PROJECT MANUAL & SPECIFICATIONS

SELF-PROVISIONED FIBER PROJECT
And
Services Provided Over Third-Party Networks

FOR

Centerville City Schools

WASHINGTON 17 96 TOWNSHIP

City of Centerville
100 West Spring Valley Road
Centerville, Ohio 45458
(937) 433-7151

washingtoncenterville
PUBLIC LIBRARY

November 2018

LPA PROJECT NO. 83412.00

PREPARED BY

LEVIN PORTER
ARCHITECTS
3011 NEWMARK DRIVE
MIAMISBURG, OHIO 45342
Levin Porter Associates Inc. dba Levin Porter Architects

PUBLIC ANNOUCEMENT
INVITATION TO BID

SELF-PROVISIONED FIBER NETWORK and SERVICES PROVIDED OVER THIRD-PARTY NETWORKS
for
CENTERVILLE CITY SCHOOLS, WASHINGTON TOWNSHIP, CITY OF CENTERVILLE AND WASHINGTON-CENTERVILLE LIBRARIES

Sealed bids are being solicited from general contractors in connection to furnishing all labor, materials, and equipment necessary to complete Self-Provisioned Fiber Network Project and Services Provided Over Third-Party Networks Project as specified, will be received by the Director of Technology, Centerville City Schools Board of Education located at 111 Virginia Avenue, Centerville, Ohio 45458, December 7, 2018 at 10:00 AM (local time) and will be opened and read aloud at that time at 111 Virginia Avenue.
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A Pre-Bid Conference will be held on November 9th, 2018 (local time) at 10:00 am at the Board of Education Conference Room located at 111 Virginia Avenue, Centerville, Ohio 45458.

Bids may be mailed or delivered in person to Mr. Shannon Morgan, Director of Technology, at 111 Virginia Avenue, Centerville, Ohio 45458, on or before December 7, 2018. Bids received after 10:00 AM (local time) will be returned unopened. No bids received through FAX transmission will be accepted.

Copies of bidding documents may be examined during regular business hours at the offices of the Architect, Levin Porter Associates, Inc. 3011 Newmark Drive, Miamisburg, Ohio 45342.

Bidders may obtain the electronic copy of the bidding documents from USAC's Form 470 Viewer located at https://www.usac.org/sl/service-providers/default.aspx, the Dodge Report, Centerville City Schools Website https://www.centerville.k12.oh.us , Township Website, City of Centerville Website, and Library Website.

A bid security in the form of a Bid Bond in accordance with Chapter 153.54 of the Ohio Revised Code in the amount of 100 percent of the total bid shall accompany each bid, or a certified check, cashier's check, or letter of credit pursuant to Chapter 1305 of the Ohio Revised Code in the amount of 10 percent of the total bid shall accompany each bid. The successful bidder(s) will be required to furnish a satisfactory performance bond for one hundred (100%) of the contract price.

No bidder may withdraw his bid within 60 days after the actual date of the bid opening.

The Board of Education reserves the right to reject each and every bid, and to waive informalities and errors in bidding to the extent permitted by law. This includes the right to extend the date and time for receipts of bids.

BOARD OF EDUCATION
CENTERVILLE CITY SCHOOLS

By: Shannon Morgan, Director of Technology

Publication Date: November 2, 2018

Request for Bids

Project Name: SELF-PROVISIONED FIBER NETWORK and SERVICES PROVIDED OVER THIRD-PARTY NETWORKS

Location: Centerville / Washington Township, Ohio

Owners:

Centerville City Schools (CCS)
111 Virginia Avenue
Centerville, Ohio 45458
Contact: Shannon Morgan, Director of Technology
937-433-8841; Shannon.morgan@centerville.k12.oh.us

Washington Township (WT)
8200 McEwen Road
Dayton, Ohio 45458
Contact: John Lewis
937-433-0152; john.lewis@washingtontwp.org

City of Centerville (CC)
100 West Spring Spring Valley Road
Centerville, Ohio 45458
Contact: Scott Ontjes
937-433-7151; SOntjes@centervilleohio.gov

Washington-Centerville Public Library (WCPL)
111 West Spring Valley Road
Centerville, Ohio 45458
Contact: Robin Poffenberger
937-433-8091; rpoffenberger@wcpl.lib.oh.us

Architect:

Levin Porter Architects
3011 Newmark Drive
Miamisburg, Ohio 45342
Contact: Mark Wiseman
937-224-1931; mwiseman@levin-porter.com

A. Project Description

Centerville City Schools will be the contracting entity and will hold the Contractor with the successful bidder.

The project consists a development of a fiber network comprised of four components. Centerville City Schools' network includes fifteen (15) facilities. Washington Township's network includes seven (7) facilities. Washington-Centerville Public Library's network include two (2) facilities. City of Centerville's network includes five (9) facilities. CCS, WT, CC and WCPL are seeking two options for the bids for the fiber network.

Option 1 – Service Provided Over Third Party Networks (Lit Fiber) – Fully managed, leased lit fiber transport service from the designated agency hubs to the specified eligible agency sites.

Option 2 – Self-Provisioned Fiber – District-Owned (self-provisioned) fiber to the designated locations.

The parties are seeking the most cost-effective method to meet their bandwidth requirements from an e-rate eligible provider. Any proposal will need to be able to provide 100Mbps and up to at least 10 Gbps Ethernet connections for connectivity and pricing.

State Prevailing Wage requirements do NOT apply to this project.

B. Scope of Services

The selected contractor, will be expected to provide design, engineering and construction services to provide the fiber network based on the fiber network specification requirements.

C. Project Schedule

Issue Invitation to Bid	November 2, 2018
Pre-Invitation to Bid Meeting	November 9, 2018
Bids Due	December 7, 2018
Award of Contract	December 18, 2018
Early Construction Stage Start	January 1, 2019
Preferred Construction Stage Completed	July 1,2019

D. Project Budget

Total Project Costs: $1,250,000

E. Questions and Inquiries

Questions regarding interpretation of the content of this Request for Proposal must be directed to: Mark Wiseman, Levin Porter Architects, 3011 Newmark Drive Miamisburg, Ohio 45342 email: mwiseman@levin-porter.com. Answers to any questions shall be in writing and sent to all firms who are on record with the Owner as having received a copy of the Contract Documents. The name of the party submitting the question will not be identified in the answers.

FORM OF PROPOSAL

TO: Mr. Shannon Morgan, Director of
Technology
Centerville City Schools
111 Virginia Avenue
Centerville, Ohio 45458

Having carefully read and examined the Contract Documents for the Execution and Construction of the SELF-PROVISIONED FIBER NETWORK and SERVICES PROVIDED OVER THIRD-PARTY NETWORKS PROJECT for Centerville City Schools and having inspected the premises and all the conditions affecting the work, the undersigned propose(s) to furnish all engineering, materials and perform all labor necessary to performance and completion of such item or items as are enumerated below, all to be in full accordance with the Contract Documents; and further, agrees that if any or all of said bids be accepted, the undersigned will enter into a Contract according to the form required by the Owner for the faithful performance of labor and furnishing of material included in such bid or bids so accepted, and will furnish a good and sufficient Bond to the satisfaction of the Owner, in an amount equal to one hundred percent (100%) of the Contract Price for the faithful performance of such Contract as required by law and the Owner.

Addenda Received prior to submission of Bid:

Addendum Number(s):_____

Submitted by:

_____
(Contracting Firm) (Date)

Address of Firm: _____

_____

_____

Phone: _____

Fax: _____

e-mail address: _____

Contracting Firm's Point of Contact for this Bid:_____

Pricing Worksheets for Connections

As E-rate funding is sought for this project, Centerville School and the Library must follow E-rate rules in regards to construction and service costs as they relate to leased lit fiber and self-provisioned. Each offeror should show construction costs associated with getting leased lit fiber to the building (if applicable) along with a separate construction cost (if applicable) for terminating the fiber in a Centerville School's, or Washington Libraries or Washington Township equipment closet rack at each site. The overall cost to Centerville City Schools, Washington Centerville Library, City of Centerville and Washington Township will be considered in awarding a contract from this bid.

Bid Option 1 - Leased Lit Worksheets

1.1. Leased Lit Construction Cost from Specified Datacenter to Individual Site (If Applicable)

Qty	Description	Agency	One Time Installation Cost
1	Construction costs at Board of Education building (Centerville datacenter)	Schools	
1	From Centerville datacenter to Centerville High School	Schools	
1	From Centerville High School to Athletic Stadium	Schools	
1	From Centerville datacenter to Magsig Middle School	Schools	
1	From Centerville datacenter to Watts Middle School	Schools	
1	From Centerville datacenter to Driscoll Elementary	Schools	
1	From Centerville datacenter to John Hole Elementary	Schools	
1	From Centerville datacenter to Stingley Elementary	Schools	
1	From Centerville datacenter to Normandy Elementary	Schools	
1	From Centerville datacenter to Weller Elementary	Schools	
1	From Centerville datacenter to Primary Village North	Schools	
1	From Centerville datacenter to Primary Village South	Schools	
1	From Centerville datacenter to Transportation Garage	Schools	
	Total Centerville Schools Construction Cost		
1	Construction costs at Centerville Library	Library	

	(datacenter) for Library		
1	From Library datacenter to Woodbourne Library	Library	
	Total Library Construction Cost		
1	Construction costs at Township Fire Headquarters (datacenter) for Township	Township	
1	From Township datacenter to Fire Station 41	Township	
1	From Township datacenter to Fire Station 42	Township	
1	From Township datacenter to Fire Station 43	Township	
1	From Township datacenter to Fire Station 44	Township	
1	From Township datacenter to Town Hall	Township	
	Total Township Construction Cost		
1		City	
		City	
	Total City of Centerville Construction Cost		
	Total Project Construction Cost		

1.2. Leased Lit Initial One Time Setup Charges (If Applicable)

Qty	Description	Agency	One Time Installation Cost
1	Board of Education	Schools	
1	Centerville High School	Schools	
1	Athletic Stadium	Schools	
1	Magsig Middle School	Schools	
1	Watts Middle School	Schools	
1	Driscoll Elementary	Schools	
1	John Hole Elementary	Schools	
1	Stingley Elementary	Schools	
1	Normandy Elementary	Schools	
1	Weller Elementary	Schools	
1	Primary Village North	Schools	
1	Primary Village South	Schools	
1	Transportation Garage	Schools	
	Total Centerville Schools Setup Cost		
1	Centerville Library	Library	
1	Woodbourne Library	Library	
	Total Library Setup Cost		
1	Township Fire Headquarters	Township	
1	Fire Station 41	Township	
1	Fire Station 42	Township	
1	Fire Station 43	Township	
1	Fire Station 44	Township	
1	Town Hall	Township	
	Total Township Setup Cost		
1		City	
		City	
	Total City of Centerville Setup Cost		
	Total Project Construction Cost		
	Total Project Setup Cost		
	Total Project for Lit Leased Fiber		

1.3. Monthly Recurring Cost (MRC) for Leased Lit Service

Site Description	Agency	100Mbps MRC	1 Gbps MRC	2 Gbps MRC	5 Gbps MRC	10 Gbps MRC
Board of Education building (Centerville datacenter)	Schools					
From Centerville datacenter to Centerville High School	Schools					
From Centerville datacenter to Magsig Middle School	Schools					
From Centerville datacenter to Watts Middle School	Schools					
From Centerville datacenter to Driscoll Elementary	Schools					
From Centerville datacenter to John Hole Elementary	Schools					
From Centerville datacenter to Stingley Elementary	Schools					
From Centerville datacenter to Normandy Elementary	Schools					
From Centerville datacenter to Weller Elementary	Schools					
From Centerville datacenter to Primary Village North	Schools					
From Centerville datacenter to Primary Village South	Schools					
From Centerville datacenter to Transportation Garage	Schools					
Total Centerville Schools MRC						
Construction costs at Centerville Library (datacenter) for Library	Library					
From Library datacenter to Woodbourne Library	Library					
Total Library MRC						
Construction costs at Fire Headquarters (datacenter) for Township	Township					
From Township datacenter to Fire Station 41	Township					
From Township datacenter to Fire Station 42	Township					
From Township datacenter to Fire Station 43	Township					

From Township datacenter to Fire Station 44	Township					
Town Hall	Township					
Total Township MRC						
City of Centerville MRC						

Bid Option 2 - Self-Provisioned Fiber Worksheets

2.1.Design and Engineering

	Total	**Schools** **Total x 44% Share**	**Library** **Total x 6% Share**	**City** **Total x 19% Share**	**Township** **Total x 31% Share**
Design/Engineering					

2.2. Self-Provisioned Fiber Construction Cost for each Shared Network Segments by Agency (If Applicable)
S=Schools, L=Library,C=City,T=Township

Agency	Pathway Color	Start Location	Stop Location	Strands (Minimum)	Distance	Construction Costs	Material /Fiber Costs		Agency Share Construction	Agency Share Material /Fiber
S/T 48/48	Light Blue	John Hole Elementary	Intersection of 48/Whipp	96	.54			Costs/2 S/T		
S/C/T 48/96/48	Purple	Intersection of Whipp/Marshall	48/Woodbourne Library	192	.75			Costs/3 S/C/T		
S/C/T/L 48/96/48/48	Orange	48/Woodbourne Library	City Conduit at 675 Exchange	288	.61			Costs/4 S/C/T/L		
S/C/T/L 48/96/48/48	Orange	City Conduit at 675 Exchange	Intersection of 48/Spring Valley	288	2.33			Costs/3 S/T/L		
S/C/T 48/96/48	Purple	Intersection of 48/Spring Valley	Intersection of 48/Shehann	192	.53			Costs/3 S/C/T		
S/T 48/48	Light Blue	Intersection of 48/Irongate	Intersection of Irongate/Maple	96	.13			Costs/2 S/T		
S/C/T 48/96/48	Purple	Intersection of 48/725	725/Magsig Middle School	192	.32			Costs/3 S/C/T		
S/C 24/24	Light Blue	Intersection of 48/Sheehan	Centerville Transportation	48	1.28			Costs/2 S/C		
S/T 48/48	Light Blue	725/Magsig Middle School	Intersection 725/McEwen	96	1.23			Costs/2 S/T		
S/T	Light	Intersection of	Watts Middle	96	1.1			Costs/2		

48/48 Blue 725/McEwen School S/T		
Schools Shared Segment Total		
Library Shared Segment Total		
City Shared Segment Total		
Township Shared Segment Total		
Project Shared Segments Total		

2.3. Self-Provisioned Fiber Construction Cost for each Agency Owned Network Segment by Agency

Agency	Pathway Color	Start Location	Stop Location	Strands (Minimum)	Distance	Construction Costs	Material Fiber Costs
Schools	Yellow	725/ Magsig Middle School	Board of Education	72	.32		
Schools	Yellow	725/ Magsig Middle School	Magsig Middle School	24	.1		
Schools	Yellow	Intersection of 725/Paragon	Primary Village South	24	.62		
Schools	Yellow	Intersection of 725/ Watts	Watts Middle School	24	.1		
Schools	Yellow	Intersection of 48/Alex Bell	Normandy Elementary	24	1.1		
Schools	Yellow	Intersection of Whipp/John Hole	John Hole Elementary	24	.1		
Schools	Yellow	Intersection of Whipp/Marshall	Driscoll Elementary	24	.29		
Schools	Yellow	Intersection of Whipp/Marshall	Primary village North	24	.58		

Schools	Yellow	Intersection of Irongate/Maple	Stingley Elementary	24	.1		
Schools	Yellow	Intersection of 48/725	Centerville High School	192	.83		
Schools	Yellow	Intersection of 48/Sheehan	Weller Elementary	48	.54		
Schools	Yellow	Weller Elementary	Transportation Garage	48	.9		
					Schools Total		
Library	Green	Intersection of 48/Spring Valley	Centerville Library	6	.18		
Library	Green	Woodbourne Library	Woodbourne Library	6	.1		
					Library Total		
Township	Dark Blue	Intersection of 725/McEwen	Fire Headquarters	48	.34		
Township	Dark Blue	McEwen Rd	Rec West	48	.1		
Township	Dark Blue	Intersection of Whipp/Station 45	Station 42	48	.1		
Township	Dark Blue	Intersection of Irongate/Maple Ave	Station 41	48	.1		
Township	Dark Blue	Intersection of 48/Alex Bell	Station 44	48	1.46		
Township	Dark Blue	Intersection of 48/Sheehan	Intersection of 48/Social Row	48	1.1		
Township	Dark Blue	Intersection of 48/Town Hall	Town Hall	48	.1		
					Township Total		

City	Pink	Sheehan/CCS Transportation	Sheehan Sawmill	24	.17		
City	Pink	Centerville High School	Public Works Building	96	.49		
City Total							
Project Agency Owned Segments Total							

2.4. Self Provisioned Alternate Bid Network Segments

	Agency	**Pathway Color**	**Start Location**	**Stop Location**	**Strands (Minimum)**	**Distance**	**Construction Costs**	**Material Fiber Costs**
Alternate Bid 1	Schools	Yellow	Soccer Stadium	Soccer Stadium	24	.1		
Alternate Bid 2	Schools	Yellow	Centerville High School	Athletic Stadium	48	.4		
Alternate Bid 3	Schools	Yellow	Stingley Elementary	Tower Heights Middle School	6	.2		
Schools Alternate Bids Total								
Project Alternate Bids Total								

2.5. Self Provisioned Project Totals

Project Shared Segments Total		
Project Agency Owned Segments Total		
Project Alternate Bids Total		
Project Total		

Centerville City Schools Self Provisioned Network Equipment

3. Installation, Setup/Configuration, or other operational services should not be included. Maintenance and support for proposed network equipment can be included below.

3.6.1. Equipment Requirements for Remote Building Sites

3.6.1.1. 48 ports of copper connectivity at 1000/100/10 Mbps (Full wire-speed non-blocking on all ports)

3.6.1.2. 2 SFP+ ports for 10Gbps SFP+ modules (Full wire-speed non-blocking on all ports)

3.6.1.3. PoE+ (802.3at Type 2 up to 30Watts per port) or greater capable on all ports with 740Watt or greater available

3.6.1.4. AC power supply with hot-swap capability

3.6.1.5. Support layer 2 and layer 3 switching and routing

3.6.1.6. Support OSPF and EIGRP routing protocols

3.6.1.7. Support access control lists for network filtering on all ports

3.6.1.8. Support network port security for limiting hardware mac addresses permitted on each port

3.6.1.9. Support SSH and serial command line interface access for management

3.6.1.10. Fully integrate into existing management system and workflow

3.6.1.11. Support NetFlow for network usage monitoring

3.6.1.12. Support RADIUS for management access user authentication

3.6.1.13. Support RTSP 802.1s/w and Per VLAN Rapid Spanning-Tree

3.6.1.14. Support Spanning Tree Root Guard or equivalent

3.6.1.15. Fully managed on premises and not internet “cloud” based

3.6.1.16. Support QoS services including CoS, DSCP, SSR, and WTD

3.6.1.17. Full routing support of IPv4 and IPv6

3.6.1.18. Support DHCP relay functionality to central DHCP server

3.6.1.19. Support 802.1q trunking

3.6.1.20. Support 802.3ad link aggregation

3.6.1.21. Auto-MDIX on all copper ports

3.6.1.22. Support port-mirroring and remote port-mirroring for trouble shooting and network packet capture

3.6.1.23. VLAN IDs available for use 1-4096
3.6.1.24. Support for greater than 100 VLANs concurrently active
3.6.1.25. Jumbo frame (9216 bytes) support on all ports
3.6.1.26. Forwarding performance of up to 130Mpps or better
3.6.1.27. Forwarding bandwidth of 108Gbps (full-duplex at 216Gpbs) or better
3.6.1.28. Operating humidity up to 95% noncondensing
3.6.1.29. Front to back air cooling

3.6.2. Equipment Requirements for Board of Education (Centerville Schools Hub)
3.6.2.1. 16 SFP+ ports for 10Gbps SFP+ modules (Full wire-speed non-blocking on all ports)
3.6.2.2. AC power supply with hot-swap capability
3.6.2.3. Support layer 2 and layer 3 switching and routing
3.6.2.4. Support OSPF and EIGRP routing protocols
3.6.2.5. Support access control lists for network filtering on all ports
3.6.2.6. Support network port security for limiting hardware mac addresses permitted on each port
3.6.2.7. Support SSH and serial command line interface access for management
3.6.2.8. Fully integrate into existing management system and workflow
3.6.2.9. Support NetFlow for network usage monitoring
3.6.2.10. Support RADIUS for management access user authentication
3.6.2.11. Support RTSP 802.1s/w and Per VLAN Rapis Spanning-Tree
3.6.2.12. Fully managed on premises and not internet “cloud” based
3.6.2.13. Support QoS services including CoS, DSCP, SSR, and WTD or equivalent
3.6.2.14. Full routing support of IPv4 and IPv6
3.6.2.15. Support DHCP relay functionality to central DHCP server
3.6.2.16. Support 802.1q trunking
3.6.2.17. Support 802.3ad link aggregation
3.6.2.18. Auto-MDIX on any copper ports (if any)
3.6.2.19. Support port-mirroring and remote port-mirroring for trouble shooting and network packet capture

3.6.2.20. VLAN IDs available 1-4096
3.6.2.21. Support for greater than 100 VLANs concurrently active
3.6.2.22. Jumbo frame (9216 bytes) support on all ports
3.6.2.23. Forwarding bandwidth of up to 800Gbps or better
3.6.2.24. Routing IPv4 250Mpps or better
3.6.2.25. IPv6 Routing 125Mpps or better
3.6.2.26. Operating humidity up to 95% noncondensing
3.6.2.27. Front to back air cooling

3.6.3. SFP+ Modules
3.6.3.1. Standard SFP+ module compatible with switches
3.6.3.2. LC type connector
3.6.3.3. Capable of running without error at 10Gbps for distances required by fiber run
3.6.3.4. Supports type of fiber used in construction (single-mode G.652 C/D)

3.7. Pricing Worksheet for Centerville School Network Equipment

Equipment (Model)	Quantity	Unit Price
Total		

SUBSTITUTION LIST

All Bids shall be based upon the STANDARD specified or their EQUALS. Bidders desiring to make Substitutions for "STANDARD" specified or different methods of construction shall list the proposed Substitution or Methods below, together with the Base Bid:

Brand, Make or Method Specified	Proposed Substitution	Add	Deduct	No Change

TIME OF COMPLETION

I, or we, agree to complete the work covered by the Proposal, on or before the date required by the Contract Documents

BID BONDS

Bond Security is attached hereto as required by the Contract Documents.

THE BIDDER IS:

1. An individually owned firm and the Owner is:

_____

2. A Partnership of the State of_____ , and the partners are:

_____

3. A Corporation of the State of Ohio:
State Name and Address of all persons and parties interested in the foregoing Proposal other than the Bidder:

_____

_____

AGREEMENT

The Contractor agrees to accept the Award of Contract any time within sixty (60) days after Bids are received.

BIDDER: _____

SIGNATURE: _____

TITLE: _____

ADDRESS: _____

END OF SECTION

SELF PROVISIONED FIBER NETWORK and SERVICES PROVIDED OVER THIRD_PARTY NETWORKS SPECIFICATIONS

Project Networks

1. The scope of work for the network is divided into four (4) networks.

1.1. Centerville Schools network which includes fifteen (15) facilities

1.1.1. For the Centerville School network, service is expected to be originating from the Centerville Schools hub, located at the Centerville Board of Education Office, 111 Virginia Ave Centerville, OH 45458. Service is expected to be delivered to the eligible service locations from the hub at the following locations:

1.1.1.1. Eligible Entity 1, Centerville High School, 500 E. Franklin St. Centerville, OH 45459

1.1.1.2. Eligible Entity 2, Magsig Middle School, 192 W Franklin St. Centerville, OH 45459

1.1.1.3. Eligible Entity 3, Watts Middle School, 7056 McEwen Rd. Centerville, OH 45459

1.1.1.4. Eligible Entity 4, Tower Heights Middle School, 195 N Johanna Dr, Centerville, OH 45459

1.1.1.5. Eligible Entity 5, Primary Village North, 6450 Marshall Rd. Centerville, OH 45459

1.1.1.6. Eligible Entity 6, Primary Village South, 8388 Paragon Rd. Centerville, OH 45458

1.1.1.7. Eligible Entity 7, Driscoll Elementary, 5767 Marshall Rd. Centerville, OH 45429

1.1.1.8. Eligible Entity 8, John Hole Elementary, 180 W Whip Rd. Centerville, OH 45459

1.1.1.9. Eligible Entity 9, Normandy Elementary, 401 Normandy Ridge Rd. Centerville OH 45459

1.1.1.10. Eligible Entity 10, Stingley Elementary, 95 Linden Dr. Centerville, OH 45459

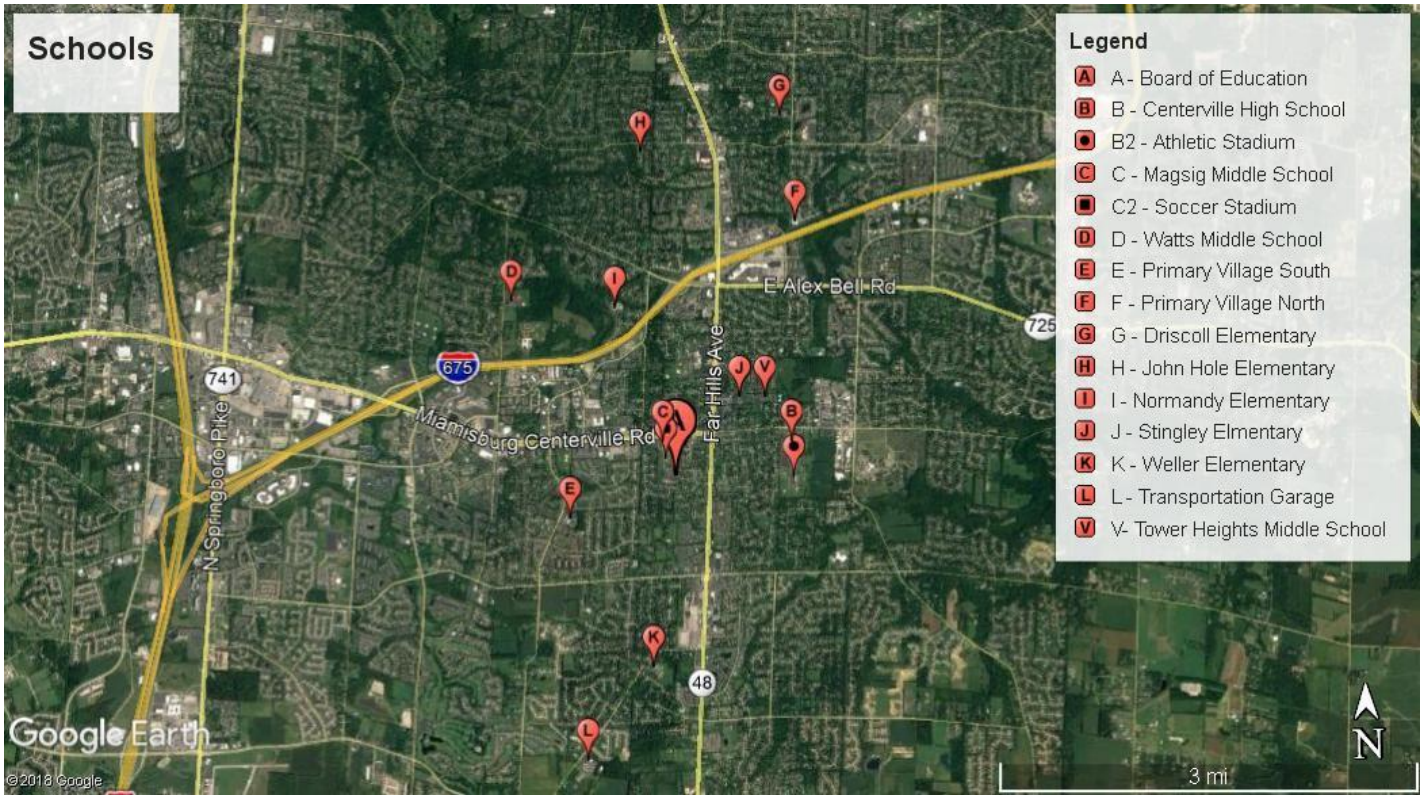
1.1.1.11. Eligible Entity 11, Weller Elementary, 9600 Sheehan Rd. Centerville, OH 45458

1.1.1.12. Eligible Entity 12, Transportation Garage, 10256 Sheehan Rd. Centerville, OH 45458

1.1.1.13. Eligible Entity 13, CHS Athletic Stadium, 500 East Franklin St. Centerville, OH 45458

1.1.1.14. Eligible Entity 14, Soccer Stadium, 105 Virginia Ave Centerville, OH 45458

1.1.1.15. Map of Centerville City Schools Sites



1.1.1.15.1. Schools Estimated Distance Table

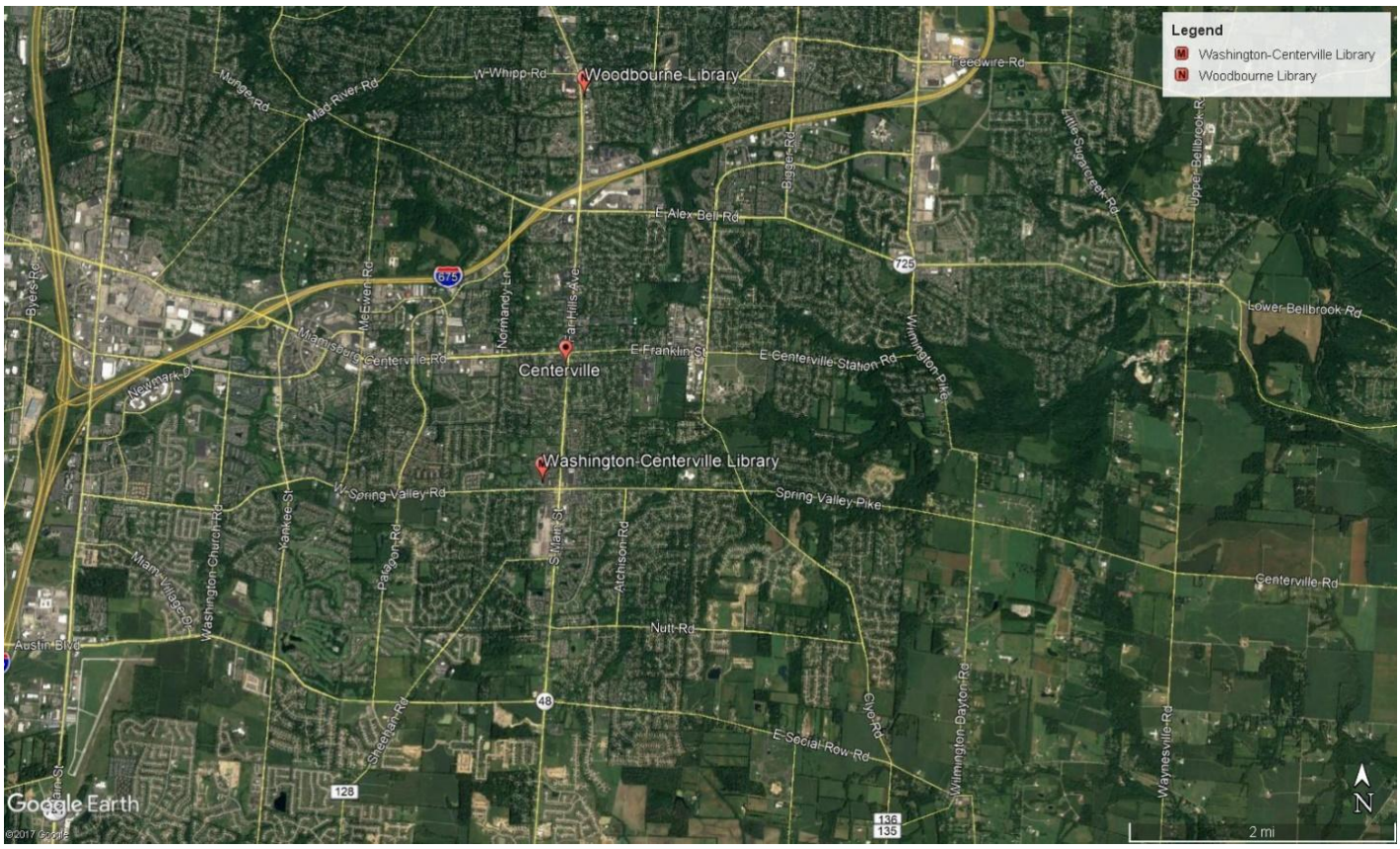
Site	Agency	Map Label	Distance to Datacenter (Miles)
Board of Education Office	Schools	A	Centerville Schools Hub
Centerville High School	Schools	B	1.14
Athletic Stadium	Schools	B-2	.3 to Centerville High School
Magsig Middle School	Schools	C	.48
Soccer Stadium	Schools	C-2	.1
Watt Middle School	Schools	D	2.76
Primary Village South	Schools	E	1.91
Primary Village North	Schools	F	2.68
Driscoll Elementary	Schools	G	3.65
John Hole Elementary	Schools	H	2.66
Normandy Elementary	Schools	I	1.68
Stingley Elementary	Schools	J	1.03
Weller Elementary	Schools	K	2.63
Transportation Garage	Schools	L	3.36
Tower Height Middle School	Schools	V	1.22

1.1.2. Library network which includes two (2) facilities

1.1.2.1. For the Library network, service is expected to be originating from the Library hub, located at Centerville Library, 111 West Spring Valley Rd. Centerville, OH 45458. Service is expected to be delivered to the eligible service locations from the Washington Library hub at the following locations:

1.1.2.2. Eligible Entity 1, Woodbourne Library, 6060 Far Hills Ave. Centerville, OH 45459

1.1.2.3. Map of Library Sites



1.1.2.3.1. Library Estimated Distance Table

Site	Agency	Map Label	Distance to Datacenter (Miles)
Centerville Library	Library	M	Library Hub
Woodbourne Library	Library	N	3.3

1.1.3. Township network which includes seven (7) facilities

1.1.3.1. For the Township network, service is expected to be originating from the Township hub, located at the Washington Township Fire Headquarters, 8320 McEwen Rd. Dayton, OH 45458. Service is expected to be delivered from the Township hub to the following locations:

1.1.3.1.1. Entity 1, Fire Station 41, 163 Maple Avenue
Centerville, OH 45458

1.1.3.1.2. Entity 2, Fire Station 42, 45 W. Whipp Rd.
Dayton, OH 45458

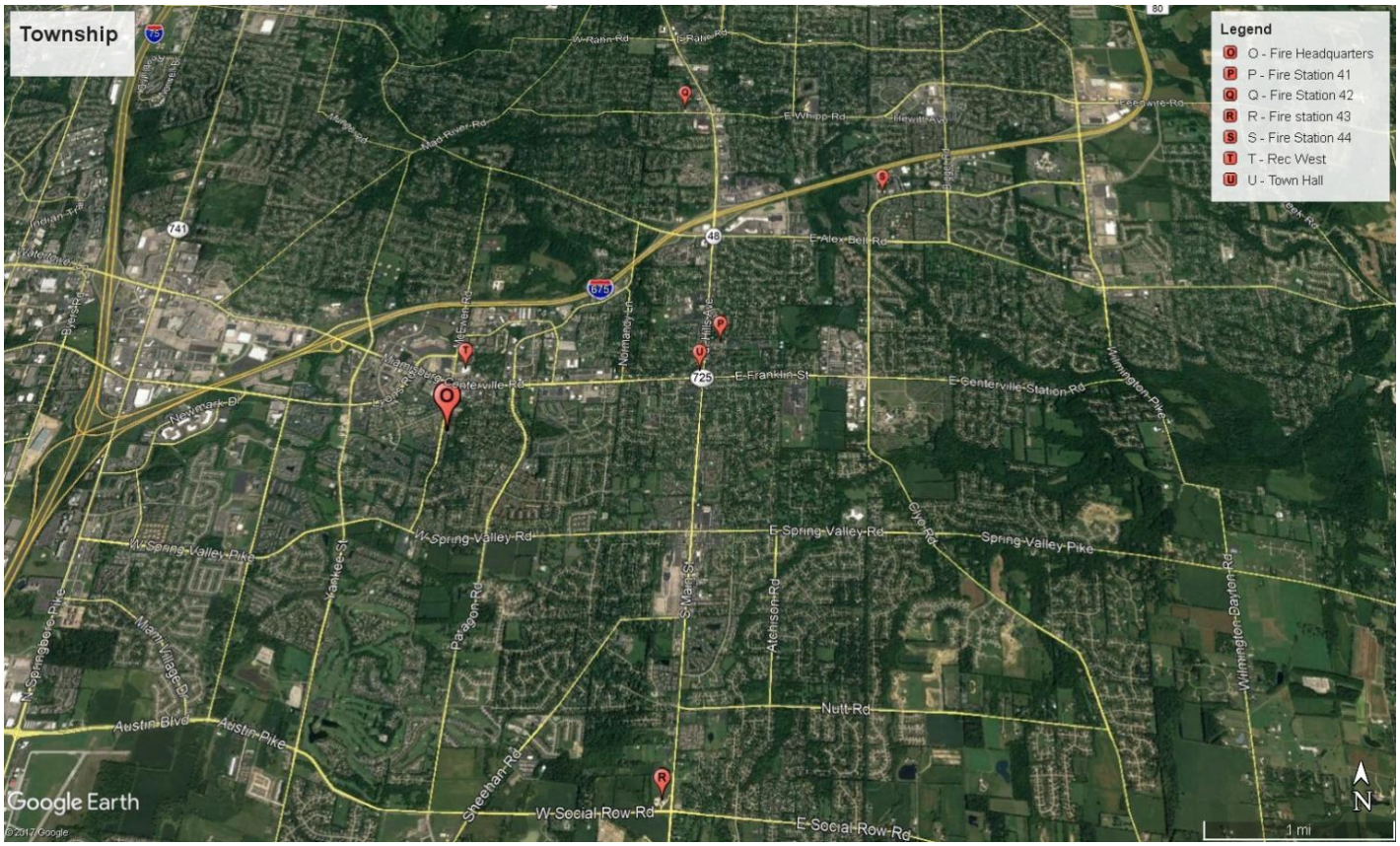
1.1.3.1.3. Entity 3, Fire Station 43, 10499 Dayton – Lebanon Pike,
Dayton, OH 45458

1.1.3.1.4. Entity 4, Fire Station 44, 6690 Centerville-Business Parkway Centerville, OH 45459

1.1.3.1.5. Entiy 5, Town Hall , 27 N Main St,
Centerville, OH 45459

1.1.3.1.6. Entry 6, RecWest, 965 Miamisburg-Centerville Rd.,
Dayton, OH 45458

1.1.3.1.7. Map of Township Sites



1.1.3.1.7.1. Township Estimated Distance Table

Site	Agency	Map Label	Distance to Datacenter (Miles)
Fire Headquarters	Township	O	Township Hub
Fire Station 41	Township	P	2.11
Fire Station 42	Township	Q	4.02
Fire Station 43	Township	R	3.98
Fire Station 44	Township	S	4.13
Rec West	Township	T	.47
Town Hall	Township	U	1.9

1.1.4. City of Centerville which includes 9 facilities

1.1.4.1. For the City network, service is expected to be originating from the City hub, located at the Public Works Center 7970 South Suburban Rd. Centerville, OH 45458. Service is expected to be delivered from the City hub to the following locations:

1.1.4.1.1. Location 1, traffic signal box, NE corner of Whipp and Marshall Rd.

1.1.4.1.2. Location 2, traffic signal box, NE corner of Whipp and 48.

1.1.4.1.3. Location 3, traffic signal box, SW corner of 48 and N. Village Dr.

1.1.4.1.4. Location 4, traffic signal box, SW corner of 48 and Fireside Dr.

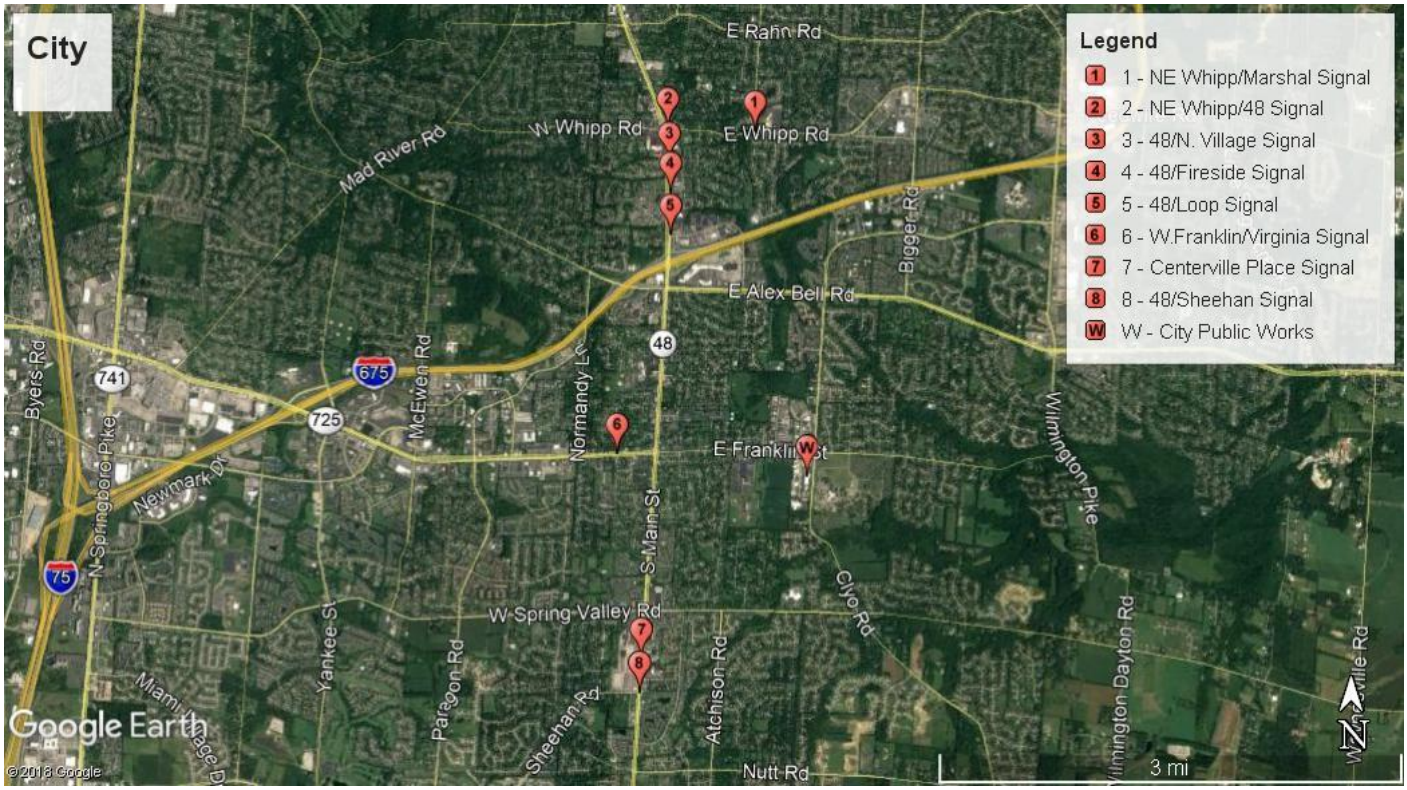
1.1.4.1.5. Location 5, traffic signal box, SE corner of 48 and Loop Rd.

1.1.4.1.6. Location 6, traffic signal box, SE corner of W. Franklin and Virginia Ave.

1.1.4.1.7. Location 7, traffic signal box, SE corner of 48 and “Centerville Place” (unnamed street)

1.1.4.1.8. Location 8, traffic signal box, SE corner of 48 and Sheehan Rd.

1.1.4.1.9. Map of City Signals



1.1.4.2. City Estimated Distance Table

Site	Agency	Map Label	Distance to Datacenter (Miles)
Public Works Center	City	W	City Hub
Whipp & Marshall Signal	City	1	3.8
Whipp & 48 Signal	City	2	3.3
48 & N. Village Signal	City	3	3
48 &Fireside Signal	City	4	2.8
48 & Loop Rd. Signal	City	5	2.6
W. Franklin & Virginia Signal	City	6	1.4
48 & “Centerville Place” Signal	City	7	2.5
48 & Sheehan Signal	City	8	2.75

2. Bid Options

2.1. Schools and Library are seeking the most cost-effective method to meet their bandwidth requirements from an e-rate program eligible provider.

2.2. Any proposal will provide a minimum of 100 Mbps and up to at least 10 Gbps Ethernet connections for connectivity and pricing.

2.3. The circuits shall be capable of carrying multiple protocols such as IP Data, Voice over IP (VoIP) telephony, streaming digital video, teleconferencing, etc. Jitter and latency shall be within industry accepted limits for typical services of these types. The WAN must support the transmission of QoS ("Quality of Service") and VLAN tags between endpoints.

2.4. Centerville City Schools, Washington-Centerville Public Library, and Washington Township is seeking two options for bids. Respondents may bid one, or both options. The City of Centerville is only seeking bid options for self-provisioned network.

2.4.1. **Services Provided Over Third Party Networks (Lit fiber).** The first option is a fully managed, leased lit fiber transport service from the designated agency hubs to the specified eligible agency sites. One-time special construction can be bid separately from the vendors proposed monthly recurring cost for the fully managed leased lit service.

2.4.1.1. Dedicated Lit Transport Bandwidth throughput (upload and download) of 100Mbps to 10Gbps with Service Level Agreement of 99.99% uptime (SLA) guaranteed to all specified sites. The solution must be scalable from 100Mbps to 10Gbps over 1, 5 and 10 year period. All respondents must be capable of providing telecommunication services under the E-Rate Program.

2.4.1.2. Each offeror is required to complete the Lit Fiber pricing worksheets below including one time construction costs, construction from property edge to demarcation, total construction cost, one time setup charges, and monthly recurring charges. Pricing is for symmetrical service from the appropriate agency hub to each eligible entity location and should be all inclusive. All inclusive in this case means, including all special construction or non-recurring costs (NRC) and all monthly recurring costs (MRC). No increased pricing will be allowed during the term of the quoted special construction/NRC and MRC

2.4.1.3. Internet Services can be bid "bundled" with a Leased Lit fiber solution, or bid as a stand-alone service and must be described as such. However, Centerville City Schools is currently contracted for Dedicated Internet Access until 2023.

2.4.1.4. Centerville Schools, Library, and Township do not require firewall and/or content filtering services

2.4.1.5. Each lit service response must also include description of proposal, SLA, timeline, network diagram, demarcation, and references.

2.4.2. **Self-provisioned fiber.** The second option is for Agency-owned (self-provisioned) fiber to the designated locations and includes all eligible special construction charges. Maintenance and operations monthly fees, and equipment should be bid separately from the special construction charges.

2.4.2.1. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township requests that respondents propose design/engineering and pricing for a self-provisioned new build of fiber between each agency hub and each eligible agency location. Preferred strand counts of single-mode new build fiber are specified below.

2.4.2.2. Respondents are requested to provide a proposal for a self-provisioned fiber network based on a special construction project. New eligible fiber special construction charges as defined by the order include construction, design, engineering and project management. Project management should include all necessary paperwork and permits including but not limited to rights of way, easements, and pole attachments.

2.4.2.3. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township desires a fully "turn-key" project so respondents should provide explanation for

Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township involvement in the process including ownership and sourcing of permits, etc.

2.4.2.4. Each offeror is required to complete the Self-Provisioned Fiber pricing worksheets below including one time construction costs for each network segment and total construction cost. Preference will be given to proposals that offer pricing with most of the costs being paid up-front and minimal annual maintenance costs. The solution should include all costs related to the deployment of the proposed circuit, such that there are no additional costs that are expected to be incurred by the Centerville City Schools, Washington-Centerville Public Library, City of Centerville or Washington Township.

2.4.2.5. Centerville City Schools is also seeking proposals for network equipment to light the network once the fiber construction is complete. A list of equipment and performance requirements is included in Centerville City School Network Equipment Worksheet. While Centerville City Schools is seeking proposals for network equipment we are not seeking services to install, configure or manage the equipment. The proposal should be for the equipment only. Proposals for equipment can be separate from the proposals for the construction proposals.

2.4.2.6. The Contractor is required to provide the Owners with a minimum of 2-year warranty on all workmanship and Contractor-provided materials related to the installation of this Project. Warranty must begin on the date of acceptance and continue for two full years thereafter.

2.4.2.6.1. Upon discovery of materials or workmanship that is inconsistent with the requirements of these Bidding Documents and subsequent agreements within the 2-year period, the Owner will notify the Contractor and expect to receive within 3 days, a response detailing the Contractor's proposed remedy. The Owner will work with the Contractor to define a convenient time for the work to be performed.

2.4.2.6.2. All costs associated with repairs or restoration of any failure or inconsistency identified within the 2-year period will be borne by the Contractor.

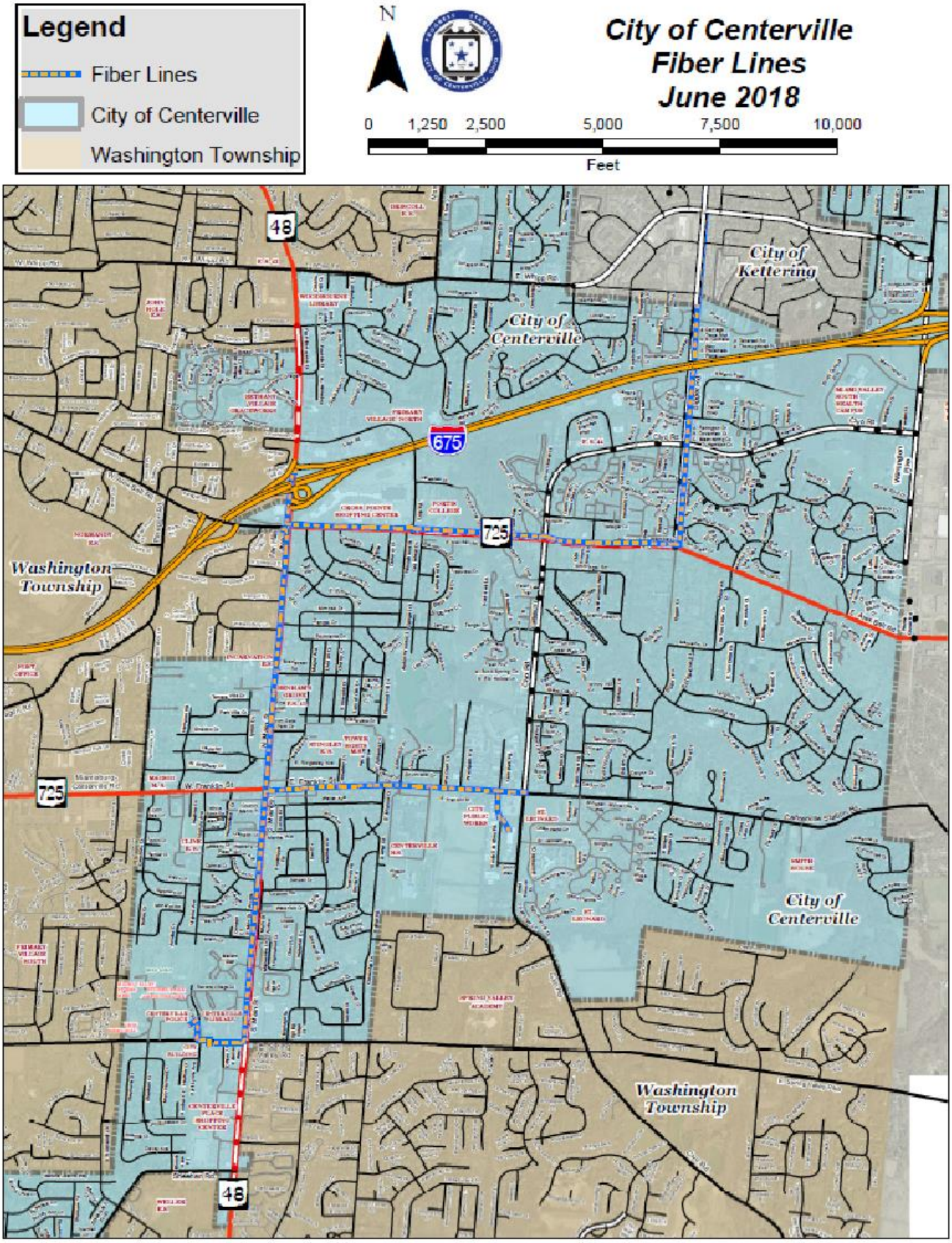
2.4.2.7. Each self-provisioned fiber build response must also include description of proposal, timeline, network diagram, demarcation, references, and Connect America Fund status as described in later sections. Maintenance and/or operations and/or Internet Services can be bid "bundled" with a self-provisioned fiber construction bid, or bid as a stand-alone service and must be described as such.

2.4.2.8. Self-provisioned Fiber Construction Specifications

2.4.2.8.1. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township's specifications for a newly constructed fiber infrastructure are contained in section labeled OSP INSTALLATION SPECIFICATIONS.

2.4.2.9. Centerville City Schools, Washington-Centerville Public Library and Washington Township has negotiated access to existing buried conduit owned by the City of Centerville. Centerville City Schools, Washington-Centerville Public Library or Washington Township will have no additional construction costs, billed by the City, for the installation of the fiber for network segments that align with this existing conduit. Centerville City Schools also owns existing conduit between Stingley Elementary and Tower Heights Middle School. Where possible the existing conduit should be used for any special construction to minimize the cost of the project.

2.4.2.10. Centerville City Schools will have three alternate bids to include with Self-Provisioned proposals. The alternate segments are listed in the cost worksheets below.


Legend
Fiber Lines
City of Centerville
Washington Township
N
City of Centerville
Fiber Lines
June 2018
0 1,250 2,500 5,000 7,500 10,000
Feet
48
675
725
City of Kettering
City of Centerville
Washington Township
City of Centerville
Washington Township

2.4.2.11. Self-provisioned Fiber Project Management:

2.4.2.11.1. Selected respondent and its subcontractors will provide all project management to accomplish the installation of all project work as outlined in this document.

2.4.2.11.2. The respondent will provide engineer(s), certified on selected fiber system specifications and procedures to manage all phases of project as outlined in this proposal. This includes ordering and managing the bill of materials as outlined in this document, directing and managing cable placement and restoration, directing and managing splicing crews and providing detailed documentation at the end of the project.

2.4.2.11.3. Selected respondent and its subcontractors will develop a project management plan, which will include a milestone chart. The milestone chart will outline any critical path events and then track these with the appropriate agency/organization whether; selected respondent, subcontractor or the agency.

2.4.2.12. In E-rate program terminology, Special construction refers to the upfront, non-recurring costs associated with the installation of new fiber to or between eligible entities. Applicants may seek funding for special construction charges in connection with leased lit fiber and self-provisioning. Special construction charges eligible for Category One support consist of three components:

2.4.2.12.1. Construction of network facilities;

2.4.2.12.2. Design and engineering; and

2.4.2.12.3. Project management

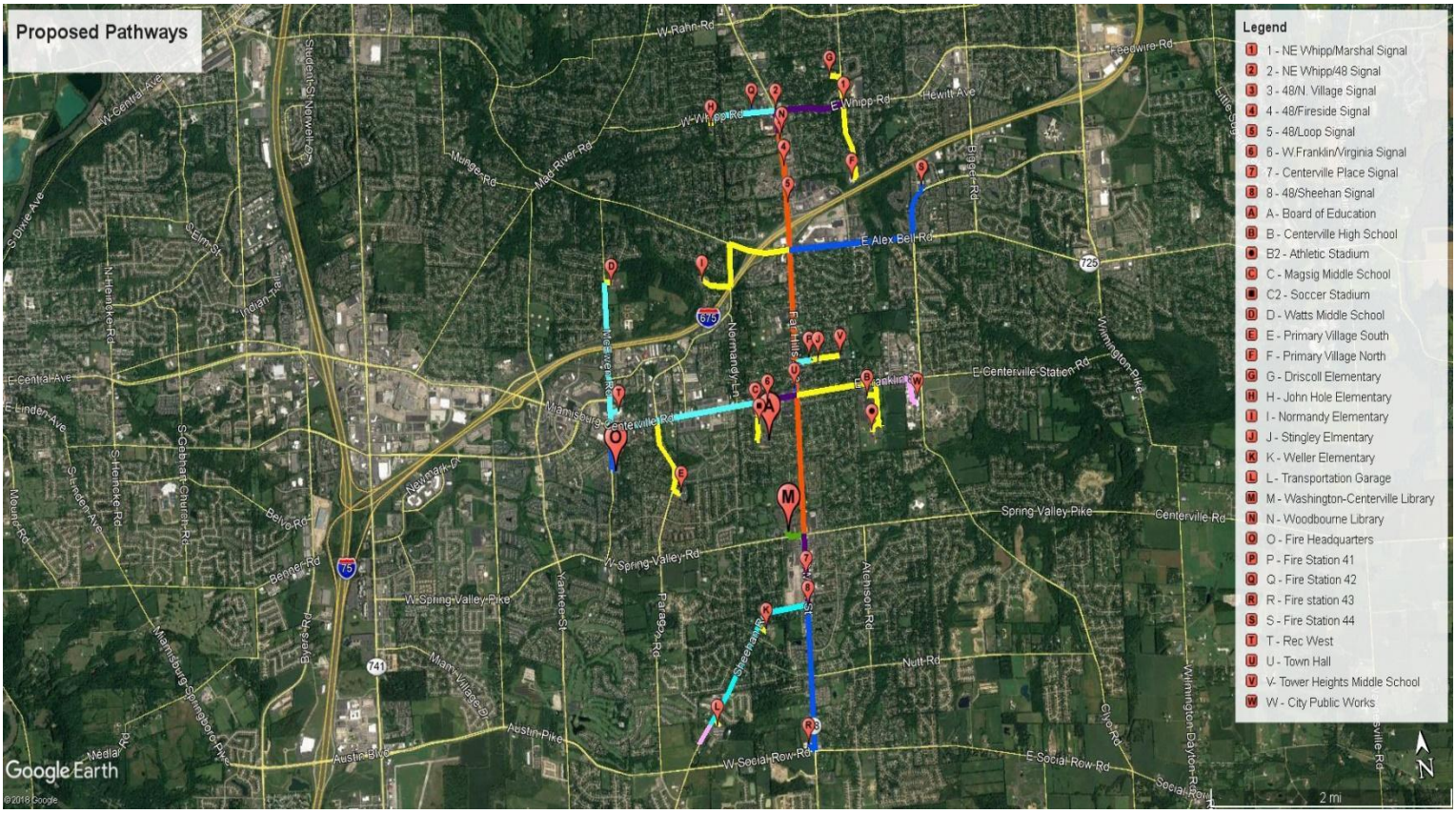
2.4.2.12.4. The term “special construction” does not include Network Equipment necessary to light fiber, nor the services necessary to maintain the fiber. Charges for Network Equipment and fiber maintenance are eligible for Category One support as separate services, but not as special construction.

2.4.2.12.5. All options can include special construction or one-time E-rate program eligible non-recurring costs as well as E-rate program eligible recurring circuit costs. Based on the bids and both a short term and long term cost effectiveness analysis, Centerville City Schools, Washington Centerville Library, City of Centerville and Washington Township will determine which, if any, of the lit service or self-provisioned fiber construction.

2.4.2.13. General Terms for Self-Provisioned Project

2.4.2.13.1. The following are general terms that apply to self-provisioned fiber builds. Respondents may offer maintenance and operations services, and network equipment purchase (if applicable), installation, and operations either themselves or through 3rd party subcontractors. In the case that respondents use external 3rd party service providers or contractors to deliver some or part of the solution, these should be clearly indicated in the response.

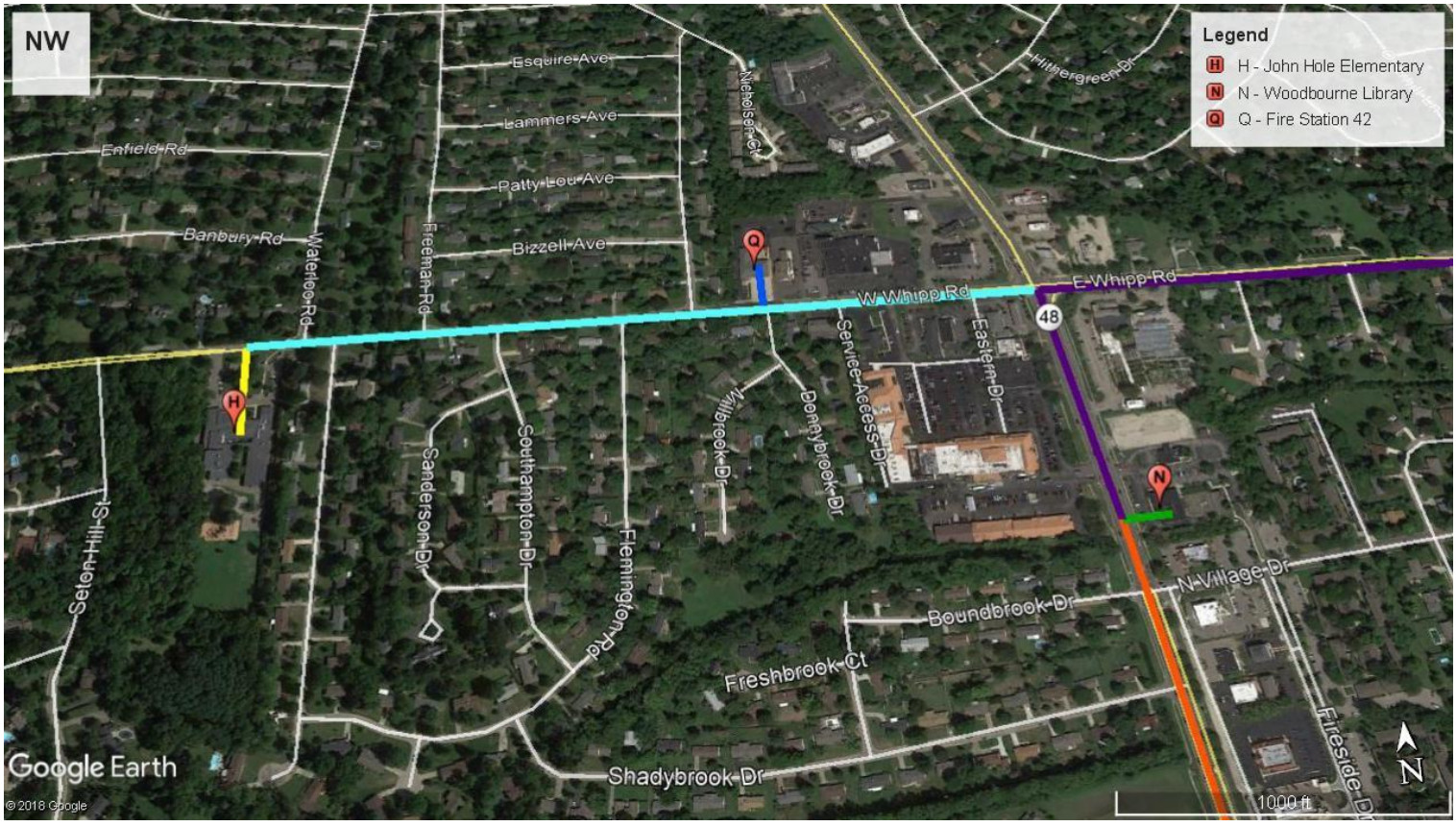
2.4.2.13.2. Proposed Self-Provision Pathways and Strand Counts

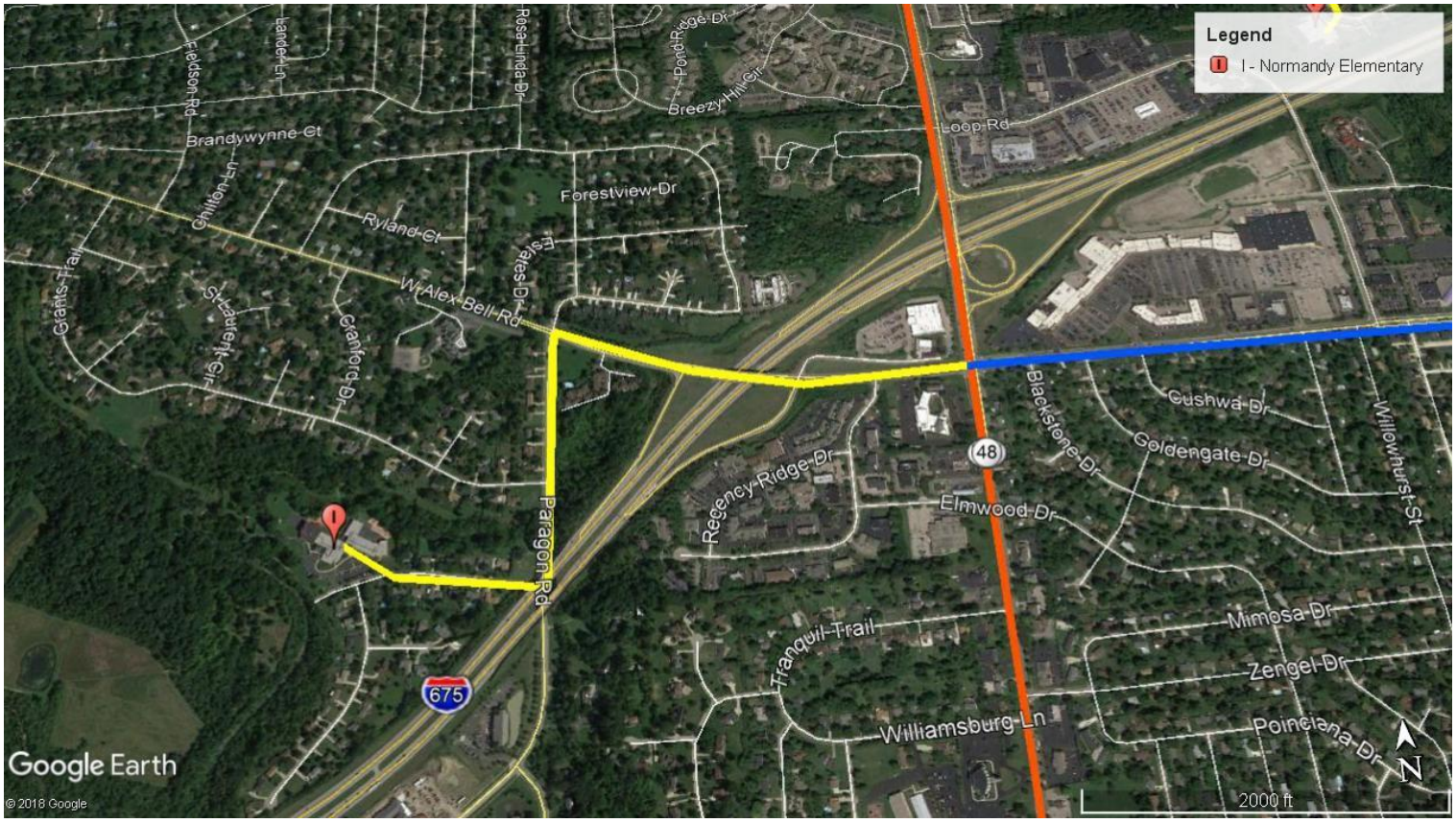


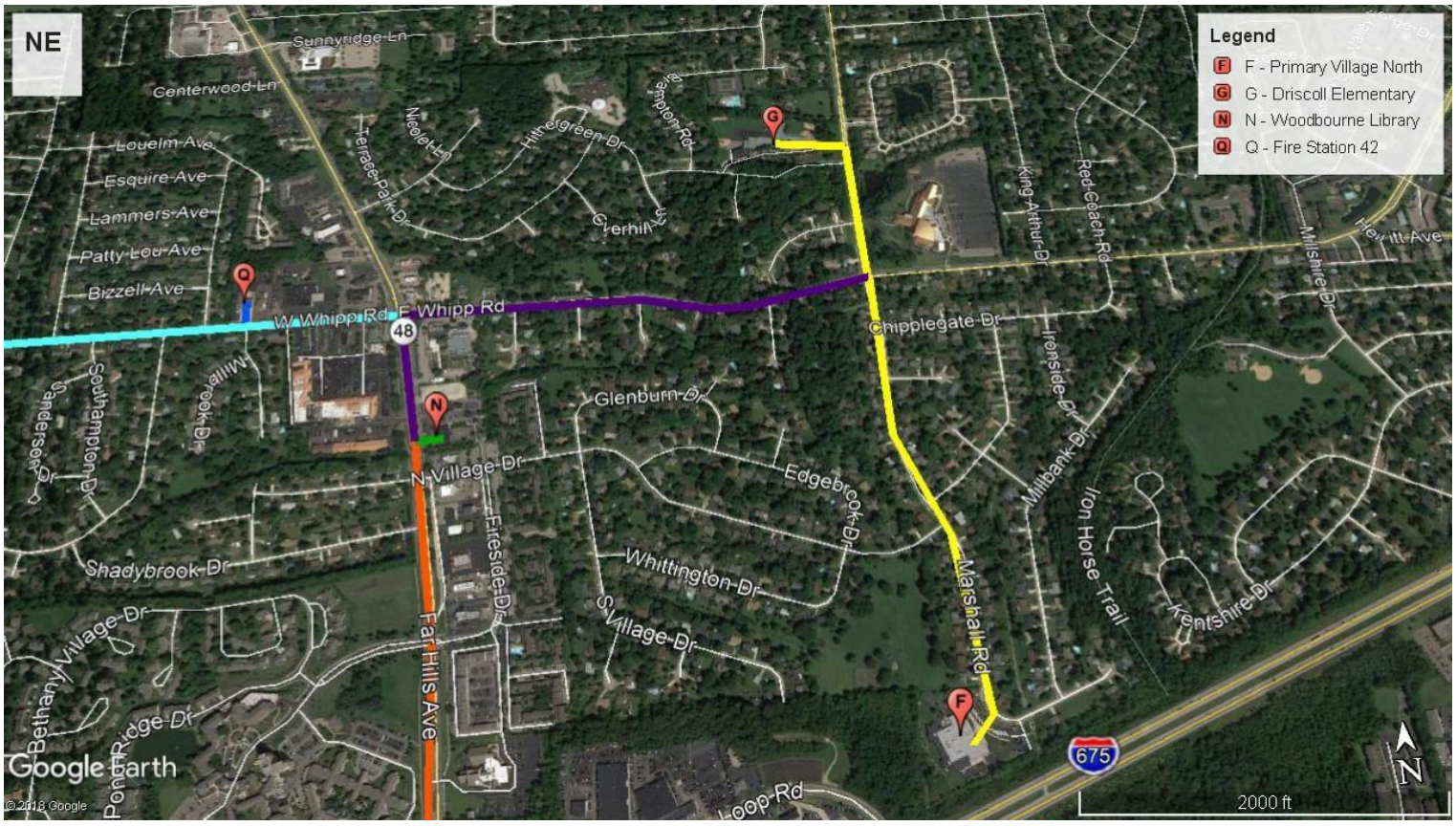
Agency	Pathway Color	Start Location	Stop Location	Strands (Minimum)	Distance
S/T 48/48	Light Blue	John Hole Elementary	Intersection of 48/Whipp	96	.54
S/C/T 48/96/48	Purple	Intersection of Whipp/Marshall	48/Woodbourne Library	192	.75
S/C/T/L 48/96/48/48	Orange	48/Woodbourne Library	Intersection of 48/Spring Valley	288	2.95
S/C/T 48/96/48	Purple	Intersection of 48/Spring Valley	Intersection of 48/Shehann	192	.53
S/T 48/48	Light Blue	Intersection of 48/Irongate	Intersection of Irongate/Maple	96	.13
S/C/T 48/96/48	Purple	Intersection of 48/725	725/Magsig Middle School	192	.32
S/C 24/24	Light Blue	Intersection of 48/Sheehan	Centerville Transportation	48	1.28

S/T 48/48	Light Blue	725/Magsig Middle School	Intersection 725/McEwen	96	1.23
S/T 48/48	Light Blue	Intersection of 725/McEwen	Watts Middle School	96	1.1
Schools	Yellow	725/ Magsig Middle School	Board of Education	72	.32
Schools	Yellow	Soccer Stadium	Soccer Stadium	24	61 Feet
Schools	Yellow	725/ Magsig Middle School	Magsig Middle School	24	.1
Schools	Yellow	Intersection of 725/Paragon	Primary Village South	24	.62
Schools	Yellow	Intersection of 725/ Watts	Watts Middle School	24	.1
Schools	Yellow	Intersection of 48/Alex Bell	Normandy Elementary	24	1.1
Schools	Yellow	Intersection of Whipp/John Hole	John Hole Elementary	24	.1
Schools	Yellow	Intersection of Whipp/Marshall	Driscoll Elementary	24	.29
Schools	Yellow	Intersection of Whipp/Marshall	Primary village North	24	.58
Schools	Yellow	Intersection of Irongate/Maple	Stingley Elementary	24	.1
Schools	Yellow	Stingley Elementary	Tower Heights Middle School	6	.2
Schools	Yellow	Intersection of 48/725	Centerville High School	192	.83
Schools	Yellow	Centerville High School	Athletic Stadium	48	.4
Schools	Yellow	Intersection of 48/Sheehan	Weller Elementary	48	.54
Schools	Yellow	Weller Elementary	Transportation Garage	48	.9
Library	Green	Intersection of 48/Spring Valley	Centerville Library	6	.18
Library	Green	Woodbourne Library	Woodbourne Library	6	.1
Township	Dark Blue	Intersection of 725/McEwen	Fire Headquarters	48	.34
Township	Dark Blue	McEwen Rd	Rec West	48	.1
Township	Dark Blue	Intersection of Whipp/Station 45	Station 42	48	.1

Township	Dark Blue	Intersection of Irongate/Maple Ave	Station 41	48	.1
Township	Dark Blue	Intersection of 48/Alex Bell	Station 44	48	1.46
Township	Dark Blue	Intersection of 48/Sheehan	Intersection of 48/Social Row	48	1.1
Township	Dark Blue	Intersection of 48/Town Hall	Town Hall	48	.1
City	Pink	Sheehan/CCS Transportation	Sheehan Sawmill	24	.17
City	Pink	Centerville High School	Public Works Building	96	.49




Legend
I - Normandy Elementary
Fieldson Rd
Lander Ln
Rosa Linda Dr
Breezy Hill Cir
Loop Rd
Brandywynne Ct
Chilton Ln
Forestview Dr
Ryland Ct
Estates Dr
W Alex Bell Rd
Grants Trail
St Martin Cir
Cranford Dr
Blackstone Dr
Cushwa Dr
Goldengate Dr
Willowhurst St
48
Regency Ridge Dr
Elmwood Dr
Paragon Rd
Tranquil Trail
Mimosa Dr
Zengel Dr
Williamsburg Ln
Poinciana Dr
675
Google Earth
© 2018 Google
2000 ft
N


NE
Legend
F - Primary Village North
G - Driscoll Elementary
N - Woodbourne Library
Q - Fire Station 42
Sunnyridge Ln
Centerwood Ln
Louelm Ave
Esquire Ave
Lammers Ave
Patty Lou Ave
Bizzell Ave
Terrace Park Dr
Nicole Ln
Hitchcock Rd
Hitchingreen Dr
Overhill Ln
W Whipp Rd
E Whipp Rd
48
King Arthur Dr
Red Coach Rd
Hewitt Ave
Milshire Dr
Chipplegate Dr
Ironside Dr
Millbank Dr
Iron Horse Trail
Kentshire Dr
Glenburn Dr
N Village Dr
Edgebrook Dr
Fireside Dr
Whittington Dr
Marshall Rd
Shadybrook Dr
S Village Dr
Fair Hills Ave
Bethany Village Dr
Pond Ridge Dr
675
Loop Rd
Google Earth
© 2018 Google
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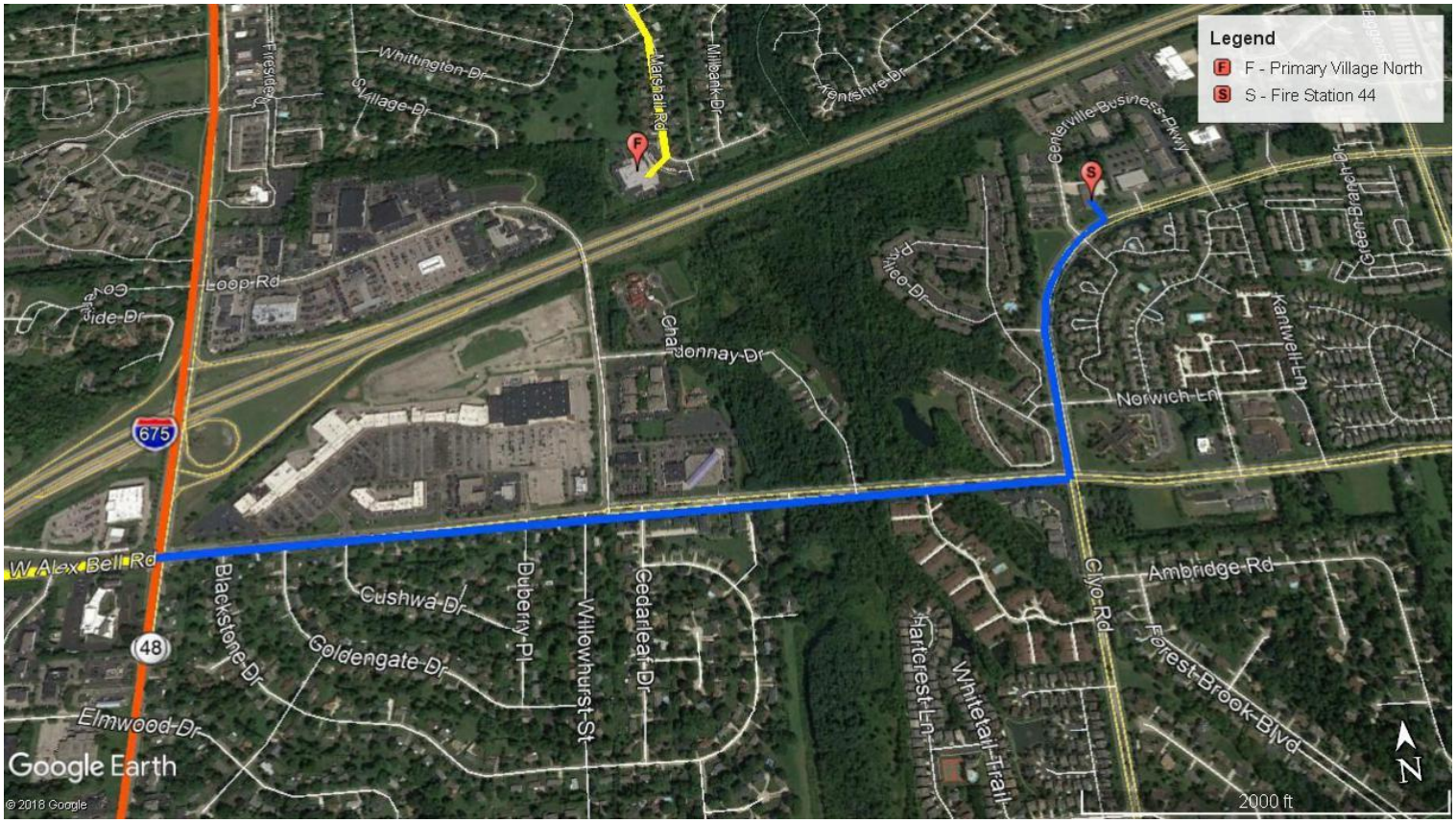
Legend
F - Primary Village North
S - Fire Station 44
Whittington-Dr
Village-Dr
Marshall-Rd
Millbank-Dr
Tentshire-Dr
Centerville-Business-Pkwy
Green-Branch-Ln
Loop-Rd
Cove-Side-Dr
Chardonnay-Dr
Kantwell-Ln
Norwich-Ln
675
W-Alex-Bell-Rd
48
Blackstone-Dr
Cushwa-Dr
Goldengate-Dr
Duberry-Pl
Willowhurst-St
Cedarleaf-Dr
Hartcrest-Ln
Whitetail-Trail
Clyo-Rd
Ambridge-Rd
Forest-Brook-Blvd
Elmwood-Dr
Google Earth
© 2018 Google
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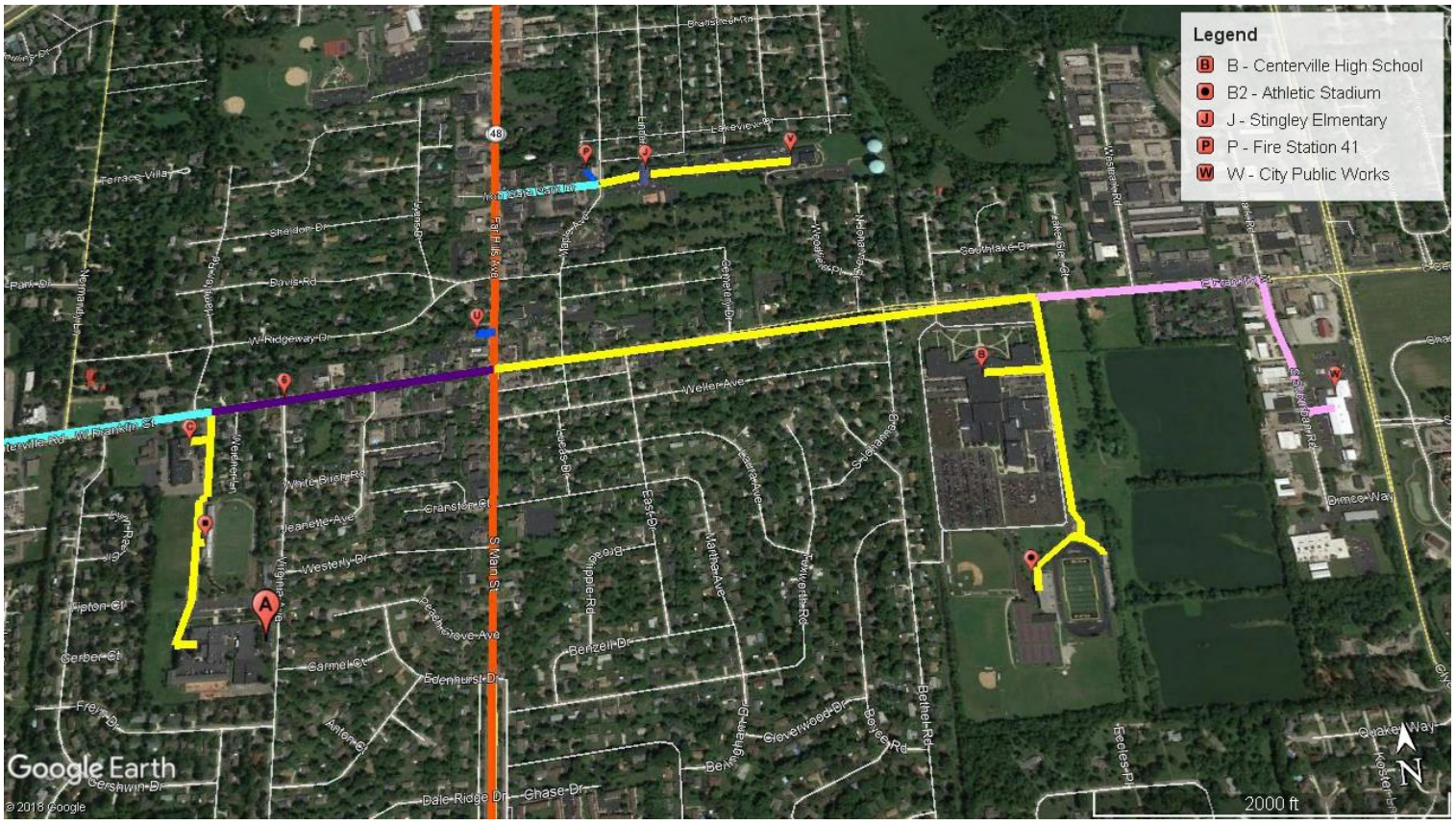
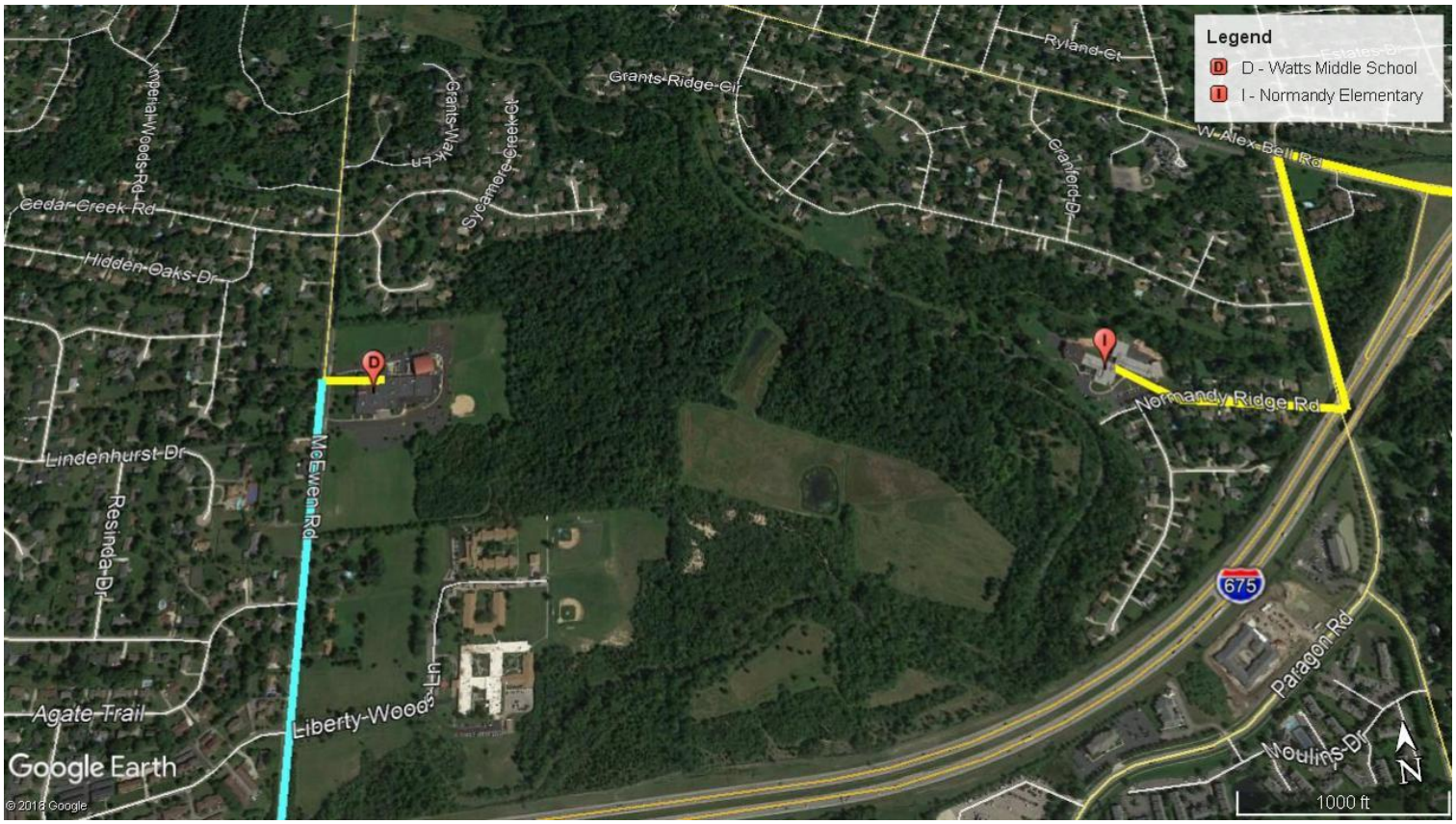

Legend
B - Centerville High School
B2 - Athletic Stadium
J - Stingley Elmentary
P - Fire Station 41
W - City Public Works
48
Terrace-Villa
Sheldon-Dr
Davis-Rd
W-Ridgeway-Dr
Fairfield-Rd
Lakeview-Dr
Cemetery-Dr
Monarch-Dr
Southlake-Dr
Weller-Ave
Whitethorn-Dr
Whitebrush-Rd
Jeanette-Ave
Cranston-Dr
Westerly-Dr
S-Main-St
Eastor-Dr
Martha-Ave
Twylgate-Rd
Benzeil-Dr
Edenhurst-Dr
Carmel-Ct
Gerber-Ct
Frey-Dr
Antler-Ct
Gershwin-Dr
Dale-Ridge-Dr
Chase-Dr
Glenwood-Dr
Boyce-Rd
Bethel-Rd
Eccles-Pl
Quaker-Way
Dymco-Way
Google Earth
© 2018 Google
2000 ft
N


Legend
D - Watts Middle School
I - Normandy Elementary
Ryland Ct
Grants Ridge Cir
W Alex Bell Rd
Imperial Woods Rd
Grants Walk Ln
Sycamore Creek Ct
Cedar Creek Rd
Hidden Oaks Dr
Crawford Dr
Normandy Ridge Rd
Lindenhurst Dr
Resinda Dr
McEwen Rd
675
Paragon Rd
Agate Trail
Liberty Woods Ln
Moulins Dr
Google Earth
© 2018 Google
1000 ft
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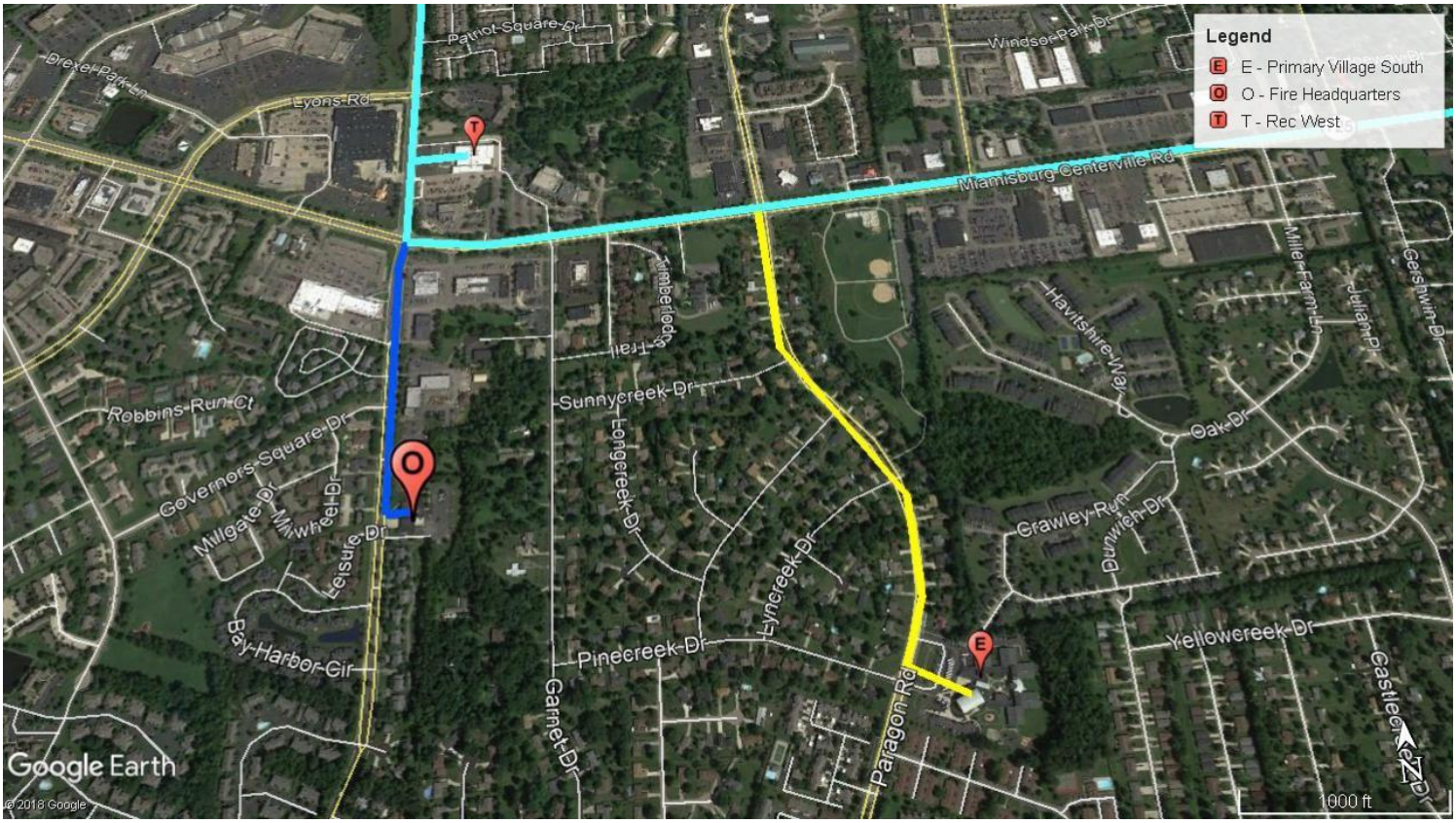
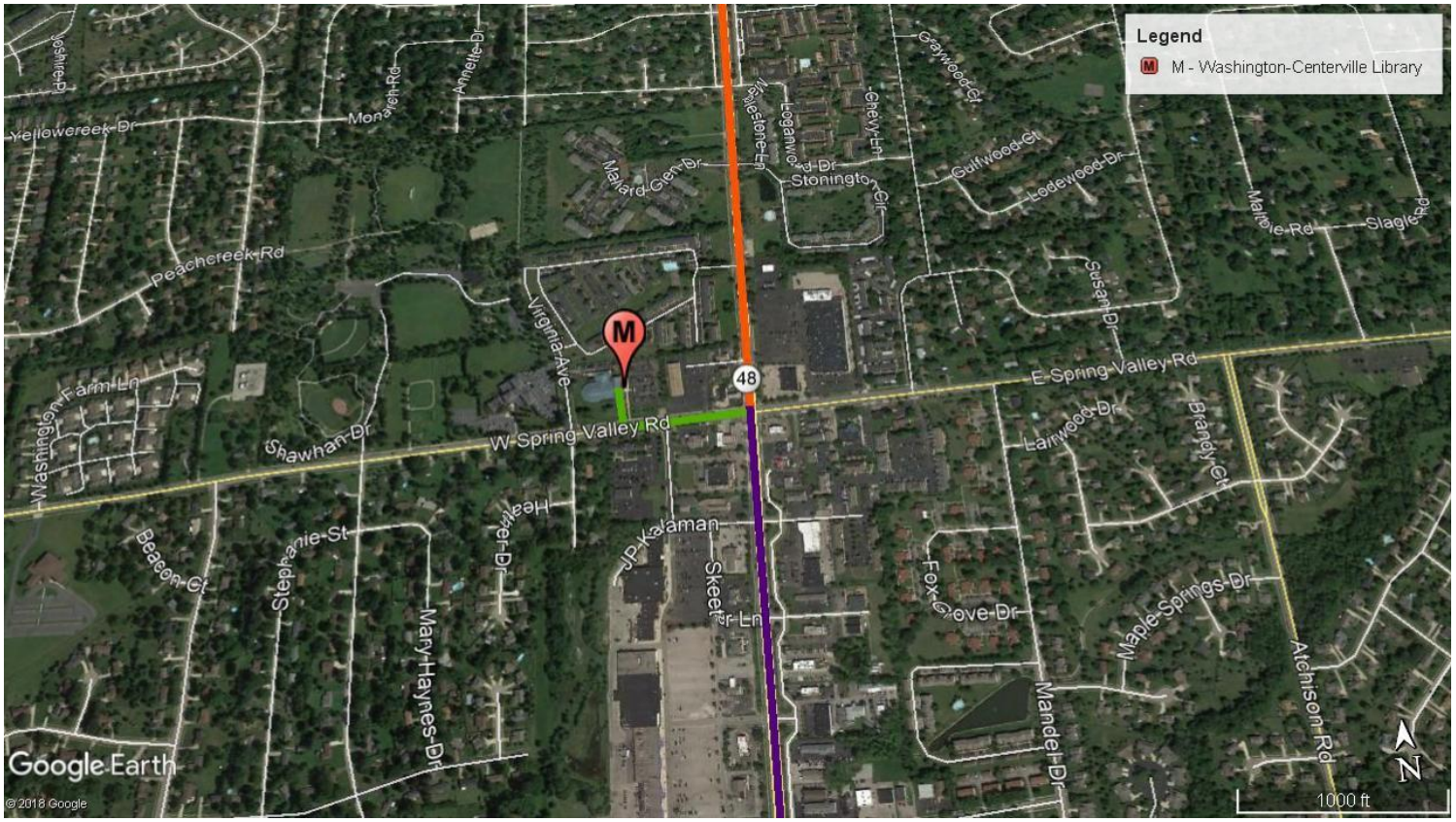
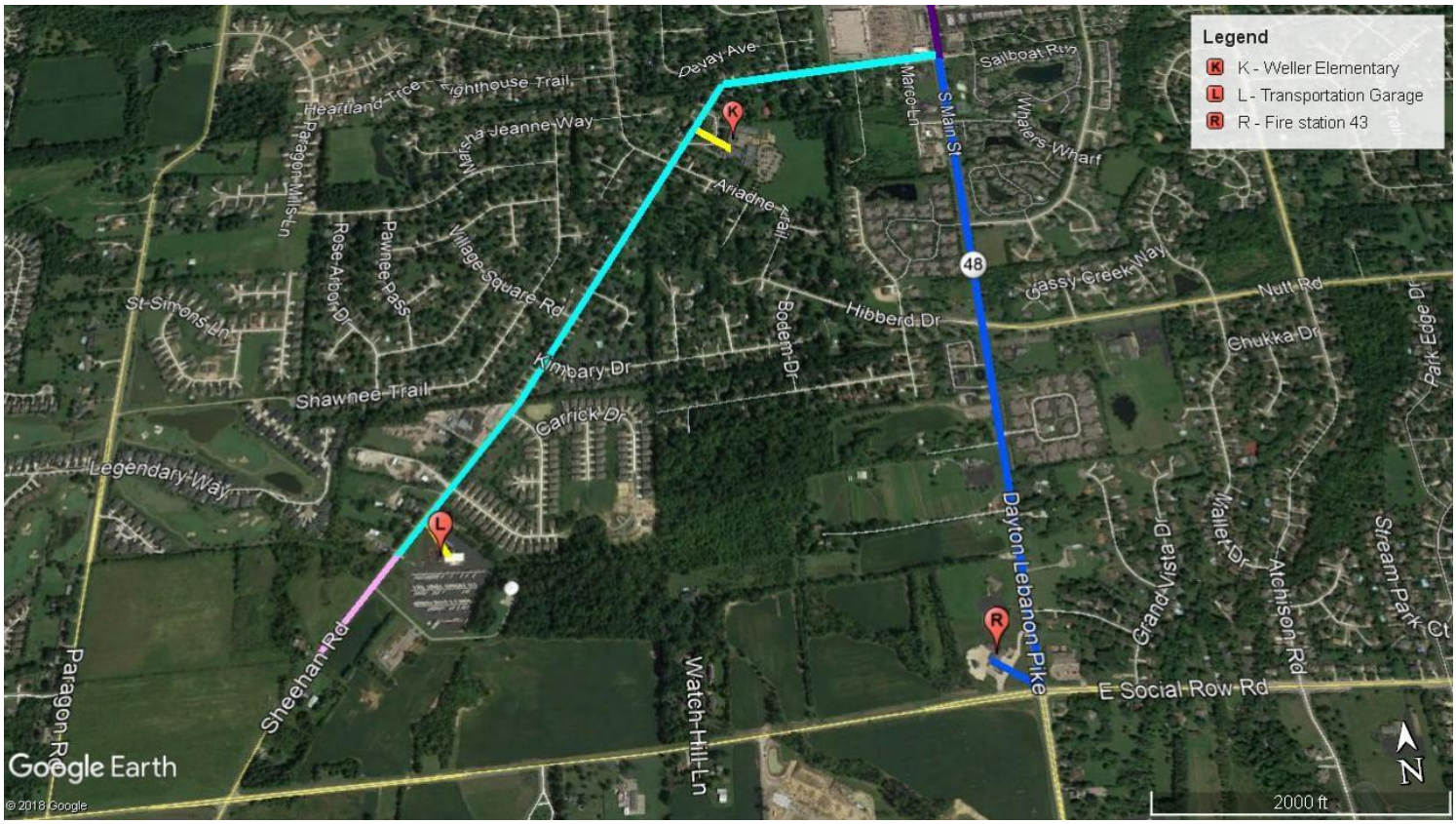

Legend
E - Primary Village South
O - Fire Headquarters
T - Rec West
Patriot Square Dr
Windsor Park Dr
Drexel Park Ln
Lyons Rd
Miamisburg Centerville Rd
Timberlodge Trail
Millie Farm Ln
Gershwin Dr
Havitshire Way
Robbins Run Ct
Sunnycreek Dr
Governors Square Dr
Longcreek Dr
Oak Dr
Millgate Dr
Millwheel Dr
Leisure Dr
Grawley Run
Dunwich Dr
Lyncreek Dr
Bay Harbor Cir
Pinecreek Dr
Yellowcreek Dr
Garnet Dr
Paragon Rd
Google Earth
© 2018 Google
1000 ft
N


Legend
M - Washington-Centerville Library
M
48
W-Spring-Valley-Rd
E-Spring-Valley-Rd
Shawhan-Dr
Virginia-Ave
Peachereek-Rd
Yellowereek-Dr
Monarch-Rd
Annette-Dr
Maplestone-Ln
Loganwood-Dr
Stonington-Cir
Mallard-Glen-Dr
Cheryl-Ln
Graywood-Ct
Gulfwood-Ct
Lodewood-Dr
Susan-Dr
Marble-Rd
Slagle-Rd
Washington-Farm-Ln
Beacon-Ct
Stephanie-St
Mary-Haynes-Dr
Heather-Dr
J-P-Kalaman
Skeeter-Ln
Fox-Grove-Dr
Mandel-Dr
Maple-Springs-Dr
Atchison-Rd
Larwood-Dr
Brandy-Ct
Google Earth
© 2018 Google
1000 ft
N


Legend
K - Weller Elementary
L - Transportation Garage
R - Fire station 43
K
L
R
48
Devay-Ave
Sailboat-Run
Marco-Ln
S-Main-St
Whalers-Wharf
Heartland-Trce
Lighthouse-Trail
Marsha-Jeanne-Way
Ariadne-Trail
Village-Square-Rd
Rose-Arbor-Dr
Pawnee-Pass
St-Simons-Ln
Kimbary-Dr
Shawnee-Trail
Carrick-Dr
Legendary-Way
Boden-Dr
Hibberd-Dr
Sassy-Creek-Way
Nutt-Rd
Chukka-Dr
Sheehan-Rd
Paragon-Rd
Watch-Hill-Ln
Dayton-Lebanon-Pike
E-Social-Row-Rd
Grandview-Dr
Wallet-Dr
Atchison-Rd
Stream-Park-Ct
Google Earth
© 2018 Google
2000 ft
N

2.4.2.13.3. Fiber Specification

2.4.2.13.3.1. All self-provisioned fiber solutions must comprise of single mode OS/2 fiber. Single mode fibers must meet the following minimum requirements:

2.4.2.13.3.2.	Core / Cladding Diameter:	9.2/125
2.4.2.13.3.3.	Loose tube or tight buffer construction	
2.4.2.13.3.4.	Maximum Attenuation	1310nm/1550nm .3/02 dB/km
2.4.2.13.3.5.	40/100Gbe Transmission distance	>10,000 @ 1310nm
2.4.2.13.3.6.	Water-blocking, sunlight resistant	
2.4.2.13.3.7.	Tension Rating 600 lbs.	

2.4.2.13.3.8. Outdoor use fiber shall be dual OFNP/OSP rated.

2.4.2.13.3.9. Building Entry fiber segments, shall be rated as required by NEC.

2.4.2.13.3.10. All termination will be completed utilizing fusion splice LC pigtails. All equipment material provided shall be from single manufacture and Installation shall qualify for minimum of 20 year manufacture performance. Warranty upon completion of project.

2.4.2.13.4. Equipment, Installation and Operations

2.4.2.13.4.1. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township does not request respondents to provide a quote for an annual operations cost to oversee the technical support of the circuit including installation and configuration of end equipment once the self-provisioned fiber is available for service.

2.4.2.13.4.2. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township will request self-provisioned network maintenance in a separate RFP.

2.4.3. DESCRIPTION OF PROPOSAL

2.4.3.1. Respondent will provide a description of their proposal for all services and solutions. Description will include an overview of the proposal, any deviations from the requested architecture, design or requirements, assumptions made, other detail Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township may find useful or necessary (or could differentiate the solution from a competing proposal).

2.4.4. SERVICE LEVEL AGREEMENT

2.4.4.1. Respondent will provide a description of the proposed services and service levels provided with the lit fiber responses. The respondent will provide a proposed Service Level Agreement (SLA) with the RFP response. The proposal must include a description of the following services and how these services will be measured.

2.4.4.1.1. Fiber Network Availability: the provider will make all reasonable efforts to ensure [99.99]% network availability of each circuit.

2.4.4.1.2. Lit and Operations proposals only: Frame/packet loss Commitment

2.4.4.1.3. Lit and Operations proposals only: Network Latency Commitment

2.4.4.1.4. Lit and Operations proposals only: Network Jitter Commitment

2.4.4.1.5. There is no right of provider to limit or throttle the capacity of the circuit at any time for any reason

2.4.4.2. In addition to the required services, the proposal may include but is not to be limited to the following services:

2.4.4.2.1. Network Operations Center: Solution will provide customer support functions including problem tracking, resolution and escalation support management on a 24x7x365 basis. Customer has the right and is encouraged to call concerning any problems that may arise relative to its connection with Vendor provided services.

2.4.4.2.2. Trouble Reporting and Response: Upon interruption, degradation or loss of service, Customer may contact Vendor by defined method with a response based on trouble level. Upon

contact from the Customer, the Vendor support team will initiate an immediate response to resolve any Customer issue. Customer will receive rapid feedback on trouble resolution, including potential resolution time.

2.4.4.2.3. Escalation: In the event that service has not been restored in a timely manner, or the Customer does not feel that adequate attention has been allocated, the Customer can escalate the trouble resolution by request. A list of escalation contacts will be provided when implementation schedule is completed.

2.4.4.2.4. Resolution: The Customer will be notified immediately once the problem is resolved and will be asked for verbal closure of the incident.

2.4.4.2.5. Trouble Reporting, Escalation and Resolution: A detail trouble reporting, escalation and resolution plan will be provided to Centerville City Schools, Washington-Centerville Public Library and Washington Township.

2.4.4.2.6. Measurement: Vendor stated commitment is to respond to any outage within two (2) hours and a four (4) hour restoration of service. Time starts from the time the Customer contacts Vendor and identifies the problem. Credits for Outages of shortage will be identified.

2.4.4.2.7. Reports: Upon request, an incident report will be made available to the Customer within five (5) working days of resolution of the trouble.

2.4.4.2.8. Link Performance per segment: The service will maintain the proposed Link Performance throughout the term of the contract.

2.4.4.2.9. Historical uptime: Provide aggregate uptime statistics for your proposed service in the geographic area encompassing Centerville City Schools, Washington-Centerville Public Library and Washington Township.

2.4.5. TIMELINE

2.4.5.1. For each response, respondents must include a construction roadmap timeline. For lit fiber and self-provisioned responses preference is given to responses with a service start for all sites on July 1, 2019. If special construction timeline will extend beyond July 1, 2019 please include a timeline for each site and the proposed start service start date. For self-provisioned fiber construction responses, use January 1, 2019 as the construction start date and base the roadmap timeline off of that date. Include how the timeline changes per site given an earlier or later start date. If proposed service start date is beyond July 1, 2019 please provide a guaranteed service start date.

2.4.6. DEMARCATION

2.4.6.1. All solutions whether lit fiber or self-provisioned fiber construction must terminate service or infrastructure to an existing rack in a Centerville Schools, Library, City and Township facility's network closet designated by the Centerville City Schools, Washington-Centerville Public Library, City of Centerville or Washington Township. Solutions bringing service to the property line but not inside of the demarc address are not acceptable.

2.4.6.2. Respondent must specify the demarcation configuration for each individual site in the proposal.

2.4.7. NETWORK DIAGRAM

2.4.7.1. For each response, respondents must include a network diagram displaying the paths to be used to serve the specified site. For self-provisioned fiber responses, respondents must include identification of aerial vs. buried fiber segments, detailed drawings showing fiber and equipment locations, number of fiber strands connected at each site and any other pertinent details.

2.4.8. REFERENCES

2.4.8.1. For each response, respondent must provide 3 references from current or recent customers, preferably K-12 schools with projects equivalent to the size that also includes joint partnerships. If respondent responds to more than one option provide 3 references for each.

2.4.8.2. Please list the references on the references worksheet included with the bid documents.

2.4.9. SPECIAL CONSTRUCTION AND NON-RECURRING COST

2.4.9.1. Respondents providing lit fiber proposals which require an upfront payment may include a special construction cost or non-recurring cost. This upfront payment is considered special construction if any new fiber is being installed. If new fiber installation is not necessary, the payment is considered a non-recurring cost and must be entered into the pricing sheet accordingly.

2.4.9.2. The amount of special construction capital requested will be reviewed based on the cost of historical fiber builds in the region. Respondents should consider other business that may be generated by building fiber into the region and request only the special construction capital allocable to the Centerville Schools, Libraries, City and Township service.

2.4.10. REQUIRE NOTICE TO PROCEED AND FUNDING AVAILABILITY

2.4.10.1. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township will follow the purchasing policies of Centerville Schools Public Schools and requirements and procedures of the FCC's E-rate program as administered by the Universal Service Administrative Company to be eligible for all available funding. The implementation of any associated contracts resulting from this competitive bid process will be dependent on the agency's' issuance of a written Notice to Proceed. E-rate program funding notification alone will not signify Notice to Proceed.

2.4.10.2. All responding vendors must be a registered vendor with USAC and have a USAC issued Service Provider Identification Number-SPIN. Responding vendors who do not have a USAC issue SPIN must provide a copy of their certified Form 498.

2.4.11. ERATE MODERNIZATION ORDER NOTE

2.4.11.1. Special construction and service eligibility for reimbursement have changed starting funding year 2016. See the Federal Communications Commission E-rate program modernization order 2 (WC Docket No. 13-184) (https://www.fcc.gov/document/fcc-releases-order-modernizing-e-rate-21st-century-connectivity) for more information.

2.4.12. Testing and Acceptance

2.4.12.1. For each owner's network, an acceptance test plan shall be submitted with the proposal. The test plan will describe the process that will be followed and the documentation that will be generated and submitted to demonstrate that the all installed material and equipment is properly installed and configured and that data can be transmitted between the data hub and each facility at the specified transmission rate.

3. OSP INSTALLATION SPECIFICATIONS

3.1. Material Requirements

3.1.1. Material will comply with those standards as established by UL or NEMA and shall be commercial grade. All materials will be new and free from defects.

3.1.2. Selected contractor and its subcontractors will provide all material management to ensure that the project remains on track according to the project milestones.

3.1.3. All due caution will be exercised in transporting and off-loading all materials to prevent any damage during shipping or placement. Any damage to any materials after their initial receipt and inspection by the respondent will be the sole responsibility of the respondent, who will replace such damaged hand holes at no additional expense to the agency.

3.1.4. In the even that buried conduit is the most economical solution, the conduit shall be 2 X 1.25" PVC schedule 40/HDPE SDR 13.5 equivalents or better or EMT (Electrical Metallic Tubing) multiduct with innerducts.

3.1.4.1. Large-radius sweeps shall be provided where required for offset or change in direction of conduit. Bend radius rating of the cable must be adhered to for all conduit bends, pull boxes, and hand holes.

3.1.4.2. Pipe sweep must not exceed 90 degrees at any one point and a bend radius of 40 inches or greater must be maintained for all HDPE pipe.

3.1.4.3. EMT fitting shall be gland or set screw type

3.1.4.4. Unless specified by right-of-way owner, crossings will be two conduits, PVC-Sch 40 or better.

3.1.5. The exact requirements for location and type of conduit within the building shall be verified with building owner.

3.1.6. All Hand Holes shall be Ohio Department of Transportation (VDOT) approved, 45,000 lb. load rated CDR or comparable enclosures on roadways and railways, and pedestrian rated hand holes for non-roadways and railways.

3.1.7. All fiber optic cable installed shall be of armored outside plant grade, loose-tube construction, with moisture protection; consisting of single mode 9/125/250 micron class fiber, low loss water band capable, 0.25dB/km@1550nm, 0.35dB/km@1383nm, 0.35dB/km@1310nm, ITU-T G.652.D or superior. Small cross-section cable is preferred.

3.1.7.1. TU-T G.652.C/D compliant

3.1.7.2. Maximum Attenuation @ 1310nm 0.34 dB/km

3.1.7.3. Maximum Attenuation @ 1385nm 0.31 dB/km

3.1.7.4. Maximum Attenuation @ 1550nm 0.22 dB/km

3.1.8. Connector Types should be LC unless otherwise specified.

3.1.9. Any warranties associated with the fiber and any other outside plant materials must revert to the agency as the fiber owner upon completion of construction.

3.1.10. All cables brought into buildings shall be terminated in an existing network closet rack designated by Centerville Schools, Libraries and Township and City.

3.2. Specifications

3.2.1. All construction shall occur in the ODOT right-of-way or on Centerville City Schools, Washington-Centerville Public Library, City of Centerville or Washington Township owned property unless, as agreed by Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township, no option can be determined to meet this requirement; the contractor will secure all necessary permits and easements before construction.

3.2.2. All work areas must be protected by proper signage and physical barriers. Leaving of open excavation areas is discouraged but where absolutely necessary proper barriers, temporary cover and signage/flagging must be provided per local/state/federal regulation.

3.2.3. Any utility or property damage must be reported to the facility owner and Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township's project manager immediately and repaired by contractor or at contractor's expense.

3.2.4. Pull line shall be installed along with the cable to facilitate future expansion.

3.2.5. Cable ID-tags shall be required at every hand-hole or vertical transition.

3.2.6. In the case of building entries, the Contractor shall work with each building owner to ensure proper requirements are met prior to any work being done on site. It is the responsibility of the Contractor to meet all building codes for placing conduit and cables following IEEE, BICSI, and NEC standards. No armored cable should be brought into the building without proper grounding. In cases where new building core bores are required, these will be handled under a separate contract.

3.3. Survey

3.3.1. Comply with all ordinances and regulations. Where required, secure permits before placing or excavating on private property, crossing streams, pushing pipe or boring under streets and railways. Pre-survey shall be done prior to each job.

3.3.2. The contractor is required to notify OUPS for the location of any proposed excavation in order to have all existing utilities marked appropriately. Excavation on any Centerville Schools, Libraries or Township property or and other private property requires notification of that owner in order to locate private utility

lines. The contractor shall be bound by the marking time standards for private/public utilities as those marked under OUPS.

3.3.3. Respondent will locate underground lines of third parties in cable route area

3.4. Permits and Traffic Control

3.4.1. The respondent must adhere to all applicable laws, rules and requirements and must apply for permits to place infrastructure per specification per county or city ordinance applicable to where the infrastructure is being placed.

3.4.2. All traffic control, in accordance with local, state, county, or permitting agency laws, regulations, and requirements, will be the respondent's responsibility. The respondent's construction schedule will take into consideration sufficient time for the development and approval of a traffic control plan.

3.5. Tracer Wire Installation

3.5.1. Tracer wire shall be placed with all conduit installed unless armored or traceable cable is used. The respondent will provide the tracer wire and shall install, splice and test (for continuity) the tracer wire. If the tracer wire is broken during installation, the wire should be repaired and tested for continuity after repair.

3.5.2. For multi-duct installation, install a 5/8" X 8" copper clad ground rod in the hand-hole located on public right–of-way. Place a #12 insulated copper locate wire from the ground rod to the fiber optic termination room or to the outside of the building directly below the pull box and terminate on one side of an insulated indoor/outdoor terminal block to the master ground bar in the fiber optic termination room or place a ground rod on the outside of the building. Locate block in an accessible location. This is for "locate purposes only," not for grounding purposes. Note on as-built where ground is placed and tag located wire as "locate wire."

3.6. Depth of Burial

3.6.1. Except where otherwise specified, the cable shall be placed to a minimum depth of 36" along roadways and 24" on private property. Greater cable depth will be required at the follow locations.

3.6.1.1. Where cable route crosses roads, the cable shall be placed at a minimum depth of 48" below the pavement or 36" below the parallel drainage ditch, whichever is greater, unless the controlling authority required additional depth, in which case the greatest depth will be maintained.

3.6.1.2. Where cable crosses existing sub-surface pipes, cables, or other structures: at foreign object crossings, the cable will be placed to maintain a minimum of 12" clearance from the object or the minimum clearance required by the object's owner, whichever is greater.

3.7. Highway, Railroad, and Other Bored Crossings

3.7.1. All work performed on public right-of-way or railroad right-of-way shall be done in accordance with requirements and regulations of the authority having jurisdiction there under.

3.7.2. Respondent shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn.

3.7.3. Where the cable route crosses railroad right-of-way, the cable shall be placed at a minimum depth of 60" below the railroad surface or 36" below the parallel drainage ditch, whichever is greater, unless the controlling authority requires additional depth, in which case the greatest depth will be maintained.

3.8. Roadways, Parking Lots and Sidewalks

3.8.1. Installation under roadways/parking lots/sidewalks will be performed by directional boring. Pavement cuts shall only be allowed where absolutely necessary and require agency approval. Paved surfaces must be properly repaired; compacted fill or equivalent, and replacement surface to match existing surface.

3.9. Cable Markers

3.9.1. Cable markers shall be placed within 48 hours of cable installation. Unless the right-of-way or property owner specifies otherwise, cable markers shall be placed at all change in directions, splices, fence line crossings, at road and stream crossings, and other points on the route not more than 1,000 feet apart.

3.9.2. In addition, on highway right-of-way, the markers shall be located at the highway right-of-way line. Markers shall always be located so that they can be seen from the location of the cable.

3.10. Hand Holes and Vaults

3.10.1. Hand holes will be placed in accordance with standard industry practice following the specifications provided in the construction plans, typical drawings, and detail drawings. Special attention and planning must be exercised to ensure accessibility by other groups after construction has been completed.

3.10.2. In-ground pull/splice vaults/handboxes shall be placed at reasonable intervals. This is typically in the range of 400-800 feet based on the amount of turn in the conduit. On exceptionally straight conduit runs 1,200 feet may be possible; at no time should 1,200 feet be exceeded except where approved by project manager. All installations shall be proposed to Centerville Schools, Libraries, City and Township for approval prior to installation.

3.10.3. Hand-holes placed will be a minimum of 17" x 30" x 18", with open bottom, constructed of polymer concrete consisting of sand and aggregate bound together with polymer resin, or plastic hybrid in non-traffic areas. Upsizing of hand-hole will be determined to accommodate anticipated splice cases and cable slack.

3.10.4. Mesh shall be placed in the bottom of the hand-hole with 6" of pea gravel. Hand-holes placed along any right-of-way shall be AASHTO H-20 rated with 20K lids where traffic loading is anticipated, otherwise TIER 15 is acceptable. All hand-holes and lids shall comply with the NESC for loading. Hand-holes shall not be installed on steep banks or slopes where the cover cannot be leveled within a tolerance of one inch (1") of drop to twelve inches (12") of grade. Placement locations will be provided in the Contract Documents.

3.10.5. All hand holes unless otherwise stipulated by the drawings will be buried with 12" to 18" of cover at final grade.

3.10.6. Immediately after placement, the soil around and over the hand hole will be tamped and compacted. Should any washouts occur, the respondent will be responsible for correcting the problem immediately without additional cost to Centerville City Schools, Washington-Centerville Public Library, City of Centerville or Washington Township.

3.10.7. After cable placement all ducts will be sealed.

3.10.8. All splice hand holes/manholes will be grounded

3.10.9. A minimum of 100' coil of cable shall be left in each hand hole/building for splicing use.

3.10.9.1. Slack in the cable sufficient to reach into a splice van shall be required at each vault.

3.11. Splicing

3.11.1. Fiber to fiber fusion splicing of optical fibers at each point including head ends is required.

3.11.2. Complete testing services, such as end to end, reel testing, and splice loss testing, ORL, power meter/laser source testing and WDM testing is required.

3.11.3. Individual splice loss will be 0.10 dB for single-mode unless after 3 attempts these values cannot be achieved, then the fibers will be re-spliced until a splice loss within 0.05 dB of the lowest previous attempts is achieved. Splice loss acceptance testing will be based on the fusion splicer's splice loss estimator.

3.12. Aerial Plant

3.12.1. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township prefers the most cost effective solution which could include aerial fiber using existing utility poles or buried fiber runs in conduit. Respondent must include aerial fiber run details in the proposal and adhere to pole owners' requirements for clearances, spans, grounding, guys and attachments. Again, we want a solution that is value engineered for the most cost effective option regardless if aerial or buried.

3.12.2. In the case of an aerial transition to avoid a construction obstacle, the Contractor shall provide the strand and all hardware to lash the cable in place and set anchors in all required locations. The strand shall be grounded at every pole per NESC standards.

3.13. Testing Cable

3.13.1. The respondent shall be responsible for on-reel verification of cable quality prior to placement.

3.13.2. Completed test forms on each reel shall be submitted to the Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township.

3.13.3. Respondent assumes responsibility for the cable after testing. This responsibility covers all fibers in the cable.

3.13.4. The respondent shall supply all tools, test equipment, consumables, and incidentals necessary to perform quality testing.

3.13.5. The cable ends shall be sealed upon completion of testing.

3.13.6. In addition to splice loss testing, selected respondent will perform end-to-end insertion loss testing of single-mode fibers at 1310 nm and 1550 nm from one direction for each terminated fiber span in accordance with TIA/EIA-526-7 (OFSTP 7). For spans greater than 300 feet, each tested span must test to a value less than or equal to the value determined by calculating a link loss budget.

3.14. Restoration

3.14.1. The contractor shall not open a work area greater than that which can restored in the specified time.

3.14.2. All work sites will be restored to as near their original undisturbed condition as possible, all cleanup will be to the satisfaction of the agency and any permitting agencies.

3.14.3. Respondent shall provide a brief description of restoration plan in the response, with the expectation that a more detailed restoration plan will be delivered prior to construction begins.

3.14.4. Work site restoration will include the placement of seed, mulch, sod, water, gravel, soil, sand, and all other materials as warranted.

3.14.5. Backfill material will consist of clean fill. Backfilling, tamping, and compaction will be performed to the satisfaction of the agency, the representative of any interested permitting agency, and/or the railroad representative.

3.14.6. Respondent will be responsible for any restoration complaints arising within one year after the agency's final acceptance.

3.14.7. Excess material will be disposed of properly.

3.14.8. Debris from clearing operations will be properly disposed of by the respondent/subcontractors as required by permitting agencies or the railroad. Railroad ties, trees, stumps or any foreign debris will be removed, stacked, or disposed of by the respondent as per requirements by other interested permitting agencies, and/or the agency.

3.14.9. Road shoulders, roadbeds, and railroad property will be dressed up at the end of each day. No payment for installation will be permitted until cleanup has been completed to the satisfaction of the any permitting agencies, and/or the agency.

3.14.10. Site clean-up will include the restoration of all concrete, asphalt, or other paving materials to the satisfaction of the other interested permitting agencies, and/or the agency.

3.15. Documentation

3.15.1. As Built Drawing will include:

3.15.1.1. Drawings, site drawings, permit drawings, and computerize design maps and electronically stored consolidated field notes for the entire route must be included in the documentation. The method of installation will dictate the additional types of documentation that should be provided. For example, documentation of aerial installation should include pole attachment inventories, pole attachment applications, pole attachment agreements between respondent and other utilities, GPS points of reference for utility poles, and photo images of poles to which fiber is attached. Documentation of underground installation should include conduit design, conduit detailing, conduit path, conduit depth, manhole detailing, hand hole location, vault location, cabinet location, preparation of all forms and documentation for approval of conduit construction and/or installation, verification of as-built and computerized maps.

3.15.2. Fiber Cable Route

3.15.2.1. Splicing locations

3.15.2.2. Optical Fiber assignments at Patch Panels

3.15.2.3. Optical fiber assignments at splice locations.

3.15.2.4. Installed cable length

3.15.2.5. Date of Installation

3.15.3. Fiber Optic details will include:

3.15.3.1. Manufacturer
3.15.3.2. Cable Type, Diameter
3.15.3.3. Jacket Type: Single Mode
3.15.3.4. Fiber core and cladding diameter
3.15.3.5. Fiber attenuation per Kilometer
3.15.3.6. Fiber bandwidth and dispersion
3.15.3.7. Index of refraction

3.15.4. OTDR documentation will include:

3.15.4.1. Each span shall be tested bi-directionally from endpoint to endpoint. Each span's traces shall be recorded and mapped. Each splice loss from each direction and the optical length between splices as well as any of the information required by Span Map.
3.15.4.2. Reel acceptance
3.15.4.3. Individual fiber traces for complete fiber length
3.15.4.4. Paper and digital records of all traces.
3.15.4.5. Losses of individual splices
3.15.4.6. Anomalies
3.15.4.7. Wavelength tests and measurement directions
3.15.4.8. Manufacturer, model, and serial number of OTDR
3.15.4.9. Date of last calibration.
3.15.4.10. Power Meter documentation will include:
3.15.4.11. Total link loss of each fiber
3.15.4.12. Wavelengths tested and measurement directions
3.15.4.13. Manufacturer, model, and serial number of test equipment
3.15.4.14. Date of last calibration
3.15.4.15. Documentation must be provided in digital format that is agreeable to Centerville Schools, the Libraries and the Township.

3.16. References, Standards and Codes

3.16.1. Specifications in this document are not meant to supercede state law or industry standards. Respondents shall note in their response where their proposal does not follow the requested specification to comply with state law or industry standard. The following standards are based upon the Customer-Owned Outside Plant Design Manual (CO-OSP) produced by BICSI, the Telecommunications Distribution Methods Manual (TDMM) also produced by BICSI, ANSI/TIA/EIA and ISO/IEC standards, and NEC codes, among others.

3.16.2. It is required that the respondent be thoroughly familiar with the content and intent of these references, standards, and codes and that the respondent be capable of applying the content and intent of these references, standards, and codes to all outside plant communications system designs executed on the behalf of Centerville City Schools, Washington-Centerville Public Library and Washington Township.

3.16.3. Listed in the table below are references, standards, and codes applicable to outside plant communications systems design. If questions arise as to which reference, standard, or code should apply in a given situation, the more stringent shall prevail. As each of these documents are modified over time, the latest edition and addenda to each of these documents is considered to be definitive.

3.16.3.1. Table 1 — References, Standards, and Codes

Standard/Reference	Name/Description
BICSI CO-OSP	BICSI Customer-Owned Outside Plant Design Manual
BICSI TDMM	BICSI Telecommunications Distribution Methods Manual
BICSI TCIM	BICSI Telecommunications Cabling Installation Manual
	Customer-Owned Outside Plant Telecommunications Cabling Standard
TIA/EIA - 568	Commercial Building Telecommunications Cabling

	Standard
TIA/EIA - 569	Commercial Building Standard for Telecommunication Pathways and Spaces
TIA/EIA - 606	The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
TIA/EIA - 607	Commercial Building Grounding and Bonding Requirements for Telecommunications
TIA/EIA - 455	Fiber Optic Test Standards
TIA/EIA - 526	Optical Fiber Systems Test Procedures
IEEE 802.3 (series)	Local Area Network Ethernet Standard, including the IEEE 802.3z Gigabit Ethernet Standard
NEC	National Electric Code, NFPA
NESC	National Electrical Safety Code, IEEE
OSHA Codes	Occupational Safety and Health Administration, Code of Federal Regulations (CFR) Parts 1910 - General Industry, and 1926 - Construction Industry, et al.

4. RFP SCORING RUBRIC

4.1. The Purpose and Intent of this Request for Proposal (RFP) is to establish an experienced and qualified offeror whose proposal is determined to be the "lowest responsible bid" to the Centerville City Schools, Washington Centerville Library, City of Centerville and Washington Township. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township will compare any proposals for a self-provisioned broadband network against the cost of Leased Lit service to evaluate the total cost of ownership over a 10 year life of the fiber network.

4.2. Award shall be made to the offeror whose proposal is determined to be the "lowest responsible bidder". The award of a contract shall be at the sole discretion of Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township.

4.3. Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township reserves the right to accept or reject any or all bids, in whole or in part, even with SLD funding approval, to waive any informality and to delete items prior to making the award, whenever it is deemed in the sole opinion of Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township to be in its best interest.

5. Pricing Worksheets for Connections

As E-rate program funding is sought for this project, Centerville School and the Library must follow E-rate program rules in regards to construction and service costs as they relate to leased lit fiber and self-provisioned. Each offeror should show construction costs associated with getting leased lit fiber to the building (if applicable) along with a separate construction cost (if applicable) for terminating the fiber in a Centerville School's, or Washington Libraries, or City of Centerville or Washington Township equipment closet rack at each site. The overall cost to Centerville City Schools, Washington-Centerville Public Library, City of Centerville and Washington Township will be considered in awarding a contract from this bid.

5.1. Leased Lit Worksheets

5.1.1. Leased Lit Construction Cost from Specified Datacenter to Individual Site (If Applicable)

Qty	Description	Agency	One Time Installation Cost
1	Construction costs at Board of Education building (Centerville datacenter)	Schools	
1	From Centerville datacenter to Centerville High School	Schools	
1	From Centerville High School to Athletic Stadium	Schools	
1	From Centerville datacenter to Magsig Middle School	Schools	
1	From Centerville datacenter to Watts Middle School	Schools	
1	From Centerville datacenter to Driscoll Elementary	Schools	
1	From Centerville datacenter to John Hole Elementary	Schools	
1	From Centerville datacenter to Stingley Elementary	Schools	
1	From Centerville datacenter to Normandy Elementary	Schools	
1	From Centerville datacenter to Weller Elementary	Schools	
1	From Centerville datacenter to Primary Village North	Schools	
1	From Centerville datacenter to Primary Village South	Schools	
1	From Centerville datacenter to Transportation Garage	Schools	
	Total Centerville Schools Construction Cost		
1	Construction costs at Centerville Library (datacenter) for Library	Library	
1	From Library datacenter to Woodbourne Library	Library	
	Total Library Construction Cost		
1	Construction costs at Township Fire Headquarters (datacenter) for Township	Township	
1	From Township datacenter to Fire Station 41	Township	
1	From Township datacenter to Fire Station 42	Township	
1	From Township datacenter to Fire Station 43	Township	
1	From Township datacenter to Fire Station 44	Township	
1	From Township datacenter to Town Hall	Township	
	Total Township Construction Cost		
1		City	
		City	
	Total City of Centerville Construction Cost		
	Total Project Construction Cost		

5.1.2. Leased Lit Initial One Time Setup Charges (If Applicable)

Qty	Description	Agency	One Time Installation Cost
1	Board of Education	Schools	
1	Centerville High School	Schools	
1	Athletic Stadium	Schools	
1	Magsig Middle School	Schools	
1	Watts Middle School	Schools	
1	Driscoll Elementary	Schools	

1	John Hole Elementary	Schools	
1	Stingley Elementary	Schools	
1	Normandy Elementary	Schools	
1	Weller Elementary	Schools	
1	Primary Village North	Schools	
1	Primary Village South	Schools	
1	Transportation Garage	Schools	
	Total Centerville Schools Setup Cost		
1	Centerville Library	Library	
1	Woodbourne Library	Library	
	Total Library Setup Cost		
1	Township Fire Headquarters	Township	
1	Fire Station 41	Township	
1	Fire Station 42	Township	
1	Fire Station 43	Township	
1	Fire Station 44	Township	
1	Town Hall	Township	
	Total Township Setup Cost		
1		City	
		City	
	Total City of Centerville Setup Cost		
	Total Project Construction Cost		
	Total Project Setup Cost		
	Total Project for Lit Leased Fiber		

5.1.3. Monthly Recurring Cost (MRC) for Leased Lit Service

Site Description	Agency	100Mbps MRC	1 Gbps MRC	2 Gbps MRC	5 Gbps MRC	10 Gbps MRC
Board of Education building (Centerville datacenter)	Schools					
From Centerville datacenter to Centerville High School	Schools					
From Centerville datacenter to Magsig Middle School	Schools					
From Centerville datacenter to Watts Middle School	Schools					
From Centerville datacenter to Driscoll Elementary	Schools					
From Centerville datacenter to John Hole Elementary	Schools					
From Centerville datacenter to Stingley Elementary	Schools					
From Centerville datacenter to Normandy Elementary	Schools					
From Centerville datacenter to Weller Elementary	Schools					
From Centerville datacenter to Primary Village North	Schools					
From Centerville datacenter to Primary Village South	Schools					
From Centerville datacenter to Transportation Garage	Schools					
Total Centerville Schools MRC						
Construction costs at Centerville Library (datacenter) for Library	Library					
From Library datacenter to Woodbourne Library	Library					
Total Library MRC						
Construction costs at Fire Headquarters (datacenter) for Township	Township					
From Township datacenter to Fire Station 41	Township					
From Township datacenter to Fire Station 42	Township					
From Township datacenter to Fire Station 43	Township					
From Township datacenter to Fire Station 44	Township					

Rec West	Township					
Town Hall	Township					
Total Township MRC						
City of Centerville MRC						

5.2. Self-Provisioned Fiber Worksheets

5.2.1. Design and Engineering

	Total	Schools Total x 44% Share	Library Total x 6% Share	City Total x 19% Share	Township Total x 31% Share
Design/Engineering					

5.2.2. Self-Provisioned Fiber Construction Cost for each Shared Network Segments by Agency (If Applicable)

S=Schools, L=Library,C=City,T=Township

Agency	Pathway Color	Start Location	Stop Location	Strands (Minimum)	Distance	Construction Costs	Material /Fiber Costs		Agency Share Construction	Agency Share Material /Fiber
S/T 48/48	Light Blue	John Hole Elementary	Intersection of 48/Whipp	96	.54			Costs/ 2 S/T		
S/C/T 48/96/48	Purple	Intersection of Whipp/Marshall	48/Woodbourne Library	192	.75			Costs/3 S/C/T		
S/C/T/L 48/96/48/48	Orange	48/Woodbourne Library	City Conduit at 675 Exchange	288	.61			Costs/4 S/C/T/L		
S/C/T/L 48/96/48/48	Orange	City Conduit at 675 Exchange	Intersection of 48/Spring Valley	288	2.33			Costs/3 S/T/L		
S/C/T 48/96/48	Purple	Intersection of 48/Spring Valley	Intersection of 48/Shehann	192	.53			Costs/3 S/C/T		
S/T 48/48	Light Blue	Intersection of 48/Irongate	Intersection of Irongate/Maple	96	.13			Costs/2 S/T		
S/C/T 48/96/48	Purple	Intersection of 48/725	725/Magsig Middle School	192	.32			Costs/3 S/C/T		
S/C 24/24	Light Blue	Intersection of 48/Sheehan	Centerville Transportation	48	1.28			Costs/2 S/C		
S/T 48/48	Light Blue	725/Magsig Middle School	Intersection 725/McEwen	96	1.23			Costs/2 S/T		

S/T 48/48	Light Blue	Intersection of 725/McEwen	Watts Middle School	96	1.1			Costs/2 S/T		
Schools Shared Segment Total										
Library Shared Segment Total										
City Shared Segment Total										
Township Shared Segment Total										
Project Shared Segments Total										

5.2.3. Self-Provisioned Fiber Construction Cost for each Agency Owned Network Segment by Agency

Agency	Pathway Color	Start Location	Stop Location	Strands (Minimum)	Distance	Construction Costs	Material Fiber Costs
Schools	Yellow	725/ Magsig Middle School	Board of Education	72	.32		
Schools	Yellow	725/ Magsig Middle School	Magsig Middle School	24	.1		
Schools	Yellow	Intersection of 725/Paragon	Primary Village South	24	.62		
Schools	Yellow	Intersection of 725/ Watts	Watts Middle School	24	.1		
Schools	Yellow	Intersection of 48/Alex Bell	Normandy Elementary	24	1.1		
Schools	Yellow	Intersection of Whipp/John Hole	John Hole Elementary	24	.1		
Schools	Yellow	Intersection of Whipp/Marshall	Driscoll Elementary	24	.29		

Schools	Yellow	Intersection of Whipp/Marshall	Primary village North	24	.58		
Schools	Yellow	Intersection of Irongate/Maple	Stingley Elementary	24	.1		
Schools	Yellow	Intersection of 48/725	Centerville High School	192	.83		
Schools	Yellow	Intersection of 48/Sheehan	Weller Elementary	48	.54		
Schools	Yellow	Weller Elementary	Transportation Garage	48	.9		
					Schools Total		
Library	Green	Intersection of 48/Spring Valley	Centerville Library	6	.18		
Library	Green	Woodbourne Library	Woodbourne Library	6	.1		
					Library Total		
Township	Dark Blue	Intersection of 725/McEwen	Fire Headquarters	48	.34		
Township	Dark Blue	McEwen Rd	Rec West	48	.1		
Township	Dark Blue	Intersection of Whipp/Station 45	Station 42	48	.1		
Township	Dark Blue	Intersection of Irongate/Maple Ave	Station 41	48	.1		
Township	Dark Blue	Intersection of 48/Alex Bell	Station 44	48	1.46		

Township	Dark Blue	Intersection of 48/Sheehan	Intersection of 48/Social Row	48	1.1		
Township	Dark Blue	Intersection of 48/Town Hall	Town Hall	48	.1		
Township Total							
City	Pink	Sheehan/CCS Transportation	Sheehan Sawmill	24	.17		
City	Pink	Centerville High School	Public Works Building	96	.49		
City Total							
Project Agency Owned Segments Total							

5.2.4. Self Provisioned Alternate Bid Network Segments

	Agency	**Pathway Color**	**Start Location**	**Stop Location**	**Strands (Minimum)**	**Distance**	**Construction Costs**	**Material Fiber Costs**
Alternate Bid 1	Schools	Yellow	Soccer Stadium	Soccer Stadium	24	.1		
Alternate Bid 2	Schools	Yellow	Centerville High School	Athletic Stadium	48	.4		
Alternate Bid 3	Schools	Yellow	Stingley Elementary	Tower Heights Middle School	6	.2		
Schools Alternate Bids Total								

Project Alternate Bids Total		

5.2.5. Self Provisioned Project Totals

	Construction Costs	**Material/Fiber Costs**
Project Shared Segments Total		
Project Agency Owned Segments Total		
Project Alternate Bids Total		
Project Total		

5.3. Centerville City Schools Self Provisioned Network Equipment

5.3.1. Installation, Setup/Configuration, or other operational services should not be included. Maintenance and support for proposed network equipment can be included below.

5.3.2. Equipment Requirements for Remote Building Sites

5.3.2.1. 48 ports of copper connectivity at 1000/100/10 Mbps (Full wire-speed non-blocking on all ports)

5.3.2.2. 2 SFP+ ports for 10Gbps SFP+ modules (Full wire-speed non-blocking on all ports)

5.3.2.3. PoE+ (802.3at Type 2 up to 30Watts per port) or greater capable on all ports with 740Watt or greater available

5.3.2.4. AC power supply with hot-swap capability

5.3.2.5. Support layer 2 and layer 3 switching and routing

5.3.2.6. Support OSPF and EIGRP routing protocols

5.3.2.7. Support access control lists for network filtering on all ports

5.3.2.8. Support network port security for limiting hardware mac addresses permitted on each port

5.3.2.9. Support SSH and serial command line interface access for management

5.3.2.10. Fully integrate into existing management system and workflow

5.3.2.11. Support NetFlow for network usage monitoring

5.3.2.12. Support RADIUS for management access user authentication

5.3.2.13. Support RTSP 802.1s/w and Per VLAN Rapid Spanning-Tree

5.3.2.14. Support Spanning Tree Root Guard or equivalent

5.3.2.15. Fully managed on premises and not internet “cloud” based

5.3.2.16. Support QoS services including CoS, DSCP, SSR, and WTD

5.3.2.17. Full routing support of IPv4 and IPv6

5.3.2.18. Support DHCP relay functionality to central DHCP server

5.3.2.19. Support 802.1q trunking

5.3.2.20. Support 802.3ad link aggregation

5.3.2.21. Auto-MDIX on all copper ports

5.3.2.22. Support port-mirroring and remote port-mirroring for trouble shooting and network packet capture

5.3.2.23. VLAN IDs available for use 1-4096

5.3.2.24. Support for greater than 100 VLANs concurrently active

5.3.2.25. Jumbo frame (9216 bytes) support on all ports

5.3.2.26. Forwarding performance of up to 130Mpps or better

5.3.2.27. Forwarding bandwidth of 108Gbps (full-duplex at 216Gpbs) or better

5.3.2.28. Operating humidity up to 95% noncondensing

5.3.2.29. Front to back air cooling

5.3.3. Equipment Requirements for Board of Education (Centerville Schools Hub)

5.3.3.1. 16 SFP+ ports for 10Gbps SFP+ modules (Full wire-speed non-blocking on all ports)

5.3.3.2. AC power supply with hot-swap capability

5.3.3.3. Support layer 2 and layer 3 switching and routing

5.3.3.4. Support OSPF and EIGRP routing protocols

5.3.3.5. Support access control lists for network filtering on all ports

5.3.3.6. Support network port security for limiting hardware mac addresses permitted on each port

5.3.3.7. Support SSH and serial command line interface access for management

5.3.3.8. Fully integrate into existing management system and workflow

5.3.3.9. Support NetFlow for network usage monitoring

5.3.3.10. Support RADIUS for management access user authentication

5.3.3.11. Support RTSP 802.1s/w and Per VLAN Rapis Spanning-Tree

5.3.3.12. Fully managed on premises and not internet “cloud” based
5.3.3.13. Support QoS services including CoS, DSCP, SSR, and WTD or equivalent
5.3.3.14. Full routing support of IPv4 and IPv6
5.3.3.15. Support DHCP relay functionality to central DHCP server
5.3.3.16. Support 802.1q trunking
5.3.3.17. Support 802.3ad link aggregation
5.3.3.18. Auto-MDIX on any copper ports (if any)
5.3.3.19. Support port-mirroring and remote port-mirroring for trouble shooting and network packet capture
5.3.3.20. VLAN IDs available 1-4096
5.3.3.21. Support for greater than 100 VLANs concurrently active
5.3.3.22. Jumbo frame (9216 bytes) support on all ports
5.3.3.23. Forwarding bandwidth of up to 800Gbps or better
5.3.3.24. Routing IPv4 250Mpps or better
5.3.3.25. IPv6 Routing 125Mpps or better
5.3.3.26. Operating humidity up to 95% noncondensing
5.3.3.27. Front to back air cooling

5.3.4. SFP+ Modules
5.3.4.1. Standard SFP+ module compatible with switches
5.3.4.2. LC type connector
5.3.4.3. Capable of running without error at 10Gbps for distances required by fiber run
5.3.4.4. Supports type of fiber used in construction (single-mode G.652 C/D)

5.4. Pricing Worksheet for Centerville School Network Equipment

Equipment (Model)	**Quantity**	**Unit Price**
Total		

BID GUARANTY AND CONTRACT BOND

(SECTION 153.571 OHIO REVISED CODE)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____
(name and address)

as principal and _____

(name of surety) as Surety, are hereby held and firmly held and bound unto the **Centerville City Schools Board of Education**, hereinafter called the Obligee, in the penal sum of the dollar amount of the bid submitted by the Principal to the Obligee on _____ to undertake the project known as ___.

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Obligee which are accepted by the Obligee. In no case shall the penal sum exceed the amount of _____ dollars ($_____). (If the line above is left blank, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including alternates, in dollars and cents. A percentage is not acceptable). For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named Principal has submitted a bid on the above referred to project.:

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the Obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid: or in the event the Obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation be null and void, otherwise to remain in full force and effect. If the Obligee accepts the bid of the Principal and the Principal, within ten days after awarding of the contract, enters into a proper contract in accordance with the bid, plans, details and specifications, and bills of materials, which said contract is made a part of this bond the same as though set forth herein; and

IF THE SAID Principal shall well and faithfully perform each and every condition of such contract, and indemnify the Obligee against all damage suffered by failure to perform such contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material thereof; for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialism or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract in or to the plans and specifications therefore shall in any wise affect the obligations of said Surety on its bond and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20___

PRINCIPAL _____

By: _____

Title: _____

Surety: _____ Surety Company Address:

_____ _____
Street

By: _____ _____
Attorney-In-Fact City State Zip

SURETY AGENT'S ADDRESS:

_____
Agency Name

_____
Street

_____
City State Zip

_____
Telephone

DELINQUENT PERSONAL PROPERTY TAXES

TO:

I submitted a bid to _____ on _____, 20___, and having been awarded the contract described as (Insert contract number or a brief description of the work or service to be performed), submit statement to comply with the requirement of Section 5719.042, Ohio Revised Code.

NOTE: If paragraph No. 1 below is applicable, the bidder should sign in the space provided at the end of the paragraph, and then cross out paragraph No. 2.

If paragraph No. 2 below is applicable, the bidder should insert the requested information and then cross out paragraph No. 1.

No. 1: At the time I submitted my bid I was not charged with any delinquent personal property taxes on any general tax list.

_____
NAME OF FIRM

_____
Signature of Officer (Title)

No. 2: At the time I submitted my bid I was charged with delinquent personal property taxes, penalties and interest as follows:

$_____ Delinquent Taxes

$_____ Penalties

$_____ Interest

_____
NAME OF FIRM

_____
Signature of Officer (Title)

State of Ohio
County of _____ SS:

_____, being first duly sworn, says that the statements made above are true as he/she verily believes.

Sworn to before me and subscribed in my presence this _____ day of _____, 20___.

_____
Notary Public

NON-COLLUSION AFFIDAVIT

State of Ohio, County of _____.

The Bidder and each person signing on behalf of the Bidder certifies, and in the case of a joint bid, each party thereto certifies as to such party's organization, under penalty of perjury, that to the best of the undersigned's knowledge and belief.

1. The Base Bid, Unit Prices or any Alternate bid in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purposes of restricting competition as to any matter relating to such Base Bid, Unit Prices, or Alternate bid with any other Bidder.

2. Unless otherwise required by law, the Base Bid, Unit Prices or Alternate bid which have been quoted in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other bidder that would have any interest in the Base Bid, Unit Prices, or Alternate Bid.

3. No attempt has been made or will be made by the Bidder to induce any other individual, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Authorized Signature: _____

Print Name: _____

Title: _____

Company Name: _____

ADDITIONAL SIGNATURE FOR JOINT VENTURE

Authorized Signature: _____

Print Name: _____

Title: _____

Company Name: _____

State of Ohio, County of _____ ss.

Sworn to and subscribed before me this _____ day of _____, 20___.

_____
Notary Public

Reference Worksheet

1 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)

2 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)

3 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)

4 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)

5 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)

6 Name of Agency, Firm or Organization | City/State | Date of Contract | Date Work Began | Date Work Ended | Initial Contract Price | Final Contract Invoiced

Technical Contact/Phone Number | Description of Project (Nature and Scope)