

STATEMENT OF WORK

SCOPE

The purpose of this Request for Proposals is to provide the Ruidoso Municipal School District (RMSD) with a robust 1:1 wireless network infrastructure that shall support current and future needs. In order to do this, Ruidoso Municipal School District is soliciting qualified contractors for a cost-effective solution that shall provide:

- **Wireless Access Points.** Provide Wireless Access Points that support 802.11ax protocol in high density environments. The hardware and ancillary software must operate as a managed system and be able to self-optimize performance, detect rogue equipment, and provide comprehensive status and statistical reporting to a centralized web-based management console. Indoor wireless access points must support the 6Ghz Wi-Fi 6E standard. Outdoor access points will support the Wi-Fi 6 standard.
- **Wireless Access Point Cabling.** Cat6 cabling from Access Point to MDF/IDF where needed. RMSD prefers the contractor relocate existing wall drops where applicable to save costs. Existing wall drops that are relocated will be terminated with an RJ45 connector and connected directly to the access point. Relocated cables will be identified and labeled on the ceiling system T-Bar adjacent or in the nearest suitable location in locations without ceiling systems.
- **Patch Cables.** Provide all necessary patch cables to support the cutover to the new wireless network infrastructure.

RMSD prefers Wireless Access Point and cabling installation to be conducted during the summer. Summer work may be performed during normal business hours. If installation will be during the school year, then work will be conducted after school hours to minimize disruption to the school environment. Any onsite work conducted during school hours requires prior approval by RMSD Technology staff.

It is the contractor's responsibility to comply with the Asbestos Hazard Emergency Response Act (AHERA). Material should not be accidentally disturbed which could result in occupant exposure or building contamination; and if work will disturb the material, the contractor must use trained, licensed workers and use work practices to prevent occupant exposure and building contamination. Dust control work practices, and worker asbestos training, must be used if asbestos-containing materials will be disturbed. At the completion of work, the area may require O&M cleaning with wet methods or HEPA vacuums. Contractor Logs: The contractor is to provide a copy of the daily log which identifies the names of Asbestos Workers, Asbestos Supervisors, and their certification numbers. RMSD does not anticipate work will be performed in any areas containing asbestos.

General System Requirements

- All equipment and material must be new.
- RMSD prefers Mist/Juniper™ for network electronics, however any equivalent or better may be considered if bid specifications are met.
- The district will accept a substitution for equivalent models on all equipment listed. If proposing an equivalent product, please submit data verifying equivalency with proposal.
- Initial access point configuration and registration will be the responsibility of the vendor.
- Mounting, installation, setup, and configuration will be the responsibility of the vendor.
- Removal of **ALL EXISTING ACCESS POINTS will be the responsibility of the vendor.** Prior coordination of

cutover from existing to new installation must be conducted.

- Testing of the equipment and the various parts enumerated above shall be completed and documented.
- Basic training on management software and access point configuration shall be provided to District IT personnel.
- Labeling exterior of all WAP's with the district provided device name and MAC address. Label size must provide legibility when viewed from standing.
- Documentation of designs, configurations, and equipment inventory (which shall include equipment make, model, serial number, District asset tag number, and equipment location—school/site name and room number). Vendor will provide a logical network diagram (both electronic, Visio, on a flash drive and print 11"X17") for each school site that will include existing switches.

Cabling Requirements

- Where feasible, existing Wireless Access Point cabling is to be reused for new WAPs if it can be verified that existing cabling is fully functioning and can be relocated to the locations designated in building diagrams. Please see maps in Exhibit B for desired WAP locations.
- Locations that did not previously have a network location for Access Points will need to have new cable run to IDF/MDF or use an existing drop that is not in use, as designated and directed by the district. Most locations will need to relocate an existing wall jack to the ceiling. Such relocated drops will be terminated with an RJ45 connector to connect directly to the access point. Please see map in Exhibit B for WAP locations that will relocate existing cabling.
- Contractor is responsible for all components and installation including cabling and horizontal pathways. Please include the cable run to each WAP as needed as a part of pricing. See Exhibit B for locations that will require new cabling.
- Cables will originate in each IDF and will land on a proper Cat 6 level jack within 3 feet of designated WAP locations.
- All cabling must go through appropriate conduits, J-hooks, and raceway. Existing cabling paths should be used whenever possible. Exposed cables will not be accepted except for minimum possible exposed cable at the WAP mount locations.
- Contractor is responsible for supplying any new conduit or surface raceway that may be required.
- All cabling being installed within a building must be Cat6 plenum rated in all environments.
- All network cabling must be labeled at point of termination to district standard. Hand written labels are not acceptable.
- Contractor is responsible for providing patch cables for all new wiring. Hand-made patch cables are not acceptable.
- CAT6 Wireless Access Point patch cabling in the MDF/IDF must be red in color. RMSD does not have a color preference for any other cabling.
- Any mounts that are required to accurately and effectively deploy an access point will be provided by the

vendor.

- Access points mounted in Gyms will need to be protected with an appropriate protective cage.

Wireless Access Points and Management Requirements

- The wireless system must be centrally managed under a single dashboard.
- The entire wireless system must be cloud managed for management and configuration.
- The wireless system must not have a single point of failure – all Access Points should run autonomously in the event of a disconnect from the Cloud Management Platform or internet.
- The wireless system must include a cloud management platform that is fully redundant across multiple US based data centers.
- Licensing for the solution shall include next business day hardware replacement and 24x7 support.
- Licensing for all Access Points and management platforms must be valid for 5 years with the full cost included in the proposal.
- The wireless system must provide in-depth Layer 7 analytics with respect to client traffic.
- 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 Bit Torrent, Pandora, Spotify, etc.) do not consume all of the available bandwidth
- The wireless system must alert administrators if the status of hardware changes, or if a change is made to the system. Additionally, all system changes must be logged and tracked by user and values changed.
- The management application must support two factor authentication.
- The management application must allow for multiple sites, and multiple levels of administrative roles, including “read-only”, “monitor-only” and Guest Ambassador (for creating guest Wireless Access)
- All equipment must be made by the same manufacturer.
- The preferred system will support private pre-shared keys as an authentication method.
- The solution must allow for 1-click mass upgrades for all Access Points simultaneously, regardless of model. Additionally, the solution must notify Network Administrators when a new feature or firmware version is available.
- 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.

- Gateway services to allow Airplay, Printing, iTunes and other Bonjour-based services to flow seamlessly across the wireless network
- The wireless access points must have a dedicated radio designed to identify interference sources on the 2.4 and 5 GHz spectrum, provide real-time spectrum analysis on those spectrums, as well as identify any interfering access points across all channels in those spectrums.
- The wireless system must support the ability to easily replicate and clone configurations across multiple different sites using a single click
- 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, MAC address and other filters.
- The wireless system must support the ability to provide deep application visibility into all of the applications that are used on the wireless network.
- 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. For example, one administrator may want to see summary report information for all high schools in aggregate every week.
- The solution must allow Access Points to be upgraded to newer hardware without the need to repurchase valid, unexpired licenses.
- Access Points must include full time Auto RF and WIPS while simultaneously serving clients.
- Access Points must have the ability to identify themselves by flashing their LED status light on command.
- Access Points must have a local landing page for client troubleshooting, which must include device information for both the AP and Client, as well as signal strength and nearby interference sources.
- Access Points must automatically transition to repeaters in the event of a loss of network connectivity.
- Access Points must natively integrate with a Mobile Device Management application for automatic onboarding and provisioning.
- Access Points must support 802.11r, 802.11k, and 802.11v roaming technologies.
- Indoor Access Points suitable conforming to IEEE 802.11a/n/ac/ax (WiFi 6E) standards at 2.4, 5, and 6GHz frequency bands.
- Outdoor Access Points suitable conforming to IEEE 802.11a/n/ac/ax (WiFi 6) standards at 2.4 and 5GHz

frequency bands.

- The wireless solution must support WAPs that are zero touch. Zero-touch means there is no need to manually stage WAPs or perform manual configuration and provisioning.
- Access Points must automatically optimize Wi-Fi by measuring channel utilization, signal strength, throughput, and interference.
- Access Points must support 802.3at standard Power over Ethernet (PoE).
- Access Points must have a Multigigabit Ethernet port.
- Access points will be installed and mounted in the center of the classroom unless specified otherwise by the district. Non-classroom Access Points shall be mounted as near as possible to the locations identified in the diagrams provided in Exhibit B.
- Contractor shall place all Access Points and antennas in the appropriate enclosure to the environment.

The proposal shall cover the sites identified in the Specifications section.

SPECIFICATIONS

INTRODUCTION

The primary objective of this RFP is to provide the students and staff of Ruidoso Municipal School District robust wireless coverage capable of handling high client densities and throughput demand.. The solution is to be installed, and verified by the provider to deliver campus wide coverage and be able to support campus computing with sustained performance similar to wired connectivity.

CURRENT NETWORK ENVIRONMENT

RMSD's Mission Critical Services

The District network provides the infrastructure supporting the following major mission-critical services:

- Microsoft's Active Directory Services
- Telephone and voicemail services via an Avaya system.
- SRST (Survivable Remote Site Telephony) services for each site; provides PSTN (Public Switched Telephone Network) access needed for emergency phone services should core WAN connectivity go down; done through

two analog telephone lines provided by Windstream.

- Email services through Gmail
- Student Information System access for both internal and external customers, to include students, parents, teachers, and other District staff.
- File and print services
- Internet access
- Fiscal system access (hosted externally)
- Network-based environmental management and control
- Security and video surveillance
- Virtual Private Network services for remote users needing access to District services from outside locations.
- Wireless network services for laptops, tablets, and various mobile devices through a Cisco controller based network.

Cisco switches are used for networking in the district.

Wide Area Network Topology (WAN)

The topology of the District WAN is “hub and spoke,” with Ruidoso High School at the hub. The district network is distributed across all of the District. Each District site is interconnected through point-to-point fiber network service provided by TDS. Ruidoso Municipal School District (RMSD) has 2 Gbps service available from TDS to all sites and the internet.

TECHNICAL SPECIFICATION

Sites

The sites identified in Table 1 shall constitute the locations of all District schools or offices where this technical specification shall apply.

Table 1. Sites

Site	Address	
Sierra Vista Primary	199 White Mountain Drive	Ruidoso, NM 88345
White Mountain Elementary	203 White Mountain Drive	Ruidoso, NM 88345
Ruidoso Middle School	124 Warrior Dr	Ruidoso, NM 88345
Ruidoso High School	125 Warrior Dr	Ruidoso, NM 88345
District Office	200 Horton Circle	Ruidoso, NM 88345

Wireless Access Points and Related Parts

To support the network needs of the district, the following Wireless Access points and related parts shall be required:

- Station cabling home run from IDF/MDF to Wireless Access Point

- Patch cords
- Wireless Access Point and Management System
- Qty 7 AP Cages to protect AP45 mounted in gym / cafeteria areas. Cages are vendor choice

PATCH CORDS

Patch cords shall be the Cat 6 type, red in color.

WIRELESS ACCESS POINTS

Indoor Wireless Access Point

- Mist AP34 (**or equivalent**)
- Mist AP34 License and Support, 5YR (**or equivalent**)
- Mist AP45 (**or equivalent**)
- Mist AP45 License and Support, 5YR (**or equivalent**)

Outdoor Wireless Access Point

- Mist AP63 (**or equivalent**)
- Mist AP63 License and Support, 5YR (**or equivalent**)

Table 2. Wireless Access Points

Site		
Sierra Vista Primary	Quantity	Equipment
	52	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
	3	Mist AP45 Bundle (or equivalent) PN: B-AP45-1S-5Y-E
	2	Mist AP63 Bundle (or equivalent) PN: B-AP63-1S-5Y-E
White Mountain Elementary	Quantity	Equipment
	43	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
	2	Mist AP45 Bundle (or equivalent) PN: B-AP45-1S-5Y-E
	1	Mist AP63 Bundle (or equivalent) PN: B-AP63-1S-5Y-E
Ruidoso Middle School	Quantity	Equipment
	33	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
	6	Mist AP45 Bundle (or equivalent) PN: B-AP45-1S-5Y-E
	1	Mist AP63 Bundle (or equivalent) PN: B-AP63-1S-5Y-E
Ruidoso High School	Quantity	Equipment
	54	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
	7	Mist AP45 Bundle (or equivalent) PN: B-AP45-1S-5Y-E
	1	Mist AP63 Bundle (or equivalent) PN: B-AP63-1S-5Y-E
District Office (Not E-Rate Eligible)	Quantity	Equipment
	3	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
Total Eligible	Quantity	Equipment
	183	Mist AP34 Bundle (or equivalent) PN: B-AP34-1S-5Y-E
	18	Mist AP45 Bundle (or equivalent) PN: B-AP45-1S-5Y-E
	5	Mist AP63 Bundle (or equivalent) PN: B-AP63-1S-5Y-E
Total Ineligible	Quantity	Equipment
	3	Mist AP34 Bundle (or equivalent)

		PN: B-AP34-1S-5Y-E
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The respective quantities shown in the table above shall apply.

The contractor shall provide better or equivalent parts, provided the resulting network functionality doesn't break the functionality of existing services identified in the section titled "Mission Critical Services Supported".

Installation and Setup

Services shall be included to install the wireless network equipment and associated cabling, and patch cables.

Configuration

Network Devices host names shall be configured using current District naming convention. The contractor shall request the details of this from the Ruidoso Municipal School District representative.

RMSD Technology Services shall provide network configuration details necessary to complete these requirements.

Documentation

The contractor shall provide electronic copy of operation/maintenance manuals and record of network equipment configurations in HTML or PDF format using USB/flash drive media. Using any other forms of electronic copy delivery vehicle shall require prior written approval from the designated District representative.

Labeling

Network equipment shall be physically labeled with hostnames and MAC Address. Labels shall be the type designed for network environments. Labels will be provided by the winning bidder.

Equipment Labeling and Inventory: The contractor shall conform to E-RATE requirements with respect to tracking of E-RATE equipment. To this end, the District requires that:

- Each E-RATE auditable equipment component shall be physically labeled by the contractor with a District inventory asset tag. The asset tags shall be provided by the District to the contractor.
- The contractor shall document the make, model, serial number, location, and asset tag of each WAP and equipment. For cases where equipment has some form of bar code, a scanning device shall be used to transcribe such information into some electronic form of record keeping (e.g. a spreadsheet).
- A final and complete inventory of all items deployed shall be provided to the district in electronic form—specifically Microsoft Excel format.

END OF SPECIFICATION