NOTIFICATION AND BELL SCHEDULING SYSTEM

SECTION 275319

1. GENERAL
	1. SUMMARY
2. This document identifies the general Campus Notification and Bell Scheduling System requirements for the Austin Independent School District, Network Services Support, located in Austin, Texas (“Owner”).
3. All new construction projects will require a new Notification and Bell Scheduling System.
4. Remodels or renovations will require modifications to connect the new additions and/or renovated space to the existing Notification and Bell Scheduling.
5. Responsible Parties
6. Owner (AISD Network Support Services) will have the final approval for all network components submitted by Technology Consultant or Technology Contractor in Attachment A, any changes in the project scope, and acceptance of the final installation.
7. Contractor is responsible for the complete Bill of Materials (BOM), installation of a complete functional solution, and 1-year warranty on all provided materials.
8. Technology Consultant:

A Technology Consultant is required and will be responsible for coordinating the needs assessments, technology design requirements, equipment requirements, and network designs between Architects, General Contractors, AISD Construction Management, AISD Network Systems and Support, and Technology Vendors.

The Technology Consultant will coordinate with the AISD Network Support Services department and the Contractor to validate all aspects of the design and installation.

* + - 1. CONTRACTOR REQUIREMENTS
				1. After the successful respondent has been selected via the procurement process by the General Contractor, Architect, AISD or their representative, they will have 5 business days to complete Attachment A and to submit it to the Owner for their approval.
				2. Once Attachment A has been approved to the Owner there will be a site survey scheduled by the Owner to verify the conditions of the Telecom Rooms and to identify power, space, size, and general conditions of the telecom room spaces.
				3. The Contractor is responsible for providing an installation in accordance with the written specifications, the project scope, and guidelines from the products’ manufacturer.
				4. All equipment shall be installed and configured in accordance with the Owner’s direction.
				5. The Contractor must have all the necessary certifications to support the installation. Additionally, all personnel assigned will have the necessary training to support the installation.
			2. AISD RELATED SPECIFICATIONS
				1. 271300 Communications Cable Plant.
				2. 273123 VoIP System.
			3. RELATED AISD DOCUMENTS
				1. NSS-5 Network Labeling Standard v3.
				2. AISD Guidelines for Completing LAN Install.
				3. AISD New Building Installation Checklist.
				4. NSS-2 Campus Upgrade Process.
				5. NSS-3 General Rack Layout and Design Guidelines.
				6. NSS-8 Installation Guidelines for Vendors.
				7. Design Standards of the Project Development Manual for GAATN requirements.
				8. AISD Network Infrastructure Upgrade.
				9. AISD Approved Master Equipment List.
				10. Schematic of Campus Physical Links and Cabling.
				11. AISD NSS Wireless Design Guidelines
			4. ASBESTOS / SILICA DUST
				1. The work under this specification may involve the disturbance, removal, handling, or transportation of Asbestos Containing Materials (ACB) including Silica.
				2. The Contractor shall be responsible for reviewing all specifications, drawings, hazardous materials reports or other information to determine the impact of construction activities on designated or suspect containing hazardous materials.
				3. Should the Contractor suspect, encounter, or have knowledge of any hazards not listed or described in the contract documents, the Contractor shall be responsible for informing AISD Project Management and the General Contractor immediately and prior to the disturbance or any action which could result in the release of any suspected or confirmed hazardous materials.
				4. Contractor is advised that the locations of all hazardous materials may not be clearly known and that he shall proceed with caution in all phases of the work.
1. PRODUCTS
	* + 1. OVERVIEW
				1. If a proposed part is no longer manufactured, the Contractor will submit the proposed replacement part number in writing to the Owner for final approval. The substituted items must meet or exceed the specifications of the listed item. The Owner will have final determination of the acceptability of all proposed equipment and must approve submitted equipment prior to installation.
				2. Where quantities are not noted, they may be obtained by contacting the Technology Consultant.
				3. Any Owner-furnished materials or equipment not installed in the project shall be returned to the Owner at the end of the project.
				4. The Contractor shall store all materials and equipment in accordance with manufacturers' instructions in a weather-tight, secure enclosure.
				5. The Contractor shall be responsible for safety and security of all Owner-furnished materials until the project is complete and accepted by Owner.
				6. All equipment and materials, unless otherwise specified, shall be new, free from any defects, and of the best quality of their respective kinds. All like materials used shall be of the same manufacturer, model, and quality unless otherwise specified.
				7. All equipment must be covered with a manufacturer three year, 8x5, next business day, maintenance plan.
			2. CAMPUS NOTIFICATION AND BELL SCHEDULING SYSTEM COMPONENTS
				1. Campus System Overview

The items listed below will apply to IP systems for renovations at existing facilities and IP based systems for construction of new facilities. The Notification and Bell Scheduling System must be a complete integrated system supporting speakers, bell scheduling, emergency notification, VoIP integration, Clocks, Digital Signage, microprocessor-based Notification and Bell Scheduling System and Intercom communications and alerting.

For each campus Notification and Bell Scheduling System, the speakers, clocks within a MDF/IDF wiring boundary should be cabled from that MDF/IDF closet.

All controlling, and management systems must support network interfaces to include an ethernet network connection for performing management, remote access, scheduling, diagnostics and/or logging transactions either on or off-site from district client devices.

Centralized Management System required.

Each Notification and Bell Scheduling System shall be sized and configured appropriately for each site with 25% growth capacity.

* + - * 1. Campus Administrative Control Functionality
1. Support for mobile client devices to support remote access, remote management, remote announcements is required. Please identify specific devices supported. Refer to RFP.
2. The Paging control device shall provide selected, two-way voice communications and signaling between administration phones and room stations. System shall support distribution to any paging zone device, individual rooms or combination thereof.
3. Provide Emergency all-call paging as well as zone paging and individual classroom intercom.
4. Remote and local programming capability, prerecorded broadcast of notification messages.
	* + - 1. Speakers

### Classrooms are to receive (1) one speaker each unless otherwise noted.

### Administration Areas are to receive (1) one speaker in each office.

### Corridors are to have (1) one speaker every 30 feet on center.

### Large open areas (e.g. cafeterias) are to have (1) one speaker every 30 feet in all directions.

### Wall speakers and clocks shall be used in spaces with no drop tile ceiling or when the ceiling is more than 15 feet high.

### Wall speakers shall be mounted at 12 feet no higher than 15 feet.

### Ceiling speakers shall be used in spaces with drop tile ceilings.

1. The speaker shall be an IP based speaker with remote volume control and must follow manufactures specifications.
2. Ceiling speakers shall be flush mounted. Coordinate finish selection with the Owner.
3. Ceiling Speakers – 2x2 drop in ceiling speakers shall be used in all drop down ceiling grid areas except for gym, cafeteria, or open common areas. Speakers shall be neatly installed in the center of the ceiling tile and utilize a tile bridge for support.
4. Wall speakers shall be 8” IP based surface mounted. Coordinate finish selection with the Owner.
5. Existing speakers should be tapped as follows: ¼ watt Admin, ½ watt classroom and 2 watts per speaker in an open area (cafeteria, hallway, library, etc.) 7.5 watts for Outside exterior horns. An additional 25% spare capacity shall be designed into the power amp for each school.
	* + - 1. Horns are required as follows

Gymnasiums are to receive minimum of two 9.25” deep with a diameter of 8 inches horns unless otherwise noted.

Outdoor areas (e.g. playgrounds, athletic fields, parking lots and courtyards) are to have 9.25” deep with a diameter of 8 inches horns mounted to provide coverage.

Building outdoor horns shall be spaced to provide ample coverage on all sides. Consult with owner for specific locations.

Horns should be tapped at 7 ½ watts. Dimensions shall be 9.25” deep with a diameter of 8 inches.

The Horn shall or preferred to be IP compatible with remote volume control and must follow manufactures specifications.

All horns located in a gymnasium or outdoor area are to include a wire metal basket guard.

Horn – as described above

Horn guard – metal basket type

* + - * 1. Vandal Proof Flush Mounted Exterior Speakers (New Construction)

Flush mounted exterior speakers shall be Weather -resistant metal construction with wiring terminals, rated for 15 watts of continuous power.

Utilize a flush mount exterior speaker that shall include a recessed vandal proof baffle useless otherwise noted.

Speakers shall be weatherproof, double re-entrant type, IP compatible with flared bell and integral compression driver rated for 15 watts of continuous power.

Speakers should be tapped at 7 ½ watts.

* + - * 1. Power Amplifiers
1. Amplifiers shall be capable of producing an audio output of 125, 250- or 300-watts RMS at less than 1% distortion with a balanced output.
2. Amplifiers shall be sized for each school’s applications including 25% growth.
	* + - 1. IP Paging Module/ Gateway
3. The System must include a paging interface device to incorporate older analog paging system with a new IP based Notification and Bell Scheduling System when needed for existing installations.
4. Paging interface device shall be required in areas with multiple speakers or areas with daisy-chained speakers.
	* + - 1. Bell System
5. Each Notification and Bell Scheduling System shall support the automatic distribution of user programmable class change time signals (bell schedule) to all selected areas.
6. Scheduling Software HTML5.0, Remote access, Single Sign on and Active Directory integration.
7. Provide and install Calendar Scheduling and Tone Management tool for Windows as well as software.
	* + - 1. Clock Correction/ Synchronization
8. The Notification and Bell Scheduling System should provide clock synchronization for all clocks on the campus. This would include new and existing wired clocks, wireless clocks, and IP clocks.
9. The clock correction system should utilize NTP servers internal, external, or both, to the districts network.
	* + 1. DISTRICT WIDE NOTIFICATION AND BELL SCHEDULING SYSTEM COMPONENTS
				1. Central Control and Management Requirements
	1. The District will be provided a cloud based, fault tolerant, system installed so that all the individual campuses and facilities can be centrally controlled, configured, and managed. The necessary compatible software, applications, and hardware needs to be supplied to facilitate central control of District wide communication and management through the Notification and Bell Scheduling System.
	2. System must have the capability of communicating to all campus and facility Notification and Bell Scheduling supported locations at the same time when necessary through the system for district administrators.
	3. The Notification and Bell Scheduling System should provide a comprehensive communications network that connects administrative areas and staff locations in a single building, in multiple building sites throughout a school campus, or the entire school district. The system needs to support the integration of the following systems, capabilities, and functions
		* + 1. Web Based Management Platform Requirements:

 Provide a web-based HTML5.0 platform for configuration, management and triggering alerts to all individual campuses or district wide.

Bell Provide a web-based platform for managing the campus and facility Notification and Bell Scheduling either individually or as groups.

* + - * 1. Communications Integration

The ability to integrate and utilize other forms of mass communication and social media the district already has in place to send/receive messages/alerts from the Notification and Bell Scheduling System including:

School Messenger

Digital Signage

Microsoft Office 365 Outlook

Skype for Business

Microsoft Teams

Facebook

Twitter

Single Sign on capability

Emergency Weather Alerts

Active Directory

API (Application Programming Interface)

* + - * 1. Cisco Unified Communications Manager Integration Requirements:

Integrate with the Cisco Unified Communication Manager (CUCM) to facilitate sending and receiving alerts from any VOIP Phone in the CUCM, to and from the Notification and Bell Scheduling System.

Each Notification and Bell Scheduling System shall be compatible with, and provide for integration to, the school’s voice system (VOIP). The user shall have the capability to page and conduct voice intercom from their phone to any speaker in the system. Pre-announce tones shall alert the classroom of incoming calls with distinct tones for each priority level.

Telephone interface with SIP/FXO

The telephone shall interface with the voice system and allow the Notification and Bell Scheduling System to be operated via the voice system phones.

The exact quantity and location of phones to interface with the Notification and Bell Scheduling System shall be coordinated with the Owner.

* + - * 1. Microsoft Active Directory/ Single Sign on Integration
1. Integrate with AD for authentication for system access and permissions within the Notification and Bell Scheduling System management and alerting consoles.
2. Import, synchronize, and utilize preexisting user and security groups within AD to reduce the account management load.
	* + - 1. Entry Control Systems Integration Requirements:

Integrate, and control when necessary, the existing entry control systems and security cameras at all the campuses and facilities, as individual campuses, groups of facilities, or at the entire district level. The system should be able to implement campus or district wide lock down procedure.

* + - * 1. District Administrator and Leadership Control and Connectivity Requirements:
1. Provide district leadership with the ability to send district wide notifications, or individual notifications to a specific zone or room at the campus or facility level, from the Notification and Bell Scheduling System central management system.
2. Support secured, remote paging, alerting, and system management from administrator’s mobile devices, including Smart Phones and Tablets.
	* + - 1. Emergency Notifications Requirements:
3. Built in emergency evacuation capability which includes pre-recorded event messages for severe weather alerts and warnings, fire evacuation instructions, intruder lock down, medical emergency.
4. Monitoring of live weather feeds from the National Weather Service to activate the appropriate alerts for the facilities in the affected areas using Geo-Location or boundary triggers. Weather alerting using FIP6, UGC county, and UGC Zone codes.
5. The system should support the following types of campus and facility alerts, both individually, in groups, or the entire district.

911 Alerting

Building Lockdown

Sever Weather Alerting

Building Evacuation

National Weather Service

CAPCOG

* + - * 1. Audio File Support Requirements:
1. The ability to store audio files at the district level for use with campus and facility notifications.
2. The ability to utilize and manage web streamed or locally stored WAV files to enhance the number of messages available to be used with or for automated announcements over the Notification and Bell Scheduling System.
3. Ability to stream music and IP based broadcast, either stored locally on the Notification and Bell Scheduling System or streamed live from the districts internet connections.
4. EXECUTION AND IMPLEMENTATION
	* + 1. SYSTEM IMPLEMENTATION REQUIREMENTS AND PROCESS
				1. Prior to the procurement process beginning, the Technology Consultant, in consultation with AISD NSS, will create design documents and the Attachment A Parts List document containing all the information that would be needed for Contractors to bid on the desired project.
				2. Once AISD Purchasing has completed the procurement process, and a Contractor has been selected through the procurement process, the winning Contractor will be notified by AISD.
				3. The Specifications, General Conditions, Supplementary Conditions and other requirements of Division 1 apply to the work specified in Division 270000 of the construction documents and shall be complied with in every aspect. The Contractor shall examine the documents, which make up the Contract Documents, and shall coordinate the work on the Technology Division 27 of these specifications.
				4. After bid award, the Contractor will meet with AISD Network Support Services and the Technology Consultant to review the network design, scope of work, Attachment A Parts List and identify a project manager.
				5. The Contractor shall provide a project manager who will be responsible for coordination of all activities of the Contractor’s staff.
				6. The Contractor must commit adequate staffing to complete the work within the schedule as set by the Owner.
				7. At the pre-installation meeting, the Contractor will validate the Bill of Materials, receive the required configuration templates, and discuss installation procedures, project schedule, design requirements, and AISD Network Support Services’ expectations, prior to any order of equipment.
				8. The Contractor will be responsible for the delivery of equipment directly to each campus from the Contractor’s staging facility. Under no circumstances, will the Owner accept any equipment delivered directly to any AISD location. If such an attempt is made, the Owner will order the equipment returned to the manufacturer/distributor at the Contractor’s expense.
				9. The Contractor will be responsible for verification, delivery of equipment and storage at each campus as specified by the Owner.
				10. All installation schedules and procedures must be coordinated with and approved by the Owner or their representative.
				11. The Contractor will be required to provide the Owner, within 30 days of Owner acceptance, with required documentation for the Notification and Bell System installation, and should be able to edit documents in Microsoft Visio, Word and Excel, and AutoCAD.
				12. The Contractor shall be responsible for installing and recording AISD Asset Tag and system serial number information and providing this information in final closeout documentation.
				13. The newly installed equipment must meet AISD standards for appearance, neatness, cable dressing, etc.
				14. Testing and verification of the functionality of the newly installed equipment by the Contractor will be required. The Owner or their representative will provide testing and acceptance procedures to be followed.
			2. INSTALLATION REQUIREMENTS
5. Installation of the Notification and Bell Scheduling System
	1. The Contractor shall provide a complete, turnkey industry standard two-way communication Notification and Bell Scheduling System with integrated clock and bells. The Contractor is to perform all the services and functions described herein, as well as provide all equipment, software, programming, cable, materials, labor, tools, transportation, and any other resources necessary to provide a complete system conforming to the design intent for AISD.
	2. All new construction will require a complete Notification and Bell Scheduling System with integrated clocks and bells while additions and/or renovations to existing facilities will require modifications to the existing Notification and Bell Scheduling System. Also note that systems that are broadcast only and/or are not capable of listening to included rooms will not be accepted.
	3. The Contractor will be responsible for racking equipment as per rack design standards and verifying that the modules/ Amps are in the correct areas as specified by the approved Bill of Materials.
	4. The equipment must be labeled, inventoried, and asset tagged using AISD templates and asset tags.
	5. The Contractor shall be responsible for loading the version of the software and/or firmware specified by AISD Network Support services.
	6. AISD Network Support Services will provide initial configuration templates and configuration information at the initial meeting. The Contractor shall be responsible for building the configuration file and loading it on the switches.
	7. The Contractor shall be responsible for cabling the Notification and Bell Scheduling System into the network infrastructure and testing connectivity.
	8. The Contractor will add descriptions to all Notification and Bell Scheduling System equipment. Descriptions will include School name, room number, and jack ID. The format for description will be provided by AISD in the installation documents.
	9. The Contractor will be responsible for installing patch panels and copper patch cables to the new switches. All patch cables must be installed as specified by the Owner.
6. Cabling (All cable shall be pink)
	1. The Cabling Contractor is to provide and install appropriate length copper patch cables to activate copper patch panel ports to access layer switches. Cable lengths must be appropriate to be dressed neatly in cable management on the rack and provide workable slack.
	2. Machine printed cable labels will be required (for switch-switch) uplink ports, the Contractor will install these labels and verify accuracy.
	3. All patch panel to POE/Ethernet switch cables must be patched in a 1-to-1 configuration with patch panel ports 1-24 going to odd-numbered switch ports and patch panel ports 25-48 going to even number switch ports.
	4. The contractor must follow AISD patch panel color coding standards (see AISD Patch Cable Color Key.pdf). Components of the Notification and Bell Scheduling System that will be connected to the AISD Network hardware and patch panels will utilizing pink patch cables.
	5. Each classroom and office speaker shall have a discrete home run back to the MDF/IDF that is within the wiring boundary. Speakers in large areas (i.e. Gymnasiums, cafeterias, hallways or outdoor areas) may be daisy-chained within that specific area unless otherwise noted.
	6. Provide (15) fifteen-foot service loop at each end of the Notification and Bell Scheduling System cables including daisy-chained speaker cables.
		* 1. CERTIFICATION AND WARRANTY
				1. Detailed test result reports must be included with the system documentations this should show results for each cable and device.
				2. Upon completion of testing, the manufacturer or his representative shall issue to the Owner a letter of Certification attesting to the fact he has tested and adjusted the system, that all components are properly installed and free of defects and that the system is installed in compliance with this specification and manufacturer requirements.
				3. An official Registered Document and a registration number from the manufacturer shall be provided to AISD.
				4. The Contractor shall provide a minimum three-year warranty on all components, outside of the cable plant, to begin upon system acceptance of the site by AISD.
				5. Contractor shall list the length of any warranties over three-year and all components associated with the warranty.
				6. AISD expects the warranty coverage will be no less than the services provided in a full maintenance program at no additional cost to AISD. This includes parts, labor, and on-site maintenance with manufacturer-certified personnel.
	7. ACCEPTANCE
		1. Prior to the general site inspection, the Contractor shall be responsible for performing a site inspection to detect and resolve any issues or punch list items concerning his/her responsibilities.
		2. The Contractor shall participate in a general site inspection attended by the Owner, or their representative, the General Contractor, Technology Consultant, and all other interested parties to document observations, issues, and punch list items.
		3. All systems must be installed and functional, and test results, documentation, drawings and maintenance information provided prior to any site being accepted.
		4. The “as-built” documentation should include all technology data drop locations, cable pathways, etc. on a technology layer within the overall campus CAD
		5. The Owner will not accept a school as complete until all as-built documentation is correct and delivered to Owner.
		6. The Owner will not accept a school as finished until all purchased equipment has been assigned to a maintenance contract.
	8. WARRANTY AND MAINTENANCE
		* + 1. The Contractor shall provide a three-year maintenance contract of all installed system components against defects involving workmanship and material that is not covered by manufacturer’s warranties. All labor and materials shall be provided at no expense to the Owner during normal hours (8 to 5). The maintenance period shall begin on the date of acceptance by the Owner. The Contractor shall provide AISD with documents and contract numbers outlining the equipment covered under the one-year maintenance agreement.
				2. The Contractor shall, at the Owner's request, make available a service contract offering continuing factory authorized service of this system after the initial warranty period.
				3. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.
				4. Contractor shall list the length of any warranties over one-year for labor and three years on all material associated with the warranty.
	9. INSPECTIONS
		* + 1. Two periodic inspections, at no expense to the Owner, shall be made within the first year’s guarantee period to ensure the satisfactory operation of the system.
				2. The Contractor must provide a service call within 24 hours for any possible defective cable.

END OF SECTION 272100

ATTACHMENT A

Provide an itemized listing of all equipment and material required to meet the specifications. This listing shall include Part Number, Description, Unit of Measure and Quantity. Prior to ordering any equipment listed in this attachment, the Contractor must receive approval from the AISD NSS Telecom Manager.

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