



**Arlington Public Schools
Purchasing Office**

NOTICE OF ADDENDUM NO. 1

Issued on January 4, 2017

TITLE: E-RATE FIBER WIDE AREA NETWORK (WAN) FOR ARLINGTON PUBLIC SCHOOLS

RFP NO: 29FY17

PROPOSAL DUE DATE AND TIME: JANUARY 17, 2017, PRIOR TO 2:00 P. M.,
(Local Prevailing Time)

The Proposal Due date is extended until January 17, 2017, prior to 2:00 PM, local prevailing time.

The following clarifications are made part of this Request for Proposals:

Page 20, Section VI. 6, titled: CONTRACT TERM. **ADD** the following two sentences (as repeated from Section IV. E, Tab 4 (page 17):

After ten (10) years, APS reserves the right of use of the fiber. After the initial ten (10) years a maintenance agreement may be negotiated.

Page 40, APPENDIX E, SAMPLE FORM CONTRACT. In the last sentence of the first paragraph **DELETE** "four (4)" and **REPLACE** with "ten (10)".

This Addendum No. 1 must be signed, dated and received in the Purchasing Office prior to the date and time stated above OR acknowledgment of receipt of this addendum may be noted on the Proposal (See page 2 of the RFP).

NAME OF VENDOR: _____

ADDRESS: _____

SIGNATURE: _____ **DATE:** _____

CLARIFICATION QUESTIONS AND RESPONSES

Below are the clarification questions with responses and the Attendees List from the Non-Mandatory Pre-Proposal Conference held December 19, 2016. Responses include written questions received prior to the published deadline of 12:00 PM (noon), December 21, 2016.

- Q1. For the 50 S., Old Glebe Road Arlington location - this appears to be a location with no foundation as of yet. Can you provide the latitude and longitude for the proposed site?
- R1. Please see the maps provided as Attachments.
- Q2. Will Arlington Public Schools consider a dark / leased fiber solution with a provider that is brand new to market with this offering? Our company is rolling out this product beginning with this E-Rate period. The RFP states a minimum of 3 years of experience is required.
- R2. As stated in Section I.C.1, the Offeror must have a "Minimum of three (3) years continuous experience, prior to the proposal Due date, in the service and support of fiber WANs for projects of a similar size and nature."
- Q3. For lit fiber solution, can you please advise of bandwidth requirements for each location?
- R3. For the initial deployment, we anticipate that each Edge Site will require at least two (2) ODU0 (approximately 1.244 Gbit/s data rate) pathways, and each Core Site will require at least two (2) OTU2e/ODU2e (approximately 10.4 Gbit/s data rate) pathways. Actual requirements are design specific, based on the Offeror's proposed fiber network design, specifically the ratio of Core to Edge Sites. Proposed designs should balance capacity and resiliency, within the limits imposed by USAC, the minimum and maximum strand counts specified in the RFP, and the RFP requirement to not over-subscribe the Core Site interconnects.

It is anticipated that bandwidth requirements will increase over time, requiring additional and/or different pluggable optical modules as required/specified by APS. These modules could include any OTN line rate standard defined by ITU-T Recommendation G.709, in any form factor (XFP, SFP, SFP+, QSFP, QSFP+, CFP, or other) in single, dual, or multi-fiber signaling configurations, in standard or WDM/DWDM Band wavelengths.

If an Offeror intends to rate service based on implemented line data rates, rating should be based on International Telegraph Union Telecommunication Standardization Sector Optical Transport Network (ITU-T OTN) defined data rates.

- Q4. Requirement C.1 (Scope of Services) states that service must be complete and in place by April 30, 2018. Is that correct? When will a decision be made for contract award; the tentative schedule states "TBD"?
- R4. The April 30, 2018, date is correct; it is set to meet e-rate requirements. Proposals are now due January 17, 2017, and a decision will be made as soon after that date as possible.
- Q5. Please define "geographically resilient pathways" as found in section B.1 (Scope of Services). How is that different from redundancy which e-rate will not pay for?
- R5. Resiliency refers to overall reliability, and not redundancy.
- Q6. If the system is completed by April 2018, will APS accept liability for an early start? My company could begin construction in January, but it is unlikely that e-rate funding is received by that time.
- R6. Work under any resulting Contract cannot commence until the Contract has been fully executed by the APS Purchasing Agent. APS will be responsible for making payments to the Contractor per the prices in the Contract Fee Schedule.
- Q7. Section B.3 (Scope of Services) requires that at least one pair of Group B sites must be incorporated. If the schools sit next to each other, will both need to be part of our network or will APS connect to your Local Area Network and we only need to connect to one?

- R7. Please refer to the Sample WAN Topology (Attachment Two) of the Request for Proposals (RFP). Looking at the bottom left of the chart at Edge Sites, Cluster 5 and using the schools listed as a pair in B.2 on page 8 (Kenmore Middle School and Carlin Springs Elementary School) presume AS AN EXAMPLE, the following:
- ☐ Kenmore is #5 of the pair and Carlin Springs is #4 of the pair
 - ☐ Both Kenmore and Carlin Springs are Core Sites
 - ☐ Contractor will run a line across APS property to connect #5 and #4
 - ☐ This connection is an ineligible e-rate cost and should be listed on the Fee Schedule as such
- Q8. Do you want dedicated dark fiber to run your lit service? What bandwidth do you want to run between? Are you asking for equipment?
- R8. APS is asking for optical modules only. Bandwidth will be whatever is specified at the time; APS student enrollment may increase over time. Please see response to Q3.
- Q9. So you are not asking for lit service, but dim services; lasers are on but no modulation? The FCC expects lit services to be a specified bandwidth. They require handoff of some specified bandwidth allocation.
- R9. The bandwidth would be specified based on the design you are proposing. Please see response to Q3.
- Q10. Dark fiber solution is basically put a MUX at the site, put "x" number of fibers in there and APS plugs their equipment into the fibers picking whatever equipment you want, but are you asking for the Contractor to provide equipment and APS decides how much more it will use over those optics?
- R10. APS provides the switching equipment and the lit services would provide optical modules.
- Q11. So we aren't providing lit service, just the fiber and the connectivity and APS decides how much you are going to use off of those optics?
- R11. APS wants to make sure the network can support whatever bandwidth is required. Please see response to Q3.
- Q12. At the end of the 10-year contract term, what are APS' intentions?
- R12. After that period, APS will look to services, but only pay maintenance costs. As stated in the RFP, section 4.E., Tab 4, "...APS reserves the right of use of the fiber...After the initial ten (10) years a maintenance agreement may be negotiated."
- Q13. Additional sites not on the scope but may come up in 10 years; is there augmentation of the network?
- R13. Additional services may be added. Please refer to Section VI., 11 of the RFP.
- Q14. Since financial data for the company is required, will Arlington Public Schools waive the requirement for a Tax Return to be provided with the proposal response? If not, can the Tax Return be provided in electronic format only?
- R14. Documents as requested in the RFP are required to be submitted as stated.
- Q15. Are we able to put more than one school on a fiber lateral back to the core? If so, how many?
- R15. It depends on the definition of "fiber lateral". If the question is about co-running multiple Edge Site fibers together in a single pathway (sheath/conduit/etc.), then Yes, as many as you think appropriate to balance reliability and delivery time. If the question is about having multiple Edge Sites share the same fibers, then No, each Edge Site must have its own dedicated fibers run to the Core.
- Q16. We respectfully request a 30 day extension?
- R16. There is no extension on any time frame, other than the Proposal due date which is now January 17, 2017. Work must be completed by April 30, 2018.
- Q17. Is the district aware that it may ask the USAC to extend the construction interval? Is that being considered and how would that affect LD if initial timeline is not met?
- R17. APS will request extensions based on e-rate requirements. APS intends for the Contractor to begin as soon as the contract is fully executed.

- Q18. Will the district share in forced relocation charges should the fiber facility need to be relocated?
- R18. As stated in the RFP, Section II, C.15 (Scope of Services), the Contractor is responsible for any relocation of services. This includes relocation orders by utility companies or VDOT.
- Q19. Will APS provide any of the transmission equipment including peripherals switches, routers?
- R19. For dark fiber solutions, APS will provide all transmission equipment. For lit solutions, Contractor will provide pluggable optical modules, as specified in II.C.19.c) Scope of Services).
- Q20. If lateral fiber is required to connect remote locations, will this be leased from the GC or considered owned by APS? Can we use existing copper if it meets the minimum bandwidth requirements?
- R20. APS expects end-to-end optical transport. APS is paying for use of the fiber, regardless of who owns it.
- Q21. Are wi-max and microwave links acceptable if needed to complete backbone?
- R21. No. APS expects end-to-end optical transport.
- Q22. If dark fiber providers are not at same meet point, who will own the intermediate segment?
- R22. APS is paying for use of the fiber, regardless of who owns it.
- Q23. Is there a preferred vendor or specific equipment requirements for the schools?
- R23. No. It is up to the Offeror to propose appropriate equipment.
- Q24. What is the total bandwidth capacity for the network backbone?
- R24. This is dependent on the proposed fiber design, specifically the ratio of Core to Edge Sites and the capacity/resiliency of the links. It is anticipated that bandwidth requirements will increase over time. The solution must be "robust" and "scalable". See Response to Q3.
- Q25. Can this be designed at a high capacity switched network instead of ROADM?
- R25. ROADM is not a requirement, but oversubscription of the Core Site interconnects is not allowed.
- Q26. Will a mesh topology be required to provided network redundancy?
- R26. A mesh topology is not required.
- Q27. It is assumed based on RFI that speed to service and fiber conservation is important to the district. To provide resiliency, survivability and scalability a district owned DWDM solution will be proposed for core ring. The RFP calls for 4-6 sites to be ring connected. To conserve the fiber between those core sites a 40 channel (lambda) capable DWDM system is an option. Initially each of the 40 (non-core sites) sites could have a dedicated unprotected lateral fiber pair (spur) to its nearest geographically DWDM aggregation (core) site. It will at that point terminate on an DWDM (line rate non-oversubscribed layer 1 DWDM mux card for East west ring trunk protection to headend around the 4-6 site core DWDM ring. Any of the edge 40 schools or admin buildings could be on dedicated fiber or share a fiber pair via passive (last mile) DWDM strategically and cost effectively used on edge. The use of passive DWDM is not to protect or electrical aggregate at edge this lateral passive DWDM is only to allow wave vs fiber consumption where it makes cost effective sense. The use of passive would not require power or conditioned huts at the edge. It simply allows GE or 10GE lambda coexistence on same fiber pair (4 or 8 schools for example) over a lateral fiber pair until it arrives at DWDM aggregation core site.

With the architecture above a few questions: The core DWDM can aggregate 10G per school onto 100G lambda trunks and/or GE per school onto 10GE lambda ring protected trunks back to data center. What is desired for data rate per elementary /middle or High school. Example GE per elementary and middle and all High schools 10GE?

The sites identified to have core DWDM are assumed to have a 19inch/23-inch rack with dual 30 amp breakers AC or DC power. The AC UPS system of DC battery and rectifiers for the core sites is assumed outside the scope of this RFP. The DWDM district owned equipment proposed would need 10RU minimum or essentially 1/4 of a standard 6ft 19inch rack. Is it a proper assumption that the district will cover rack and power for any proposed core WAN DWDM equipment?

This RFP would not include the edge router (or core routers) or its optics but would include the electrical layer 1 DWDM cards and client and trunk optics needed to aggregate lower speed clients (GE or 10GE into higher speed lambdas/Trunks (10GE or 100GE) to maximize the efficiency of the fiber. Does this assumption sound correct?

On self-owned self-provisioned DWDM WAN systems the district could elect to outsource the remote visibility to a 24/7 NOC for all equipment. This option could be annualized (based on node count) to a one per year or multiyear contract. Does the district have comment on preference? In addition to 24/7 monitoring, training technical support for break/ fix can be included as an optional a la carte pricing that assumes the NOC service provider is dispatched or remotely directs district personnel to make card changes or corrections. Does the district want to see some options here or do they expect full management and NOC to be quoted assuming no district personnel will be utilized on a break/fix WAN equipment issue? Should it be assumed that all bandwidth increases over the district owned WAN equipment (DWDM channel additions new lambdas or new services into existing aggregation card) should be quoted fully turnkey meaning only a district phone call to make additions or bandwidth increases?

R27. The proposed design does not appear to meet the requirements of the RFP, because it proposes the reuse of fiber strands for multiple Edge to Core links. (REF: "provide dedicated home run lit or leased dark fiber pairs between the Core and Edge Sites" and "Edge Site runs should be composed of no less than two (2) and no more than four (4) strands").

For any dark fiber solution, the Customer is responsible for all transmission equipment. The fiber network should support arbitrary services, based on standard OTN service definitions (REF: "Service should be scalable to support multiple, parallel OTU2e streams").

For lit solutions, Customer is responsible for all transmission equipment except for the pluggable optical modules which put light onto the fiber. The Offeror would supply pluggable optical modules, and only pluggable optical modules, as specified by the Customer.

ISSUED BY:

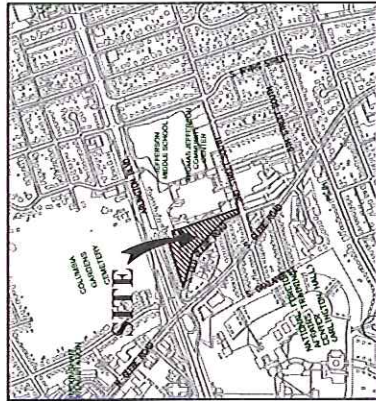
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**ARLINGTON PUBLIC SCHOOLS
NEW ELEMENTARY SCHOOL
AT THE SITE OF THOMAS JEFFERSON MIDDLE SCHOOL
USE PERMIT PLANS
ARLINGTON COUNTY, VIRGINIA**



CIVIL SHEET INDEX	
C1.0	COVER SHEET
C1.1	NOTES AND TITLES
C1.2	GENERAL NOTES
C1.3	INITIAL PHOTOGRAPH
C1.4	INITIAL SURVEY PLAN
C2.0	CERTIFIED SURVEY PLAT
C2.1	CERTIFIED SURVEY PLAT
C2.2	CERTIFIED SURVEY PLAT
C2.3	CERTIFIED SURVEY PLAT
C2.4	CERTIFIED SURVEY PLAT
C2.5	CERTIFIED SURVEY PLAT
C2.6	CERTIFIED SURVEY PLAT
C2.7	CERTIFIED SURVEY PLAT
C2.8	CERTIFIED SURVEY PLAT
C2.9	CERTIFIED SURVEY PLAT
C3.0	OVERALL LOT AND LOCATION PLAN
C3.1	OVERALL LOT AND LOCATION PLAN
C3.2	OVERALL LOT AND LOCATION PLAN
C3.3	OVERALL LOT AND LOCATION PLAN
C3.4	OVERALL LOT AND LOCATION PLAN
C3.5	OVERALL LOT AND LOCATION PLAN
C3.6	OVERALL LOT AND LOCATION PLAN
C3.7	OVERALL LOT AND LOCATION PLAN
C3.8	OVERALL LOT AND LOCATION PLAN
C3.9	OVERALL LOT AND LOCATION PLAN
C4.0	PRESENTATION PLAN
C4.1	PRESENTATION PLAN
C4.2	PRESENTATION PLAN
C4.3	PRESENTATION PLAN
C4.4	PRESENTATION PLAN
C4.5	PRESENTATION PLAN
C4.6	PRESENTATION PLAN
C4.7	PRESENTATION PLAN
C4.8	PRESENTATION PLAN
C4.9	PRESENTATION PLAN
C5.0	OVERALL STRIPING AND MARKING PLAN
C5.1	OVERALL STRIPING AND MARKING PLAN
C5.2	OVERALL STRIPING AND MARKING PLAN
C5.3	OVERALL STRIPING AND MARKING PLAN
C5.4	OVERALL STRIPING AND MARKING PLAN
C5.5	OVERALL STRIPING AND MARKING PLAN
C5.6	OVERALL STRIPING AND MARKING PLAN
C5.7	OVERALL STRIPING AND MARKING PLAN
C5.8	OVERALL STRIPING AND MARKING PLAN
C5.9	OVERALL STRIPING AND MARKING PLAN
C6.0	EXISTING STREET SECTIONS
C6.1	EXISTING STREET SECTIONS
C6.2	EXISTING STREET SECTIONS
C6.3	EXISTING STREET SECTIONS
C6.4	EXISTING STREET SECTIONS
C6.5	EXISTING STREET SECTIONS
C6.6	EXISTING STREET SECTIONS
C6.7	EXISTING STREET SECTIONS
C6.8	EXISTING STREET SECTIONS
C6.9	EXISTING STREET SECTIONS
C7.0	PROPOSED STREET SECTIONS
C7.1	PROPOSED STREET SECTIONS
C7.2	PROPOSED STREET SECTIONS
C7.3	PROPOSED STREET SECTIONS
C7.4	PROPOSED STREET SECTIONS
C7.5	PROPOSED STREET SECTIONS
C7.6	PROPOSED STREET SECTIONS
C7.7	PROPOSED STREET SECTIONS
C7.8	PROPOSED STREET SECTIONS
C7.9	PROPOSED STREET SECTIONS
C8.0	STORMWATER MANAGEMENT PLAN
C8.1	STORMWATER MANAGEMENT PLAN
C8.2	STORMWATER MANAGEMENT PLAN
C8.3	STORMWATER MANAGEMENT PLAN
C8.4	STORMWATER MANAGEMENT PLAN
C8.5	STORMWATER MANAGEMENT PLAN
C8.6	STORMWATER MANAGEMENT PLAN
C8.7	STORMWATER MANAGEMENT PLAN
C8.8	STORMWATER MANAGEMENT PLAN
C8.9	STORMWATER MANAGEMENT PLAN
C9.0	WATER QUALITY COMPUTATIONS
C9.1	WATER QUALITY COMPUTATIONS
C9.2	WATER QUALITY COMPUTATIONS
C9.3	WATER QUALITY COMPUTATIONS
C9.4	WATER QUALITY COMPUTATIONS
C9.5	WATER QUALITY COMPUTATIONS
C9.6	WATER QUALITY COMPUTATIONS
C9.7	WATER QUALITY COMPUTATIONS
C9.8	WATER QUALITY COMPUTATIONS
C9.9	WATER QUALITY COMPUTATIONS
C10.0	TRAFFIC INVENTORY
C10.1	TRAFFIC INVENTORY
C10.2	TRAFFIC INVENTORY
C10.3	TRAFFIC INVENTORY
C10.4	TRAFFIC INVENTORY
C10.5	TRAFFIC INVENTORY
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C10.8	TRAFFIC INVENTORY
C10.9	TRAFFIC INVENTORY

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Arlington Public Schools

ARLINGTON PUBLIC SCHOOLS
NEW ELEMENTARY SCHOOL
AT THE SITE OF THOMAS JEFFERSON MIDDLE SCHOOL

155 SOUTH OLD GLEBE ROAD
ARLINGTON, VA 22204



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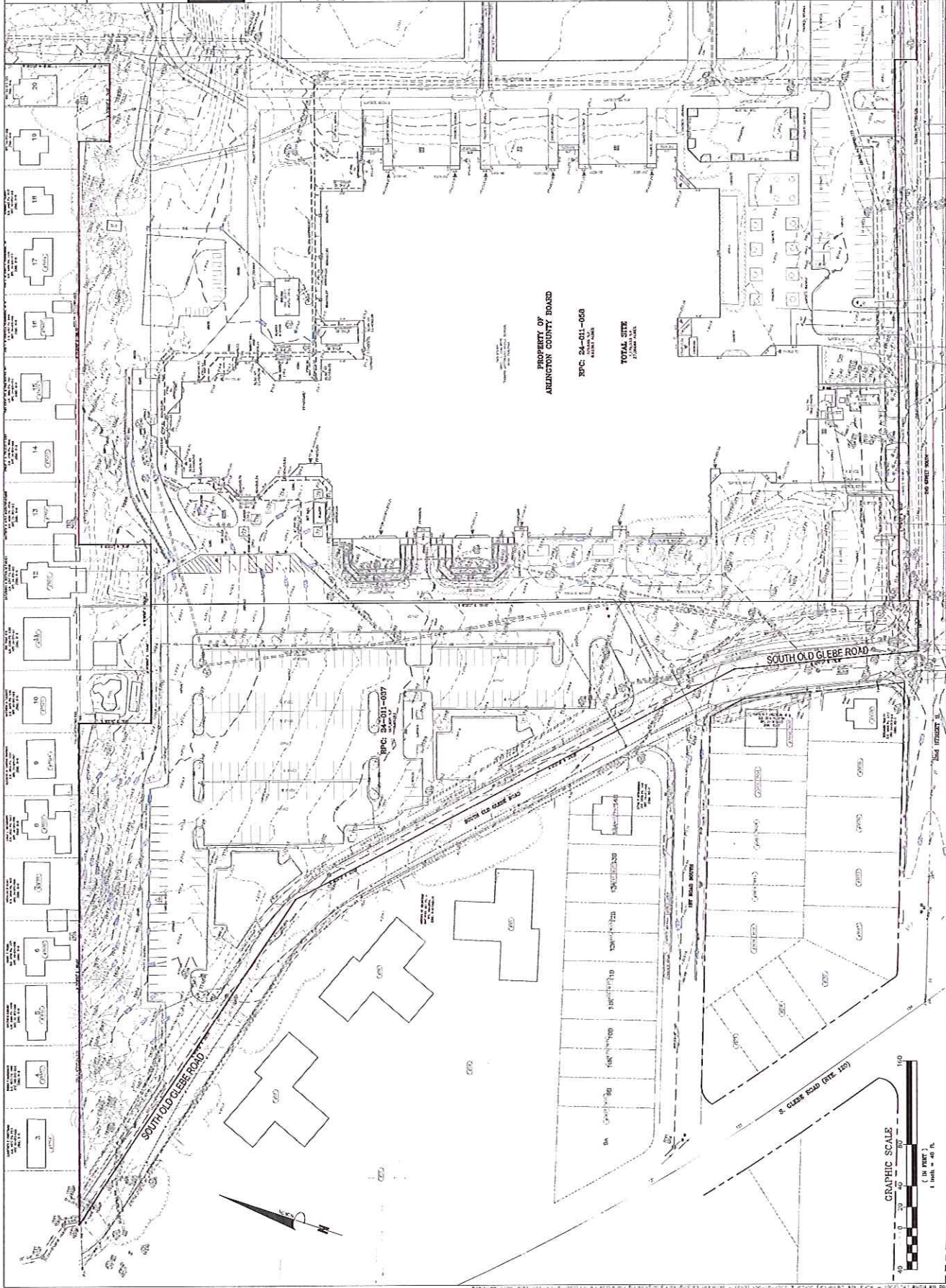
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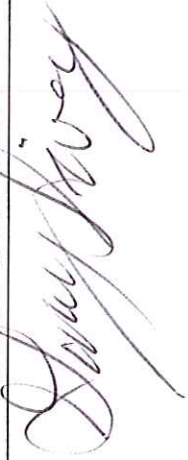



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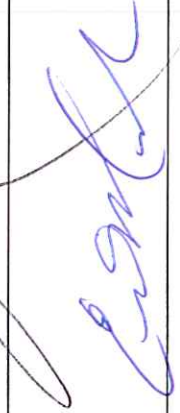









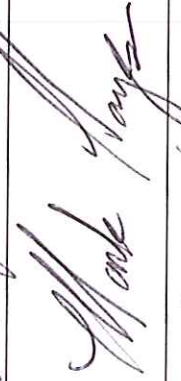
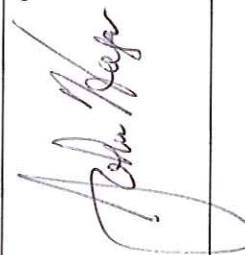
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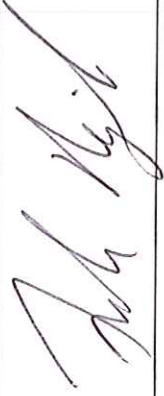

RFP #29FY17: E-Rate Fiber Wide Area Network for Arlington Public Schools

December 19, 2016, 2:00 PM, APS Education Center

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3 Attendees by telephone conference bridge