Hall)
- **Annex Building, 5 Park Street** (Tax Collection, Assessment, Water Pollution and IT)

Vernon also has 21 additional remote sites connected via high-speed cable connections including police, fire, EMS, emergency management, sewer plant, public works and social services.

Finally, all the schools (8) are connected to Rockville H.S. via DSL lines.

CURRENT INFRASTRUCTURE:

CURRENT SWITCHES CONNECTING FIBER CAMPUS:

- **Annex Building** – Four 3Com switches - (All in the data center)

1. 3Com - 48 port – SuperStack – 5500G – 10/100/1000 Base TX
2. 3Com - 48 port – SuperStack – 5500G – 10/100/1000 Base TX
3. 3Com - 48 port – SuperStack – 5500G – 10/100/1000 Base TX
4. 3Com – 48 port - SuperStack – 5500 – 10/100 Base TX

- **Board of Education** – Three 3Com switches (One on each floor of BOE)

1. 3Com - 48 port – SuperStack – 5500 – 10/100 Base TX
2. 3Com - 24 port – SuperStack – 5500 – 10/100 Base TX
3. 3Com –24 port - SuperStack – 5500 – 10/100 Base TX

- **Town Hall Building** – Two 3Com switches

1. 3Com - 48 port – SuperStack – 5500 – 10/100 Base TX
2. 3Com - 48 port – SuperStack – 5500 – 10/100 Base TX

- **Building Department** – One 3Com switch

1. 3Com –24 port - SuperStack – 5500 – 10/100 Base TX

- **Senior Center** – One 3Com switch

1. 3Com –24 port - SuperStack – 5500 – 10/100 Base TX

NOTE: All switches are equipped with four transceiver slots based on the Gigabit Interface Converter (GBIC) Standard to support fiber channel. The specific 3Com GBIC models being used are the 3CSFP91 850nm and the 3CSFP92 1310nm.

These GBICs are the small form-factor pluggable (SFP) standards based compact, hot-pluggable transceivers that can be used for both telecommunication and data communications applications.

For the new fiber links being requested in this RFP, Vernon will require the new expanded SFP+ standard able to support data rates up to 10.0 Gbit/s since these links will be for town-wide backbone connections.

The GBIC standard is non-proprietary and is defined by the SFF Committee in document # SFF-8053i. The SFP transceiver is specified by a [multi-source agreement](#) (MSA) between competing manufacturers. The SFP was designed after the [GBIC](#) interface, and allows greater *port density* (number of transceivers per inch along the edge of a mother board) than the GBIC, which is why SFP is also known as **mini-GBIC**. The related [Small Form Factor](#) transceiver is similar in size to the SFP, but is soldered to the host board as a pin through-hole device, rather than plugged into an edge-card socket.

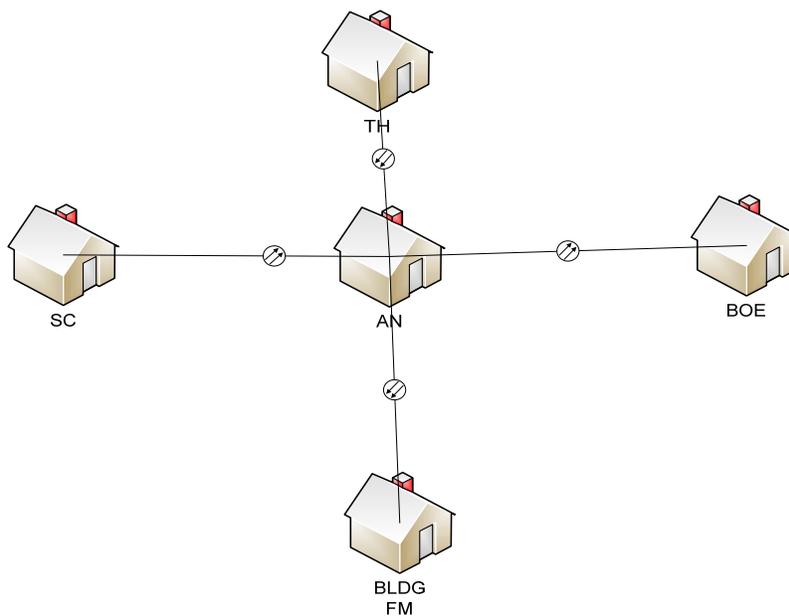
CURRENT OPTICAL FIBER:

The existing fiber consists of a campus of five buildings in downtown Rockville connected by several hybrid cables of multi & single mode optical fiber. The buildings, which make up the campus, are the BOE Adm. (BOE), Annex (AN), Town Hall (TH), Senior Center (SC) and the Building Dept. (BLDG).

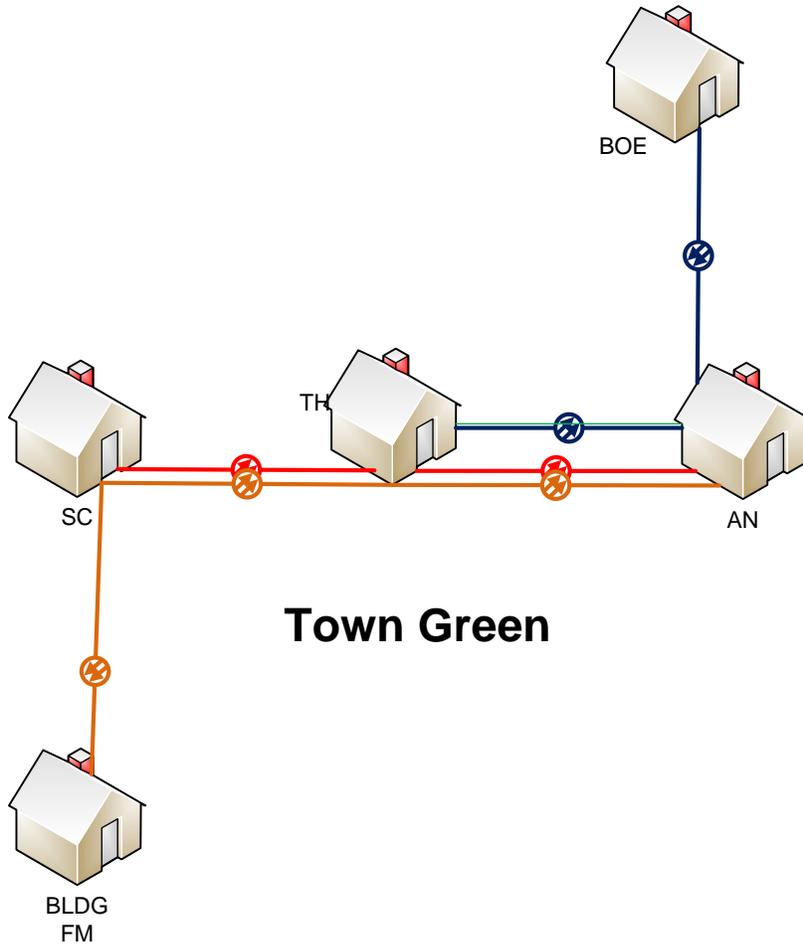
The Logical Topology, as depicted by the first diagram on this page, is in a STAR configuration which has the Annex (Data Center) as its hub.

The Physical Topology, as depicted by the second diagram on the next page, is a set of homeruns from the Annex to each of the four other buildings.

Current Logical “STAR” Infrastructure



Current Physical Infrastructure



VENDORS ARE REQUIRED TO ADDRESS EACH OF THE FOLLOWING SPECIFICATIONS IN THEIR PROPOSALS AND SPECIFICALLY STATE HOW THEY WILL SATISFY EACH AND EVERY COMPONENT OF THE MUNICIPAL GAIN FIBER RUNS AND/OR SWITCHING REQUIREMENTS AS DEFINED HEREIN:

FIBER SPECIFICATION SECTIONS:

- I. **FIBER PATHS:** – pages 7 – 9
 - II. **AERIAL CABLE ASSEMBLY REQUIREMENTS:** – page 10
 - III. **FIBER CABLE REQUIREMENTS:** – page 11
 - IV. **POLE ADMINISTRATION REQUIREMENTS:** - page 11
 - V. **FIBER CABLE COST PROPOSAL REQUIREMENTS:** – page 12
 - VI. **SWITCH REQUIREMENTS:** – page 15
 - VII. **NEXT STEPS:** - page 16
- ATTACHMENTS:** - pages 17 – 20 plus additional documents (B-3, C-1, C-2, C-3 & D)

FIBER SPECIFICATIONS:

I. FIBER PATHS:

The Town of Vernon will be using the **Municipal Gain** approach to the deployment of two major links of its 10 GB optical fiber backbone which will eventually connect the entire town including Police, Fire, EMS, BOE, Schools and all the Town Operations.

NOTE: In general, Municipal Gain refers to a position on each utility pole in the telecommunications area (approximately 16 inches) that each municipality in the State of Connecticut has the right to attach their communications cabling to for the exchange of an approved “right of way” for the utility (e.g. CL&P, SNET, SBC etc.) to put up a pole(s) on municipal land.

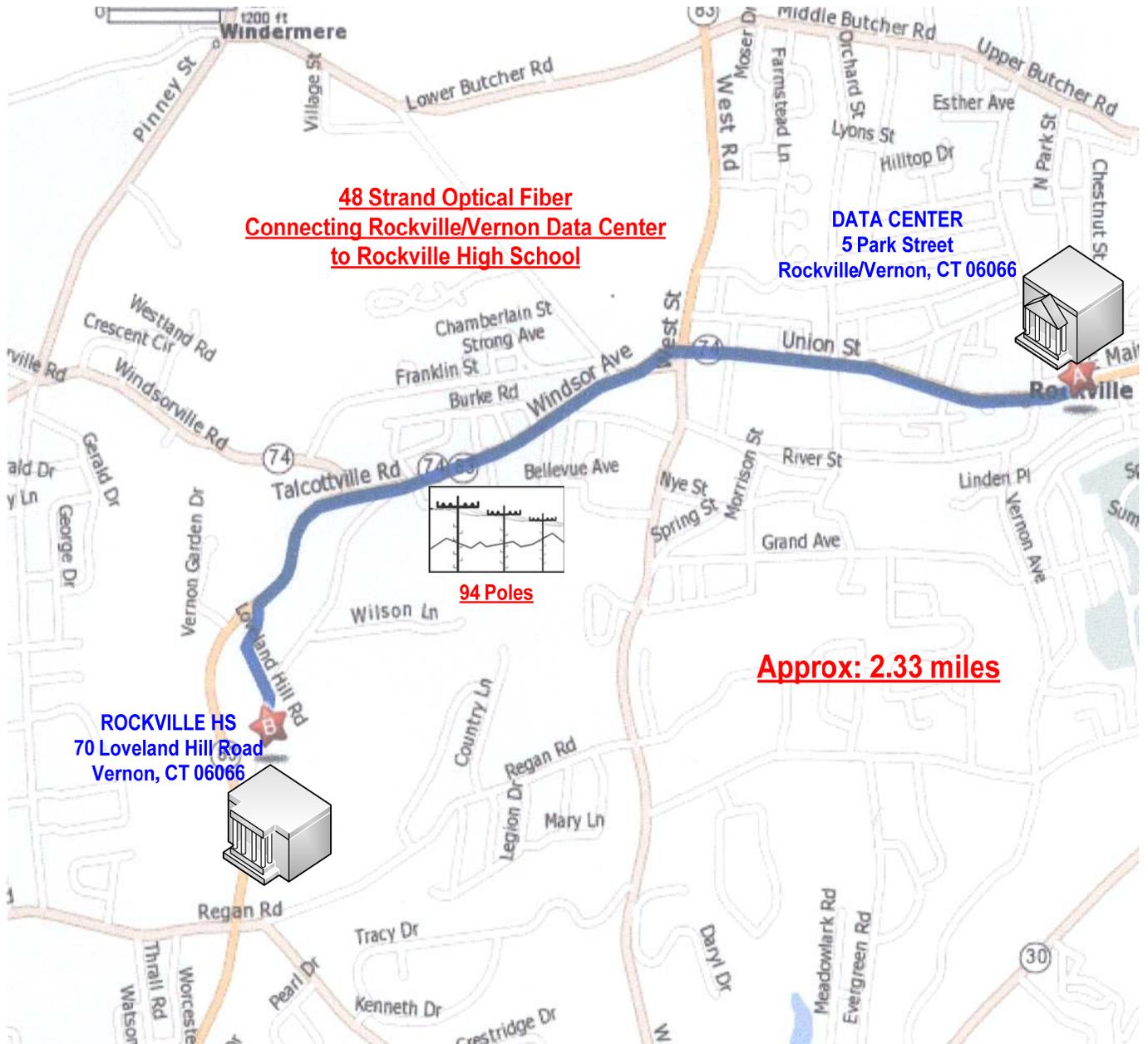
The first two links of the long-term plan, which are included in this RFP, will connect the Annex (Data Center) to Rockville High School (RHS) and the Annex to the Police Department.

As per the diagram on page 8, the path of the optical fiber from the Annex (5 Park St) to Rockville High School (70 Loveland Hill Rd) is approximately 2.33 miles of 48 strand optical fiber cable. The building entry point in the Annex is underground via an existing conduit. The building entry point in Rockville High School is also underground via an existing conduit.

As per the diagram on page 9, the path of the optical fiber from the Annex (5 Park St) to the Vernon Police Department (725 Hartford Turnpike) is approximately 2.92 miles of 48 strand optical fiber cable. The building entry point in the Annex is above ground via an existing utility pole next to the Annex. The building entry point in the Police Department is underground via an existing conduit.

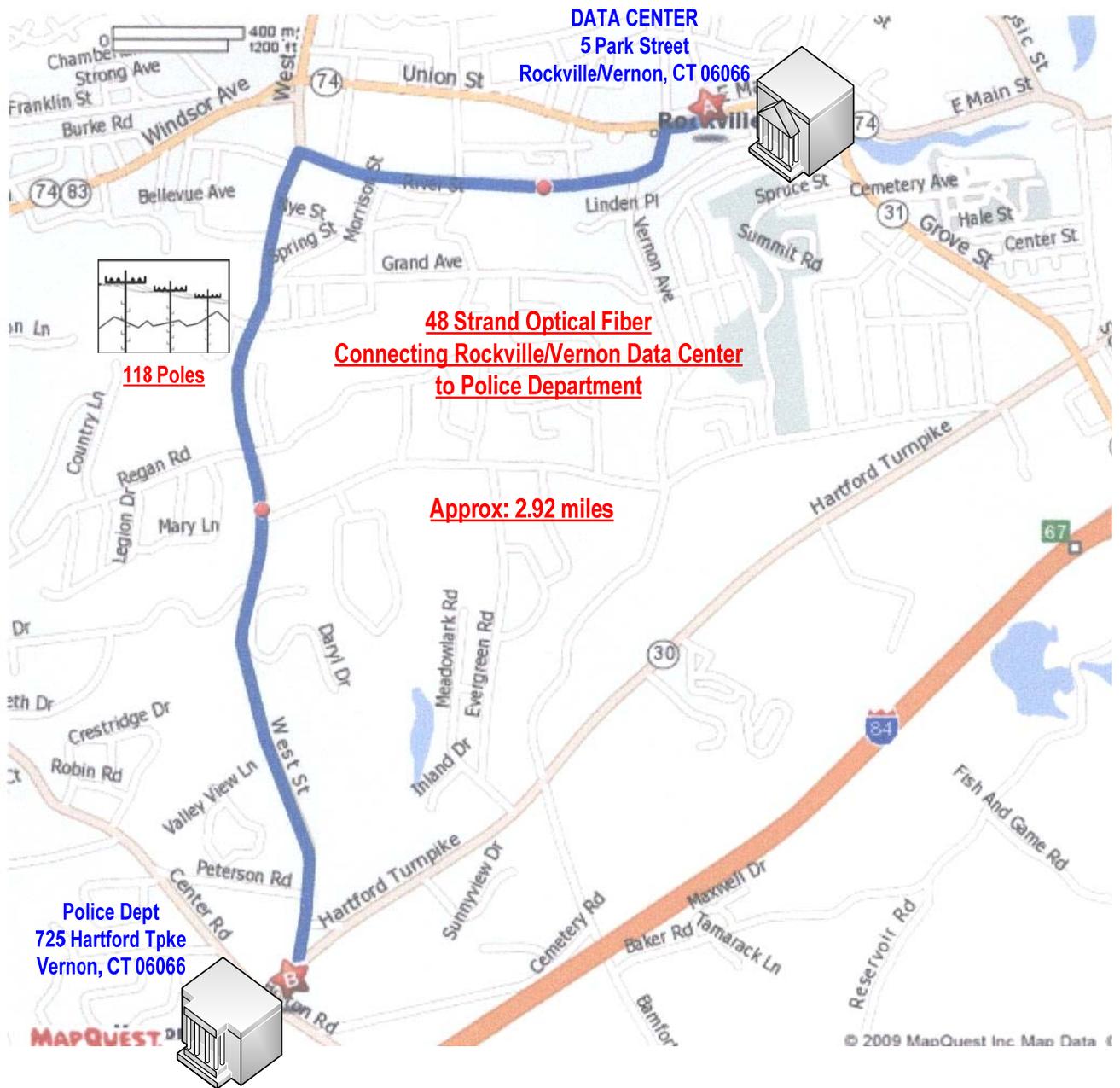
I-A. FIBER PATH FROM THE DATA CENTER (ANNEX) TO ROCKVILLE HIGH SCHOOL

(48 strand single-mode fiber over approximately 2.33 miles and 94 utility poles)



I-B. FIBER PATH FROM THE DATA CENTER (ANNEX) TO POLICE DEPARTMENT

(48 strand single-mode fiber over approximately 2.92 miles and 118 utility poles)





II. AERIAL CABLE ASSEMBLY REQUIREMENTS:

While Vernon will consider proposals with various types of basic aerial cable assemblies, **durability** and **cost** will be primary evaluation factors. The following are acceptable forms of aerial cable assemblies:

Figure-Eight messenger cables for use with standard messenger clamping and support hardware. The messenger member may be galvanized steel or dielectric. The galvanized steel messenger should be a cost saving option for ultimate durability and survival. The dielectric strength member, which is a fiberglass/aramid/epoxy messenger for high strength, should be considered for use near electrical power lines and in areas of frequent lightning. The figure-eight configuration should reduce installation time and cost by approximately 50% compared to separate installation of a messenger wire and the lashing of the cable to the messenger. The diameters of strength members will be proposed by the vendor as appropriate for different maximum unsupported span distances and weather conditions.

Aerial distribution cable assemblies consisting of a round polyethylene jacketed cable with excellent UV and weather resistance. This cable should contain a high performance tight-buffer on the optical fibers for excellent environmental and mechanical protection and can be installed via conventional lashing techniques.

CST armored cable assemblies suitable for lashed aerial applications where corrugated steel tape (CST) protects the fiber optic cable from rodents and provides additional stiffness for aerial lashing. This should be a tight-buffered, water-blocked cable with a black polyethylene outer jacket.

OTHER aerial cable assemblies suitable for this application can be proposed, but durability and cost will still be the primary evaluation factors:

NOTE: Assemblies with these types of aerial cable assemblies are typically from 100 feet to over 2 km. They can be terminated in most connector types, including ST, SC, FC, LC, and MTRJ. The option of installing a pull-eye should also be available to protect the connectors and distribute the pulling stress during installation.

III. FIBER CABLE REQUIREMENTS:

Fiber configurations required:

Single Mode

Fiber counts required:

48 strands

Bonding required:

Vendors will be required to complete and guarantee all cable bonding work

IV. POLE ADMINISTRATION REQUIREMENTS:

The Town of Vernon is in the process of filing all the required forms to obtain a structure license between AT&T and the Town of Vernon for pole inspection and make ready determination.

- Preliminary Application and Fee has been filed:

P-1 Structure Access Request – Poles & Conduit

P-2-1 Pole Data Sheet (s) – 12 pages submitted

- Make ready Pole Engineering Fee is in the process of being submitted:

- Future Applications and Fees will be filed as required:

P- 3 Notification of Pole Surrender or Modification

PM – 1 Pole Maintenance Access Request

NOTE: The TOV expects each vendor to travel both of the fiber routes and requires each vendor to estimate the make ready costs including the pole number and location if an existing pole needs to be replaced and/or a new pole needs to be added.

AT&T Pole Administration contact information:

Pole Administrator: Eric Clark

Tel: 203-238-7407

Email: structureaccess@att.com

Ec9795@att.com

Web: <http://asac.connecticut.att.com/default.asp>

V. FIBER CABLE COST PROPOSAL REQUIREMENTS:

The following items are required to be included in each vendor's Cost Proposal:

1. Pole Preparation Charges – “Make Ready”
2. Hardware Materials Costs – clamps etc.
3. Messenger Costs
4. 48 Strand Optical Fiber Cable Costs
5. Lashing Costs
6. Splicing Costs
7. Closet Finish-out Copper
8. Closet Finish-out Electronics
9. Pole Loop Costs
10. Cable Pull Costs
11. Building Entrance Costs

Cost Proposal work sheets which automatically project fiber cabling costs have been provided and must be filled out by each vendor. Separate Cost Proposal work sheets have been included for each fiber path. These can be located under **ATTACHMENTS** on pages 19 (Annex Data Center to RHS) and 20 (Annex Data Center to Police Dept.).



Rockville High School
Entry Point

Entry Point

Conduit from last pole



VERNON POLICE
Entry Point

UNDERGROUND
ENTRANCE VIA CONDUIT

DATA CENTER



VI. SWITCH REQUIREMENTS:

Because the Town of Vernon has/will be deploying a variety of Fast Ethernet, Gigabit Ethernet and 10GbE switching devices in its networks, Vernon needs guaranteed interoperability of all the switches in order to maintain a functional network. Therefore, all the vendors bidding on the switching component of this project must be able to demonstrate broad interoperability between their switching devices and “all” other major switching vendors for advanced LAN and routing functions at Layer 2 and Layer 3.

- Must be capable of supporting 10 GbE speeds
- Must be capable of adding 10 GbE links in the future

- Must support Layer 2 Interoperability
 - 10/100/1000 Auto-Negotiation for Fast Ethernet and Gigabit Ethernet Interfaces
 - 802.1 P/Q VLAN Tag Propagation to maintain and recognize tags across vendors
 - Jumbo Frame Support to transmit 9k byte frames across all vendor switches
 - 10GbE LAN PHY to transmit data between multiple vendor 10GbE interfaces
 - Link Aggregation 802.3AD to trunk ports across multiple vendors
 - Rapid Spanning Tree Protocol (RSTP) to detect a tree failure & establish a new tree
 - Multiple Spanning Tree Protocol to selectively allow or block VLANs

- Must support Layer 3 Interoperability
 - RIP V2 Routing to exchange IPv4 routing information between switches
 - OSPF to exchange routing table information between switches via OSPF
 - VRRP to support Master and Backup configurations with other vendor’s switches
 - IP Multicasting – PIM Dense Mode to host & join IP multicast groups via PIM DM
 - IP Multicasting – PIM Sparse Mode – to update routing tables & deliver packets to the appropriate receivers via PIM SM

VII. NEXT STEPS:

- All proposals must be submitted no later than Monday October 5, 2009 @ 2:00PM.
- Submit proposals to: Town Administrator - TOV, 14 Park Place, Vernon, CT 06066.
- Proposals will be reviewed immediately.
- Answers to questions will be posted on the Town's web-site by October 1, 2009.
- Vendors whose proposal best meets the specifications will be notified.
- Vernon will perform due diligence & reference checks will be required.
- Only when Vernon is completely satisfied with the due diligence results will Vernon enter into detailed contract negotiations with a potential vendor.
- If a vendor does not comply with all of Vernon's contractual requirements or if Vernon is dissatisfied in any way, Vernon has the right to break-off negotiations at any time and proceed in another direction without any penalties or contractual obligations.
- All Federal, State and Local regulations must be met by the vendor.

All technical correspondence and questions should be directed to:

Art Beirn

Director, Data Processing
Town of Vernon
14 Park Place
Vernon, CT 06066
Tel: 860-870-3673
Fax: 860-870-3584
abeirn@vernon-ct.gov

ATTACHEMENTS:

A. MUNICIPAL WIDE AREA NETWORK (MUNI-WAN DIAGRAM)

- Page 18 this document

B. COST PROPOSAL WORK SHEETS FOR FIBER

- B-1 - Annex Data Center to RHS – Page 19 this document
- B-2 - Annex Data Center to Police Dept. – Page 20 this document
- B-3 TAB 1 - Annex Data Center to RHS – Excel Sheet, separate document
- B-3 TAB 2 - Annex Data Center to Police Dept. – Excel Sheet, separate document
- B-3 TAB 3 - Summary– Excel Sheet, separate document

C. POLE SITE ANALYSIS & DETAILS

- C-1 TAB 1 = Annex Data Center to RHS – Excel Sheet, separate document
- C-1 TAB 2 - Annex Data Center to Police Dept. – Excel Sheet, separate document
- C-2 Pole Pictures - Annex Data Center to RHS – Word Doc, separate document
- C-3 Pole Pictures - Annex Data Center to Police Dept. – Word Doc, separate document

NOTE: The C-2 pole pictures are in the same order as the C-1 TAB 1 Excel Spreadsheet **and** the C-3 Pole Pictures are in the same order as the C-2 TAB 2 Excel Spreadsheet

D. AT&T POLE ADMINISTRATION

- Pole Administration Web Site – Word Doc, separate

(B-1)

TOWN OF VERNON

Fiber Project:

From: Annex Data Center, 5 Park Street

To: Rockville H.S., 70 Loveland Hill Road

Cost Proposal Work Sheet for Fiber Cabling

Pole Prep	\$	-	per ft
Hardware Materials	\$	-	per ft
Messenger	\$	-	per ft
Fiber 48 Strand	\$	-	per ft
Lashing	\$	-	per ft
Note add 15% slack			
Splicing	\$	-	per strand
Closet finishout copper	\$	-	per location
Closet finishout Electronics	\$	-	per location

Location	Annex (5 Park St) to RHS (70 Loveland Hill Rd)
Distance	
Distance with Slack	
# of Splice Points	
# of Strands (Single Mode)	48
# of Drop Locations	2
# of Loop Locations	2

Total Pole Prep	\$	-
Total Cable Pull	\$	-
Total Splicing	\$	-
Total Location Costs	\$	-
 Total Estimated Cost	 \$	 -
 Annex Data Center, 5 Park Street RHS 70 Loveland Hill Rd	 \$	 -

(B-2)
TOWN OF VERNON

Fiber Project:

From: Annex Data Center, 5 Park Street

To: Police Dept., 725 Hartford Turnpike

Cost Proposal Work Sheet for Fiber Cabling

Pole Prep	\$	-	per ft
Hardware Materials	\$	-	per ft
Messenger	\$	-	per ft
Fiber 48 Strand	\$	-	per ft
Lashing	\$	-	per ft
Splicing	\$	-	per strand
Closet finishout copper	\$	-	per location
Closet finishout Electronics	\$	-	per location

Location	Annex to PD
Distance	
Distance with Slack	
# of Splice Points	
# of Strands (Single Mode)	48
# of Drop Locations	2
# of Loop Locations	1

Total Pole Prep	\$	-
Total Cable Pull	\$	-
Total Splicing	\$	-
Total Loop		
Total Location Costs	\$	-
Total Estimated Cost	\$	-
Annex Data Center, 5 Park Street		
PD 725 Hartford Turnpike	\$	-