



Oxford School District
224 Bramlett Boulevard
Oxford, MS 38655
(662) 234-3541 — www.oxfordsd.org

Request for Proposals (RFP)

E-Rate Equipment and Services (RFP# 18-01)

Proposal Submission Deadline

Thursday, February 8, 2018 – 1:00pm

Bid Opening

Thursday, February 8, 2018 – 1:00pm

RFP# 18-01: Request for Proposals – E-Rate Equipment and Services**To All Interested Bidders:**

The Oxford School District will receive sealed proposals for E-Rate equipment and services until 1:00pm on Thursday, February 8, 2018, at the Oxford School District Central Office, 224 Bramlett Blvd., Oxford, MS 38655. All proposals must be mailed to Oxford School District, Attn. Mike Fortenberry, 224 Bramlett Blvd., Oxford, MS 38655 with **the following information on the sealed envelope:**

"Sealed Proposal RFP# 18-01 E-Rate Equipment & Services"

Submitted by (*COMPANY BIDDING NAME*)

Due: Thursday, February 8, 2018 at 1:00pm

This page must be completed and returned with all bid information. Discussions and negotiations **may** be necessary. The successful bidder will be notified in writing. No equipment will be sent until Oxford School District sends an official purchase order. Oxford School District will only pay the school district portion of costs, as determined by E-Rate.

We reserve the right to reject any or all proposals submitted. The District reserves the right to conduct discussions with bidders who submit proposals determined to be reasonably likely of being selected for award, but proposals may be accepted without such discussions. The complete proposal will be submitted via mail or hand delivery in ONE large envelope no later than the posted due date and time. Proposal will be awarded as lowest and best proposal as determined by the Oxford School District and as awarded by the School Board of Trustees. The District reserves the right to waive informalities, as it deems appropriate. All information and offers will be held confidential as prescribed by "Request for Proposal" procedures.

Vendor Statement:

My submitted proposal includes **two** envelopes: **one envelope** for proposal information, as requested, pertaining to experience, brand and model number of equipment offered, compatibility of equipment being offered, references and **one envelope** for pricing to include inside delivery at the location in Oxford identified on each purchase order. The envelope with pricing shall clearly be marked as *containing "RFP# 18-01 Costs"*. The other envelope will be marked *"RFP# 18-01 Information"*. By signing this page, I agree to abide by all requirements as written in this request for proposals. (Please be sure we can contact you if we have questions.)

Firm Name: _____

Address: _____ Tax ID# _____

City/State: _____ Zip: _____ Telephone #: _____

Vendor SPIN (Service Provider Identification Number): _____

Signature: _____ Printed Name: _____

This RFP is being issued in conjunction with E-Rate Year 21(July 2018-June 2019). Form 470 application number 180011914 has been filed with School and Library Division. This is a proposal for E-Rate equipment and services with not to exceed pricing that is valid without increase for the period of July 1, 2018 to December 31, 2019.

General Information

Oxford School District desires to receive sealed proposals for wireless access points, network switches, cabling, installation and other items required to upgrade the wireless network infrastructure in all buildings. These items shall include inside delivery of equipment and supplies to specified locations when purchase orders are issued.

Include all documents requested within your proposal.

Be sure to discuss all equipment bids, warranties and maintenance agreements. Compatibility is essential and must be proven by the bidder. Hardware warranty for access points, switches and transceivers must be equivalent to Meraki's lifetime warranty with advanced replacement. Software maintenance for these products must offer a 5-year plan with annual rates or equivalent. Equality of products must also be proven by documents provided. Cost, warranty and maintenance details shall be included for each year of the contract.

Timeline

<u>Event</u>	<u>Date</u>
RFP Released	December 20, 2017
Mandatory Bidder's Meeting	January 11, 2018 at 10:00am January 16, 2018 at 10:00am January 18, 2018 at 10:00am
Final Day for Questions	January 26, 2018
Response Deadline - Bids Close	February 8, 2018 at 1:00pm
Bid Opening	February 8, 2018 at 1:00pm
Bid Award	February 26, 2018 at 5:00pm

Terms Used

OSD - Oxford School District

USAC - Universal Service Administrative Company

Services – Includes all specified equipment, supplies, installation and warranty

Bid Requirements and Conditions

No faxed or emailed RFPs will be acknowledged or allowed. Questions must be submitted in writing to mforten@oxfordsd.org. Bid documents and related material will be available via the Oxford School District website at www.oxfordsd.org/RFPs.

Submitted proposals must include **ONE** printed copy of the completed Bid Submission Worksheet and **ONE** electronic copy in .xls compatible format on media. (CD/DVD/USB)

Bidders must attend at least one of the mandatory bidder's meetings to be held at 224 Bramlett Blvd., Oxford, MS

38655. Failure to attend one of the bidder's meetings may result in the rejection of the proposal.

Bidders must include a description of their company's experience, qualifications, and the technical certifications of the personnel responsible for completion of the project. This should be no more than one page.

Bidders must include the names and contact information for three customers who can provide specific references for the installation of building-wide Wi-Fi installations of Meraki or equivalent hardware and infrastructure.

Sales tax shall not be applicable to this order. If necessary, OSD shall supply the successful bidder with its tax exemption letter.

OSD's failure to exercise any of its rights contained within this document shall not constitute or be deemed a waiver or forfeiture of such rights.

Any headings preceding the text of the sections herein shall be exclusively for reference and shall not be deemed to affect the meaning or effect conditions stated.

These conditions and this order shall supersede all proposals, whether oral or written, and any and all negotiations prior to same.

OSD reserves the unqualified right to reject any and all bids or to waive any formalities or technicalities in any bids in the best interest of the OSD.

The bidder shall not have the right of assignment of this contract either in full or in part without prior written consent of the OSD.

Where specific terms or conditions of this bid are inconsistent with the bidder's or any subcontractor's or original equipment manufacturer's standard terms of sale or trade custom, then these (i.e. Oxford School District's) specific conditions shall prevail. OSD shall not be required to sign the bidder's standard service agreement to implement the service but shall order such services on a school district purchase order. The purchase order shall be the recognized binding document with the exceptions and alternatives given within this document.

The wireless solution for each site (includes Access Points, Switches and cabling) is a turnkey solution and must include physical installation, configuration and training of technology staff as specified in this RFP.

Any changes, additions, deletions, or interpretations of these conditions will not be binding upon the OSD unless agreed upon in writing, and signed by a duly authorized agent of OSD. This includes any and all portions of these conditions.

It is expressly understood that the fulfillment of the conditions of the Agreement between the OSD and Vendor is conditioned upon the receipt of governmental funding and the availability of local district funds, and that any cessation or reduction of such funds shall constitute grounds for voiding the Agreement. In the event of the contingency herein described, the Agreement shall terminate on the last day for which funds were available, without penalty or expense to OSD of any kind whatsoever, except as to payment for services or performances actually received or rendered for which funds are available. OSD has no obligation until OSD issues a purchase order to the vendor.

If at any time during the term the service fails to meet requirements of the bid and within a reasonable period of time, the bidder is unable to correct the failure, the customer may abandon the service agreement altogether with

written 30-day notice without penalty. Payment may be affected by poor services and may be withheld if the bidder causes other monetary arrangements to be made by the school district.

The bidder guarantees pricing and availability to OSD of all ITEMS listed in this bid for the term of the contract with no increase in prices and not to exceed pricing for the period of July 1, 2018 to December 31, 2019.

Criteria for Selection

OSD will utilize the following criteria as the basis for proposal evaluations and selection.

<u>Factor</u>	<u>Weight</u>
Price of the E-Rate Eligible goods and services	30%
Compatibility with Existing Infrastructure	25%
Bidder Qualifications & Experience	25%
Price of Other Goods and Services	10%
Prior Experience with Oxford School District	10%
Total	100%

Contract Terms

The initial term of the contract will begin July 1, 2018 and end December 31, 2019. The contract should provide for extensions to align with service delivery deadline extension approvals granted by the Universal Service Administrative Company (USAC). **Initiation of the contract is dependent on E-Rate funding. In the event E-Rate funding for the project is not available then the contract will be null and void. The district reserves the right to waive the E-Rate funding requirement.**

Reservation of Rights

Oxford School District expressly reserves the right to:

- a) Reject or cancel any or all proposals;
- b) Select, or reject, individual line items;
- c) Waive any defect, irregularity or informality in any Proposal or Proposal procedure;
- d) Waive any informalities, minor deviations from specifications at a lower price than other proposals meeting all aspects of the specifications if it is determined that total cost is lower and the overall function is improved or not impaired;
- e) Extend the Proposal opening time and date;
- f) Reissue a Proposal invitation;
- g) Consider and accept an alternate Proposal as provided herein when most advantageous to the District
- h) Cancel the contract with a thirty-day written notice; and
- i) Procure any item or services by other means

Bid Submission (Excel Spreadsheet Template Required)

Vendors shall use the Bid Submission Worksheet (Excel spreadsheet) provided as part of this RFP to complete their response. All columns defined in the spreadsheet must be completed. Zero (0) should be entered in any column for which there is no cost. No columns or rows in the provided template may be deleted. Vendors may add columns if they deem it necessary to provide accurate cost information. Vendors may add rows if there is an additional item needed for the suggested solution. Vendors will include details on all non-eligible costs. Any rows or columns added should be highlighted and explained with supporting documentation. Excel spreadsheet is to be used as guidance. Quantities have been set per OSD but may change at the discretion of OSD.

Bidders must provide the E-rate eligible portion (0% - 100%) of all items. Bidders must read and understand the FCC E-Rate 2018 Eligible Services List and know the product E-Rate eligibility per the manufacturer for any item submitted for bid by the service provider.

Vendors must include a printed copy of the completed Bid Submission Worksheet with their proposal response and **ONE** electronic copy in .xls compatible format on media (CD/DVD/Flash).

References to brand names, model numbers, or other descriptions are made to establish a required level of quality and functional capabilities and are not intended to exclude other manufacturers. Comparable products of other manufacturers will be considered if proof of comparability, equivalence, and compatibility is contained in the proposal. Vendors, if proposing other than specified, are to clearly identify the manufacturer and the model number and must provide written, complete justification as to how the product complies with all specifications outlined within this RFP and how the product integrates with existing devices as well as the complete list of manufacturer published specifications related to the requested products. It shall be the responsibility of the bidders to furnish descriptive literature with their proposal such that specifications, catalog pages, brochures or other data will provide an adequate basis for verifying the quality and functional capabilities of the product offered. Failure to provide this data will be considered valid justification for rejection of the proposal.

Unless otherwise specified, vendors shall provide everything required to make the devices, software, appliances, installation, etc. 100% operational. This includes but is not limited to patch cables, connectors, dongles, mounting hardware, etc.

Payment

The vendor must submit invoice(s) with detailed itemized listing and costs for each location. Each invoice will clearly reference the appropriate Oxford School District purchase order. The invoice shall be submitted to Accounts Payable. Once the invoice is approved for payment, payment shall be made in a net 30 days. The school district will pay only its portion of the cost, not the entire cost covered by E-Rate. Failure to provide clear, concise invoices with a correct purchase order number may hold up payment. All invoices must be approved with a district signature prior to submission for payment.

E-Rate Compliance

No later than July 1, 2018, the awarded service provider must file a Service Provider Annual Certification Form (SPAC-Form 473) for E-Rate funding year 2018. The awarded service provided is required to supply proof to OSD that it has complied with this requirement. Failure to supply the required proof may be grounds to terminate the contract.

All Service Providers will be responsible for procuring the approved E-rate discount amount from USAC using the Form 474 - Service Provider Invoicing (SPI) unless otherwise directed by OSD. OSD may utilize the reimbursement (Form 472) method at its sole option.

In the event of questions during the E-Rate program integrity assurance (PIA) review process, the successful service provider is expected to reply within 3 business days to questions associated with their proposal. The Service Provider shall send copies of ALL correspondence, forms and invoices submitted to USAC to OSD for their records.

The awarded service provider(s) must agree to retain all relevant documentation related to the E-rate funding requests associated with their SPIN for a period of at least TEN years after the last day of service delivered. Furthermore, the awarded service provider must certify that they will retain all documents necessary to demonstrate compliance with the statute and Commission rules regarding the application for, receipt of, and delivery of services receiving schools and libraries discounts, and that if the District is audited, the service provider will make such records available to the District. All awarded service providers acknowledge that they may be audited pursuant to participation in the schools and libraries program.

It is expected that the awarded service provider shall be in compliance with rules and regulations of the Universal Services Support Mechanism for Schools and Libraries ("E-Rate Program") administered by the Universal Service Administrative Company (USAC). All charges for recurring services provided during the period of July 1, 2018 through June 30, 2019 or non-recurring services provided during the period of July 1, 2018 through December 31, 2019 should be billed and invoiced to both the District and SLD following USAC's invoicing procedure.

The Service Provider is responsible for providing a valid SPIN (Service Provider Identification Number) at the time the bid is submitted. See: <http://www.usac.org/sl/service-providers/step01/default.aspx>.

The service provider is responsible for providing an FCC Registration Number with their proposal and evidence of being in green light status. See: <https://fjallfoss.fcc.gov/coresWeb/publicHome.do>.

Disqualification

Any potential bidder found to be in Red-Light Status will be disqualified from participation in the bidding process and will be considered non-responsive.

FAILURE TO PROVIDE A VALID SERVICE PROVIDER IDENTIFICATION NUMBER (SPIN) and FCC REGISTRATION NUMBER WILL RESULT IN DISQUALIFICATION OF BID AWARDS FOR E-RATE ELIGIBLE GOODS AND SERVICES.

Installation Requirements

1. The selected vendor must meet onsite with the OSD IT staff to develop a schedule and scope of work before any installation work can begin. The vendor will coordinate with OSD to schedule deployments of hardware in such a way as to minimize the impact on network users.
2. If OSD elects, the selected vendor will deliver all equipment to the OSD Fixed Asset department to have asset tags affixed, if necessary. OSD will coordinate with the selected vendor to schedule the delivery and installation.

The selected vendor is expected to pick up devices from the OSD Fixed Assets warehouse for delivery to school locations as scheduled.

3. The selected vendor will remove and dispose of all packaging and miscellaneous materials left over from any part of the installation and place all trash in an identified on-site dumpster or taken by the vendor to an off-site location. OSD personnel will not dispose of any packing materials.
4. All parts and materials needed to make the wireless access points 100% operational should be included in the installation cost and provided by the vendor. Any costs that may be required for successful completion of the installation of the devices but are not included in the vendor's proposal will be provided by the vendor at no cost to OSD.
5. All parts and materials required to make the network switches 100% operational should be included in the installation cost and provided by the vendor. Any costs that may be required for successful completion of the installation of the devices but are not included in the vendor's proposal will be provided by the vendor at no cost to OSD.
6. All cabling required to make the access points and switches 100% operational shall be provided as part of the project. Cabling should be completed by certified technicians and meet all ANSI/TIA/EIA-568-B standards. Suitable wiring raceways, conduit and moldings to achieve a finished installation appearance must be used. All additional connectors, screws, labor, conduit, ties, hangers, jacks, cables, parts, modules, etc. needed to make the cables connecting the wireless access points to the designated switch and/or patch panel in order to make the access points 100% operational should be included in the installation cost and provided by the vendor. Any costs not outlined in the vendor's proposal but are required for the successful completion of the installation of the devices are assumed to be provided by the vendor at no cost to OSD.
7. The vendor will provide a complete hardware inventory to OSD to include, but not limited to, device model number, serial number, OSD asset tag number, MAC address, and installed location. The inventory will be provided in electronic form, preferably in .xls format.
8. The vendor will install and mount all switch components in the designated rack at each location. The vendor will provide all required rack mounting hardware needed for installation and mounting.
9. The vendor will coordinate with OSD IT staff to install and configure all software, appliances, and any other applications required to make the Wi-Fi devices 100% operational. The vendor will provide training/knowledge transfer to OSD IT staff to demonstrate functionality of all devices and monitoring systems.

Network Cabling (Drops) – Hardware and Installation

All installation and material charges associated with the installation of network cabling to make access points 100% operational should be included. All additional connectors, screws, labor, conduit, ties, hangers, jacks, cables, parts, modules, etc. needed to make the cables connecting the wireless access points to the designated switch and/or patch panel in order to make the access points 100% operational should be included in the installation cost and provided by the vendor. Patch panels and patch cables should be included when/ if necessary. Any costs not outlined in the vendor proposed budget that may be required for the successful completion of the installation of the devices are assumed to be provided by the vendor and at no cost to OSD.

1. All work must be performed in accordance with ANSI/TIA/EIA -568-B standards.

2. All cables for wireless access points shall be green.
3. All cable shall be CAT-6 POE cable terminated to industry certified RJ-45s jack at each specified outlook location. The vendor shall use plenum rated cabling in all locations in which the use of plenum rated cabling is required by local, state or federal code.
4. All cabling products and components must be 100% compatible with the existing Panduit cabling products.
5. Any area that does not have a drop ceiling will require a wall mount bracket or other mounting option if required. Suitable wiring raceways, conduit and moldings to achieve a finished installation appearance shall be used.
6. Cabling must be neatly run. Cables may not lie directly on ceiling tiles or on overhead lights. They must be suspended using J hooks where necessary. O-rings and cable tie wraps are not acceptable.
7. All drops needed for this project shall be new. Drops may exist in a school close to a new AP location, but that connection shall not be re-used unless approved by OSD in writing.
8. All cable connections must be identifiable at both ends.
9. All cables must be tested and certified. Hard copy or testing results and certification shall be provided electronically.

Technical Requirements and Item Descriptions

OSD desires to purchase Cisco Meraki network switches and wireless access points, or equivalent, along with the cabling required to provide a high capacity Wi-Fi network in all OSD schools. OSD desires to purchase all cabling and hardware required for the successful completion of the project from a single provider.

As part of the installation, vendors shall include any and all SFPs, cables, brackets, mounts, etc. to make each switch and module 100% operational. Any costs not included in the installation required for the successful installation of the devices are assumed to be provided by the vendor and at no cost to OSD.

Specifications for devices or their equivalent are as follows:

The following description refers to how the controller must work with the access points and switches.

1. Solution must be compatible and/or equivalent with Cisco Meraki cloud architecture.
2. Solution cannot include any "on-premise" management appliances, servers, or virtual machines.
3. The wireless system must support a stateful application-layer firewall that can identify, classify, and prioritize applications using layer 7 intelligence. Applications should be able to be traffic shaped as well to ensure that recreational applications (like Pandora, Spotify, etc.) do not consume all of the available bandwidth.
4. The wireless system must include intuitive multi-site scalability and management. Must be able to deploy multiple sites rapidly and monitor, manage and troubleshoot all sites from a single web-based interface. This includes being able to "clone" configurations of devices automatically, and easily re-assign assets to other network areas as needed. This must be 100% GUI based, and no Command-Line (CLI) programming for any features is permitted.

5. The wireless system must support the ability to fingerprint client device types (i.e. iPad, Android, iPhone, Windows, etc) and apply security settings to those devices, without the need for additional appliances or licenses. For example: iPads on the Student SSID may have access to only the web and are rate limited to 512 kbps, and no peer to peer traffic is allowed.
6. The wireless system must have commonly managed products (WLAN, Security Appliances, Access Switches, Integrated MDM) that allow for end-to-end deployment, monitoring, and troubleshooting from single pane of glass, and seamless expansion beyond the wireless network alone.
7. The wireless system must support Bonjour gateway services to allow Airplay, printing, iTunes and other Bonjour-based services to flow seamlessly across the wireless network.
8. The wireless system must support integration with Google Maps, with the ability to upload a custom floor plan and overlay it on the map.
9. The wireless system must support the ability to easily replicate and clone configurations across multiple different sites using a single click. Ideally, a configuration could be changed once and then replicated across multiple sites.
10. The wireless system must support the ability to take a packet capture directly from the management interface. This packet capture should be able to filter based on client, IP address, and MAC address.
11. The wireless system must support the ability to provide deep application visibility into all of the applications that are used on the wireless network, including hostname visibility to view the individual URLs of all of the applications. This information should be exportable and downloadable on a per network and per SSID basis.
12. The wireless system should have built in guest access and not require any additional appliances or licenses for guest users.
13. The wireless system must have a way to open cases with support and monitor their status directly from the management console.
14. The wireless system must include a tagging function to provide easy search-ability across our network, device types, and users with search "tagging" functionality.
15. The wireless system must support the ability to send summary reports to certain administrators on a daily, weekly and monthly basis. These summary reports should show information like top users, top applications, bandwidth consumed per day, etc. These summary reports should be able to be sent on a per school basis, or aggregated for multiple schools using a tagging mechanism
16. Solution must be able to integrate with a Mobile Device Management platform capable of managing Apple iOS, Android, Windows, and Mac OSX devices all from the same common management interface as the WLAN, Access Switching, and Security Appliance products. MDM functionality must require no local hardware, software, or virtual machine appliance to operate, and must be 100% Cloud based for management, with the ability to assign policies via the management interface to different users, networks, and device types based on preferences.
17. Examples of attributes include VLANs, firewall rules, and splash pages. Must be able to easily prioritize and/or throttle specific applications or application type. Group policies must be universally applicable to all network components (access points, switches, and security appliances).
18. The wireless system must be PCI Compliant. Built-in Payment Card Industry (PCI) DSS Level 1 Certified compliance reporting and remediation wizard required.
19. Solution must provide rich layer 7 application visibility and control, with a full heuristics-driven engine (Not TCP/UDP Port Based) for classification (e.g. Skype, BitTorrent, web traffic) and shaping of that traffic.
20. Solution must include fully integrated client, device, and OS visibility, with ability to assign policies via the management interface to different users, networks, and device types based on preferences. Group policies must be universally applicable to all access points and switches. Management interface must be 100% GUI based, and no Command-Line (CLI) programming for any feature is permitted.
21. Must maintain common management, inventory, and historical logging interface of existing network systems and new cloud based systems.
22. Minimize any conflicts between existing and new wireless systems, and prevent any loss of coverage or operations with the existing wireless network.

23. Wireless system must have built-in redundancy and reliability. Solution must be able to provide a 99.99% service level agreement, leveraging globally redundant cloud data centers.
24. The wireless system must include a free of charge, web based management application. This application must be supported on both Apple iOS and Android mobile operating systems. This single mobile application must be able to do the following:
 - a) Monitor wireless, switching, and security infrastructure
 - b) See all wireless, switching, and security infrastructure network status and usage via easy to read graphs and tables
 - c) Receive push notifications for any network outages
 - d) Scan access point barcodes to facilitate adding them to the network
 - e) Utilize the mobile device's camera to photograph and document access point mounting locations
 - f) Pinpoint access point location using Global Positioning System (GPS)
 - g) Verify device and client connectivity using live tools like Ping, Traceroute, etc.
 - h) Remotely reboot devices without on-site staff intervention
 - i) Quickly deploy group policies to clients that control L3/L7 firewalling, traffic-shaping, and content filtering
 - j) Provide the capability to easily block clients from the network
 - k) Be both PIN code and Password securable
 - l) Provide easy access to Support Case management
 - m) Be able to read device event logs remotely
 - n) Show individual client Application Usage history (example - YouTube, Instagram, Facebook, etc.)

1. Cisco Meraki MR42 Cloud Managed Access Point, or compatible/equivalent

Must include licensing for cloud services, software upgrades and support for 5 years.

Part Number: MR42-HW / LIC-ENT-5YR

Estimated Quantity: 435

The quantity of access points needed is calculated using the square footage, classroom counts, and building design. The solution proposed should include one access point in every classroom, and should provide coverage in every common area, administrative area, and instructional space in each building. Access points and network design should be designed and installed with enough access and capacity to support 1:1 technology initiatives at each location with a student density of 30 devices per AP in each classroom and 80-100 devices in each common area. The quantities listed in this RFP should be used as guidance and was set as the desired amount of access point by OSD if funding allows.

Access to building drawings showing network MDF and IDF's will be provided at the mandatory bidder's conference. There will be no scheduled walk-throughs at each location; however, vendors may schedule a walk-through with OSD IT personnel if desired. The time scheduled will be at the discretion and convenience of the district.

Specifications for Cisco Meraki MR42

Cisco Meraki MR42 or compatible and equivalent 802.11ac access point must include stateful firewall, teleworker VPN, full-time intrusion and rogue scanning, Network Access Control, adult content filtering, and WPA2-Enterprise/802.1X integration. Solution must include cloud architecture that is fully integrated with the same cloud switch management as our existing Meraki infrastructure and remove the need for any controllers or hardware/software overlay management.

- **Radios**
 - 2.4 GHz 802.11b/g/n client access radio

- 5 GHz 802.11a/n/ac client access radio
 - 2.4 & 5 GHz dual-band WIDS/WIPS, spectrum analysis, & location analytics radio
 - 2.4 GHz Bluetooth radio with Bluetooth Low Energy (BLE) and Beacon support
 - Concurrent operation of all four radios
 - Max aggregate frame rate 1.9 Gbit/s
 - Supported frequency bands (country-specific restrictions apply):
- **Antenna**
 - Integrated omni-directional antennas (5 dBi gain at 2.4 GHz, 5.5 dBi gain at 5 GHz)
 - Individual antenna elements for each radio
- **802.11ac Wave 2 & 802.11n Capabilities**
 - 3x3 multiple input, multiple output (MIMO) with three spatial streams
 - SU-MIMO and MU-MIMO support
 - Maximal ratio combining (MRC) & beamforming
 - 20 & 40 MHz channels (802.11n)
 - 20, 40, & 80 MHz channels (802.11ac)
 - Up to 256-QAM on both 2.4 & 5 GHz
 - Packet aggregation
- **Power**
 - Power over Ethernet: 37 - 57 V (802.3af compatible, with functionality-restricted 802.3af mode supported)
 - Alternative 12V DC input
 - Power consumption: 20 W max (802.3at)
- **Interfaces**
 - 1 × 10/100/1000Base-T Ethernet (RJ45)
 - 1 × DC power connector (5.5mm x 2.5mm, center positive)
- **Mounting**
 - All standard mounting hardware included
 - Desktop, ceiling, and wall mount capable
 - Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails)
 - Assorted cable junction boxes
 - Bubble level on mounting cradle for accurate horizontal wall mounting
- **Security**
 - Integrated Layer 7 firewall with mobile device policy management
 - Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal
 - Flexible guest access with device isolation
 - VLAN tagging (802.1q) and tunneling with IPsec VPN
 - PCI compliance reporting
 - WEP, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X
 - EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM
 - TKIP and AES encryption
 - Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration
- **Quality of Service**
 - Advanced Power Save (U-APSD)
 - WMM Access Categories with DSCP and 802.1p support
 - Layer 7 application traffic identification and shaping
- **Mobility**

- PMK and OKC credential support for fast Layer 2 roaming
- Distributed or centralized layer 3 roaming
- **Analytics**
 - Embedded location analytics reporting and device tracking
 - Global L7 traffic analytics reporting per network, per device, & per application
- **Warranty**
 - Lifetime hardware warranty with advanced replacement included

2. Cisco Meraki MS350 Layer 3 Cloud Managed 48-Port POE Switch, or compatible/equivalent

Must include 740W power supply and licensing for cloud services, software upgrades and support for 5 years. All switches will include stacking cables.

Part Number: MS350-48FP-HW / LIC-MS350-48FP-5YR

Estimated Quantity: 47

Specifications for Cisco Meraki MS350

- **Interfaces**
 - 48 × 10/100/1000BASE-T Ethernet (RJ45) with auto-MDIX crossover
 - 48V DC 802.3af/802.3at Power-over-Ethernet (PoE/PoE+) on the MS350-48P models, available on all ports (maximum of 30W per port for PoE+)
 - 4 × SFP+ 10 Gigabit Ethernet interfaces for uplink
 - 2 × Stacking interfaces
 - Auto negotiation and crossover detection
- **Ethernet switching capabilities**
 - 802.1p Quality of Service prioritization
 - 802.1Q VLAN tagging with 4,095 addressable tags
 - 802.1D Spanning Tree Protocol (RSTP, STP)
 - 802.1ab Link Layer Discovery Protocol (LLDP)
 - 802.3ad link aggregation with up to 8 ports per aggregate
 - Broadcast storm control
 - IGMP snooping for multicast filtering
 - MAC forwarding table entries: 96,000
- **Security**
 - Integrated two-factor authentication
 - Role-based administration
 - Corporate wide password policy enforcement
 - IEEE 802.1X port-based security
- **Performance**
 - Non-blocking fabric
 - 176 Gbps non-blocking switching capacity
 - 2.5 microsecond latency
- **Power over Ethernet (PoE models):**
 - 802.3af (PoE) 15.4 W per port and 802.3at (PoE+) 25.5 W per port
 - MS350-48FP maximum PoE output: 740 W
 - PoE available on all ports simultaneously
 - Pre-standard PoE: supports pre-standard PoE devices
- **Management**
 - Managed via the cloud using the Meraki dashboard

- Integrated with Meraki wireless, routing, and firewall management
- No-touch remote deployment (no staging needed)
- Detailed historical per-port and per-client usage statistics
- DHCP and hostname fingerprinting
- SNMP v2c
- Seamless over-the-web firmware upgrades
- **Remote diagnostics**
 - Email and text alerts
 - Live remote packet capture
 - Aggregated event logs with instant search
- **Scalable stacking**
 - Unified configuration and monitoring of all switches
 - Virtually stack thousands of switch ports in a single logical stack for unified management, monitoring, and configuration
 - Physically stack up to 8 switches for added resiliency in high-throughput environments
- **Layer 3 capabilities**
 - Static routing
 - Dynamic routing (OSPFv2)
 - DHCP Server and Relay
 - Warm spare (VRRP) with DHCP Failover
- **Power**
 - Power input: 100-240 VAC, 47-63 Hz
 - MS350-48FP power consumption: 70-888 W max
- **Environment**
 - Operating temperature: 32°F to 113°F (0°C to 45°C)
 - Humidity: 5 to 95% non-condensing
- **MTBF (at 25°C)**
 - MS350-48FP: 516,000 hours
- **Warranty**
 - Lifetime hardware warranty with advanced replacement included
- **Physical dimensions (H × W × D) - MS350-48FP**
 - 1.74" x 19.1" x 22" (4.44 x 48.6 x 55.87 cm) with power supply fitted
 - Weight: 15.0 lbs (6.8 kg)

3. Cisco Meraki 1GB Base SX Fiber Transceiver

Part Number: MA-SFP-1GB-SX

Liability Information & Assurances (SIGNATURE REQUIRED)

This signed liability and assurances sheet must be included with the pricing information submitted with your proposal.

By **signing**, the bidder indicates that his/her company meets, will comply with, and understands all the assurances identified in items 1 through 7.

1. Bidder represents and certifies that he is a reseller of the products needed.
2. Bidder represents and certifies that it has not paid or agreed to pay any other company or person any fee, commission, percentage, or brokerage fee contingent upon or resulting from this order.
3. Bidder represents and certifies that prices for this bid have been arrived at independently without consultation, communication, or agreement for the purposes of restricting competition or any matter relating to such prices with any competitor or other vendor.
4. Bidder represents and certifies that the prices contained in this proposal have not been knowingly disclosed directly or indirectly to any competitor or other vendor prior to the opening of this sealed bid.
5. Bidder represents and certifies that no attempt has been made to induce any other company or person to submit or not to submit a proposal for the purpose of restricting competition.
6. Bidder agrees to indemnify, defend, and hold OSD harmless, at its own expense, from any suit or claim or proceeding brought against OSD, so far as such is based upon a claim that any part of the items furnished by the bidder constitutes an infringement of any patent granted by the United States of America.
7. These conditions and any orders shall be governed by the laws of the State of Mississippi.

Authorized Signature: _____ **Date:** _____

Printed Name: _____

Company: _____