



INVITATION TO BID
BID NO. 9843
SOUND SYSTEMS REPLACEMENT
FOR TROY SCHOOL DISTRICT

The Troy School District will receive firm, sealed bids for furnishing, delivering and installing new Sound Systems for both Athens and Troy High School Gymnasiums and outdoor Stadiums, for Troy Schools.

Specifications and proposal forms can be obtained online at <http://www.troy.k12.mi.us>. From the main page click the "Business Services" tab listed under "Departments", then click "Purchasing" and scroll down to locate and access the bid documents.

Your proposal and one copy marked "**Bid 9843 Sound System Replacement**" must be delivered no later than 10:30 a.m., Thursday, July 6, 2017, Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 48083, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted.

All questions regarding the bid specified, or the bid terms and conditions will be accepted in writing ONLY and subsequently answered through an addendum to all interested parties. Questions must be received no later than noon, Tuesday, June 27, 2017, at no other time prior to the bid opening will questions/concerns be addressed or accepted and may be faxed to: 248.823.4077, or emailed as a Word document to: PurchasingOffice@troy.k12.mi.us.

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School Board or the Troy School Districts Superintendent. Also, a sworn and notarized Affidavit of compliance for the Iran Economic Sanctions Act certifying the vendor does and will comply with Public Act 517 of 2012 shall accompany all proposals. Both forms will be enclosed in the specification's booklet that shall be used for this purpose. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statement.

In accordance with Michigan Compiled Laws Section 129.201, successful bidders whose proposals are \$50,000 or more, for any bid category, will be required to furnish a U.S. Treasury Listed Company Performance and Payment Bond in the amount of 100% of their bid. The cost of the Bond shall be identified within each proposal.

The Troy Board of Education reserves the right to accept or reject any or all bids, either in whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and in general to make awards in any manner deemed to be in the best interest of the owner.

Purchasing Department
Troy School District
1140 Rankin
Troy, MI 48083

INSTRUCTIONS TO BIDDERS

PROPOSAL/INTENT

1. The Troy School District will receive firm, sealed bids for furnishing, delivering and installing new Sound Systems for both Athens and Troy High School Gymnasiums and outdoor Stadiums, in accordance with the attached specifications.
2. Proposals will be submitted only on the forms provided, will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work and must be delivered to Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 48083, no later than 10:30 a.m., Thursday, July 6, 2017, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration. Submit one original and one copy.
3. Proposals will be made in conformity with all the conditions set forth in the specifications. All items of furniture and equipment must conform to the specifications.
4. All questions regarding the bid specified, or the bid terms and conditions will be accepted in writing ONLY and subsequently answered through an addendum to all interested parties. Questions must be received no later than noon, Tuesday, June 27, 2017, at no other time prior to the bid opening will questions/concerns be addressed or accepted and may be faxed to: 248.823.4077, or emailed as a Word document to: PurchasingOffice@troy.k12.mi.us.
5. Bidder shall be reputable and a recognized organization, with at least five (5) years successful experience on work of this type and scope, of equal or better quality than this project.
6. References in the specifications to any article, product, material, fixture, form or type of construction, etc., by proprietary name, manufacturer, make or catalog number will be interpreted as establishing a standard quality of design and will not be construed as limiting proposals.
7. Bid bond or certified check, for an amount not less than five (5%) percent of the amount of the bid, must accompany each bid. Failure to submit proper bid security shall constitute rejection of bid.
8. A performance bond shall be required for the project if the cost is in excess of \$50,000 and must be listed separately on the proposal form as an individual line item.
9. A completed Familial Disclosure and an Iran Economic Sanctions form must be included with each proposal submitted or the proposal will not be accepted, please note these forms must be notarized.
10. The Troy Board of Education reserves the right to accept or reject any or all proposals either in whole or in part; to waive any irregularities and/or informalities; and in general to make awards or cancel this proposal, if deemed to be in the best interests of the owner.

WARRANTY

All material and equipment will be guaranteed to be free from defects in both workmanship and materials for no less than one year from date of receipt/installation. If manufacturer warranty exceeds this minimum requirement, the manufacturer warranty will prevail. Any item(s) found to be defective will be replaced or repaired within seven working days at vendor(s) expense.

WITHDRAWAL OF BIDS

Any bidder may withdraw their bid at any time prior to the scheduled time for receipt of bids. No proposal may be withdrawn until after 45 days after bid opening.

FIRM PRICING

Unit pricing will prevail when computing total quantity on bids. No price allowance or extra consideration on behalf of the bidder will subsequently be allowed by reason of error or oversight on the part of the bidder. The successful bidder(s) will hold bid prices firm for all purchase orders placed for a period of approximately one full year.

PERMITS, FEES AND REGULATIONS

The vendor shall obtain and pay for all permits, assessments, fees, bonds, and other charges as necessary to perform and complete the work of this contract, including disconnection charges, capping and unplugging utilities.

The vendor shall be responsible for obtaining all permits and licenses necessary for the proper completion of project. Permits and licenses are available from the appropriate agencies having jurisdiction. The vendor shall give all notices, pay all fees and comply with all laws, ordinances, rules and regulations bearing on the work.

At the completion of the project, the vendor will provide to the District all paperwork related to the full execution of the permits(s), including all payments and inspections.

If any of the work of the vendor is done contrary to such laws, ordinance rules and regulations without such notice, he shall bear all costs arising therefrom. The vendor shall include all cost and taxes in its bid, and make proper provisions for payment of all other State and Federal applicable taxes, fees or other costs.

TAXES

Troy School District is not automatically exempt from State of Michigan Sales and Use Taxes. The District must pay these taxes when materials are to be incorporated into reality. Materials that are permanently attached, built-in, incorporated or otherwise made part of the structure all applicable taxes shall be paid by the vendor. Troy School District shall not be responsible for any taxes that are imposed on the vendor. Furthermore, the vendor understands that it cannot claim exemption from taxes by virtue of any exemption that is provided to Troy School District.

DELIVERY/ LOCATIONS/INSTALLATION

Time of delivery is part of the consideration. It is understood that the bidder agrees to deliver prepaid to the schools, specified from the resulting contract, all items. All cost of delivery, drayage, freight, packing, unpacking, and setup are to be included in the prices bid.

All shipments will be F.O.B. delivered to, Athens High School, 4333 John R, Troy, MI 48085, Troy High School, 4777 Northfield Pkwy, Troy, MI 48098.

The vendor is responsible for removing from the project all waste materials and rubbish resulting from his operations and installation including all packing cartons and debris. Removal is to occur on a daily basis. Failure to do so will result in the Owner doing so and the cost thereof shall be charged to the vendor as a deduction in his contract price.

The vendor shall provide an adequate number of qualified, experienced installers, in harmony with other works at the site.

TIMELINE

The District anticipates the following timeline and is prepared to exercise flexibility for the purpose of finding the right fit with a qualified vendor or for other purposes deemed to result in added value to the Sound Systems Replacement.

| | |
|-----------------------------|-----------------------------------|
| Bid Release | Monday, June 19, 2017 |
| Questions Due | Tuesday, June 27, 2017 @ Noon |
| Final Addendum | Wednesday, June 28, 2017 @ Noon |
| Bid Due Date/Public Opening | Thursday, July 6, 2017 @ 10:30 AM |
| Board Award | Tuesday, July 18, 2017 |
| Earliest Project Start Date | Wednesday, July 19, 2017 |
| Project Completion Date | September 30, 2017 |

BID BOND

Bid Bond or certified check, for an amount not less than five (5%) percent of the amount of the bid, must accompany each bid. The check or bond of each unsuccessful bidder will be returned within ten (10) days after the bid is awarded. Failure of any accepted bidder to enter into a contract to complete the specified work may forfeiture of his bid security. Failure to submit proper bid security shall constitute rejection of bid.

PERFORMANCE BOND/PAYMENT BOND

Within fourteen (14) days after date of issuance of written notice of selection for the award of a contract, which shall be considered as the notice to proceed, the successful bidder shall enter into a contract with the Owner and shall execute and file with the Owner, the following in the amount 100% equal to full contract sum.

A performance bond shall be required for the project if the cost is in excess of \$50,000 and must be listed separately on the proposal form as an individual line item. The Performance Bond must insure the faithful performance of all provisions of the contract and satisfactory completion of the specified work, within the time agreed upon.

The payment bond must insure the payment and protection of claimants supplying labor or materials to the principal contractor or his subcontractors in the prosecution of the work provided for in the contract. The successful contractor’s bond company must be listed by the State of Michigan as a licensed carrier and have an excellent or superior rating from AM Best Company.

PREVAILING WAGE

This is not a prevailing wage project.

SAFETY

Under the “General Conditions of the Contract for Construction” of the contract to be awarded, the Contractor;

- a) shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures;
- b) shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the contract;
- c) shall take reasonable precautions for safety of all persons who may be affected, including employees of the Contractor and Subcontractor; and
- d) shall have an accident prevention representative at the site.

The general conditions of the contract for construction and the agreement also require that the Contractor indemnify the Owner in the event of certain claims arising out of the performance of the work.

INSURANCE REQUIREMENTS

The Contractor shall protect, defend and indemnify the Owner, its officers, agents, servants, volunteers, and employees from any and all liabilities, claims, liens, demands, and costs of whatsoever kind and nature which may result in injury or death to any persons, and for any result in injury or death to any person, and for loss or damage to any property, including property owned or in the care, custody, or control of the Owner in connection with or in any way incident to or arising out of the occupancy, use, with this Agreement resulting in whole or in part from negligent acts or omissions of the Contractor, any Subcontractor, or any employee, agent or representative of the Contractor or any Subcontractor.

The Contractor shall maintain, at its expense, during the term of this contract the following insurance:

- a) Worker's Compensation Insurance with statutory limits and Employer's Liability Insurance with a minimum limit of \$1,000,000 each occurrence.
- b) Comprehensive General Liability Insurance with a minimum combined single limit of \$1,000,000 per occurrence, \$1,000,000 aggregate, in the same amount made for bodily injury and property damage. The policy is to include products and completed operations, cross liability, broad form property damage, independent contractors, and contractual liability coverage. The policy shall be endorsed to provide sixty (60) days written notice to the District of any material change of coverage, cancellation, or non-renewal of coverage.
- c) If Subcontractors are likely to be used, the Comprehensive General Liability policy shall include coverage for independent Contractors.
- d) Owner's Contractor's Protective Policy-comprehensive in the name of the Owner, with a minimum combined single limit of \$1,000,000 per occurrence in the same amount for bodily injury or property damage.
- e) Automobile Liability insurance covering all owned, hired, and non-owned vehicles with personal protection insurance and property insurance to comply with the provisions of the Michigan no-fault Insurance Law, including residual liability insurance with a minimum combined single limit of \$1,000,000 each occurrence of bodily injury and property damage.
- f) All insurance policies shall be issued by companies licensed to do business in the State of Michigan. The companies issuing the policies must be domestic (on-shore) companies and have an A rating by AM Best.
- g) The Contractor shall be responsible for payment of all deductibles contained in any insurance policy required in this contract.

COMPLIANCE WITH SCHOOL SAFETY INITIATIVE LEGISLATION

Meeting the requirements of the School Safety Initiative Legislation, being MCL 380.1230, 80.1230a, 380.1230c, 380.1230d and 380.1230g.

The Bidder acknowledges and agrees that the Bidder will have any and all of its installation personnel (including sub-contractors) subjected to criminal history and background checks. **Personnel that fall into this group will be working on District premises for more than one continuous week.** Criminal history and background checks will be done within a year of the beginning of the project and should be completed before worked begins on this project.

The Bidder is required to provide written documentation listing all personnel who fall into the group indicated in the above paragraph. The documentation will also verify that none of the personnel have a "listed offense" as indicated below. This documentation is to be provided before the beginning of the project and updated as necessary for any additions or subtractions from the list as long as the project lasts.

The Bidder shall indemnify, defend and hold the District, its employees, Board of Education, and each member thereof, agents and consultants, harmless from and against any and all claims, counter-claims, suits, debts, demands, actions, judgments, liens, liabilities, costs, expenses, including actual attorney's fees and actual expert witness fees, arising out of or in connection with any violation of, or the Bidder's failure to comply with the above paragraphs.

The Bidder shall be responsible for all costs and expenses associated with the above-required criminal history and background checks.

LISTED OFFENSES

1. MCL 750.145a - Accosting, enticing or soliciting child (less than 16 years of age) for immoral purposes.
2. MCL 750.145b - Accosting, enticing or soliciting child (less than 16 years of age) immoral purposes – second or subsequent offenses.
3. MCL 750.145c - Involvement in child sexually abusive activity or material, including possession of child sexually abusive material (“child” is a person less than 18 years of age who has not been legally emancipated.)
4. MCL 750.158 - Crime against nature (i.e., sodomy) if the victim is an individual less than 18 years of age.
5. A third of subsequent violation of any combination of the following:
 - a. MCL 750.167(1)(f) - indecent or obscene conduct in a public place;
 - b. MCL 750.335a - indecent exposure;
 - c. A local ordinance of a municipality substantially corresponding to a section described in (a) or (b), *supra*.
6. Except for juvenile disposition or adjudication, a violation of:
 - a. MCL 750.338 - gross indecency between males; fellatio or masturbation;
 - b. MCL 750.338a - gross indecency between females; oral sex;
 - c. MCL 750.338b - gross indecency between male and female persons;if the victim is an individual less than 18 years of age.
7. MCL 750.349 - Kidnapping, if victim is an individual less than 18 years of age.
8. MCL 750.350 - Kidnapping; child under 14 years of age with intent to detain or conceal from child's parent or legal guardian.
9. MCL 750.448 - Soliciting or accosting by a person 16 years of age or older, if victim is an individual less than 18 years of age.
10. MCL 750.455 - Pandering
11. MCL 750.520b - First degree criminal sexual conduct.
12. MCL 750.520c - Second degree criminal sexual conduct.
13. MCL 750.520d - Third degree criminal sexual conduct.
14. MCL 750.520e - Fourth degree criminal sexual conduct.
15. MCL 750.520g - Assault with intent to commit criminal sexual conduct.
16. Any other violation of a law of the state or a local ordinance of municipality that by its nature constitutes a sexual offense against an individual who is less than 18 years of age.
17. MCL 750.10a - Offense by sexually delinquent person (i.e., “any person whose sexual behavior is characterized by repetitive or compulsive acts which indicate a disregard of consequences or the recognized rights of others, or by the use of force upon another person in attempting sexual relations of either a heterosexual or homosexual nature, or by the commission of sexual aggressions against children under the age of 16”).
18. An attempt or conspiracy to commit an offense described in (1) through (17).
19. An offense substantially similar to an offense described in (1) through (17) under a law of the United States, any state, or any country or any tribal or military law.

TERMINATION BY THE DISTRICT FOR CONVENIENCE

The District may, at any time, terminate the contract for the District’s convenience and without cause.

Upon receipt of written notice from the District of such termination for the District’s convenience, the contractor shall:

- a) Cease operations as directed by the District in the notice;
- b) Take actions necessary, or that the District may direct, for the protection and preservation of the Work; and
- c) Except for Work directed to performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further Subcontracts and purchase orders.

Owner Is An Equal Opportunity Employer

The Owner is an Equal Opportunity Employer. Pursuant to the Executive Order 11246 as amended, you are advised that under the provisions of this order, Contractors and Subcontractors are obligated to take affirmative action to provide equal opportunity without regard to race, creed, color, national origin, age or sex.

Michigan Right to Know Law

Troy School District will comply with the Michigan Right to Know Law by informing Contractors of hazardous chemicals to which they may be exposed. All Contractors will be required to provide Material Safety Data Sheets for any hazardous chemicals brought to the workplace. The Contractor shall comply with all applicable provisions of the Occupational Safety and Health Act for the duration of the specified work.

Asbestos Hazard Emergency Response Act

As required by the Environmental Protection Agency Asbestos Hazard Emergency Response Act, each school district is responsible for providing contractors with information regarding locations of known or assumed asbestos containing material prior to the Contractor entering a building under the school district’s jurisdiction. The successful bidder will be required to complete the school district’s Contractor Notification forms.

Notification of Assumed Lead-Containing Materials

The intent of this section is to formally notify all Contractors and Sub-Contractors applying for or bidding on work covered within this specification that, due to the age of the facilities within this District, there is the presumption that building components do contain lead-based paint pursuant to OSHA definition. The District has not conducted lead-based paint inspections. As a result, all Contractors and Sub-Contractors bidding must assume that building components do contain lead-based paint.

Furthermore, all awarded Contractors and Sub-Contractors shall be responsible to comply with all applicable Federal and Michigan State lead regulations including, but not limited to, 29 CFR Part 1926.62 of the OSHA Lead Construction Standard, (Part 603 of the Michigan State Standards). All costs associated with regulatory compliance shall be borne by the Contractor and/or Sub-Contractor.

General Conditions

The District reserves the right to accept or reject any or all proposals, to waive irregularities, and to accept a proposal which, in the District's opinion, is in the District's best interest.

The District reserves the right to declare as non-responsive, and reject, any bid which is incomplete or where material information requested is not furnished, or where indirect or incomplete answers or information is provided.

In the event, the Administration Building is closed due to unforeseen circumstances on the day Proposals are due, Proposals will be due at the same time on the next day that the District and/or the Administration Building is open.

Negligence in preparation, improper preparation, errors in, or omissions from, proposal shall not relieve a bidder from fulfillment of any and all obligations and requirements of the proposed Contract Documents.

The District expects that the awarded bidder will complete the work as outlined in the specifications for the amount bid by the bidder. Any additional costs above the amount bid and awarded, must be approved by the District in advance of any work.

Voluntary alternates for bids are acceptable but should NOT be put in the space for the Base Bid on the Bid Response Form but on an attached sheet, clearly labeled Voluntary Alternative. Such Alternates should be described in enough detail for the District to understand the Bidder's intent.

Owner may choose to conduct testing to verify correct products and installation. If the materials and installation are found not to be per spec, owner will require subsequent tests to be performed by Owners testing company at contractors' expense.

Any exceptions to the terms and conditions contained in this RFP or any special considerations or conditions requested or required by the Contractor MUST be specifically enumerated by the Contractor and be submitted as part of its Proposal, together with an explanation as to the reason such terms and conditions of this RFP cannot be met by, or in the Contractor's opinion should not be applicable to, the Contractor. The Contractor shall be required and expected to meet the specifications and the requirements as set forth in this RFP in their entirety, except to the extent exceptions or special considerations or conditions are expressly set forth in the Contractor's Proposal and those exceptions or special considerations or conditions are expressly accepted by the District.

No responsibility shall attach to the District, or the authorized representatives of either one, for the premature opening of any proposal, which is not properly addressed and identified.

The Contract Documents, as outlined in the executed Agreement, shall imply the inclusion of the entire agreement between the parties thereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by an officer, agent or employee of the District or by any other person.

Opening and Awarding of Bids

Bids will be publicly opened and read aloud at the Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 48083, at 10:30 p.m., Thursday, July 6, 2017.

The recommendation for award will be submitted to the Board of Education at the regular Board of Education Meeting to be held on Tuesday, July 18, 2017.

**Troy School District
BID 9843
Sound System Replacement**

**SSN-250 Indoor Sound System
Athens and Troy High School Gymnasiums
Specifications**

Part 1-General

1.01 SCOPE

- A. Provide all professional services, transportation services, supervision, coordination, etc., necessary to complete the installation of a high quality Audio System as specified. “Audio System” references the system and “Audio System Installer” references the installer. The Audio System Installer is responsible for sizing the speaker cluster, amplifiers, patch panels, transformers, etc. to ensure a complete and properly operating system in accordance with the performance criteria set forth in this specification. All installed equipment must be new and in unused condition. It is the intent of the specifications to indicate the quality, configuration, and performance of the Audio System. The Audio System installation includes the following:
1. Point Source Sound System
 2. Audio Control System
 3. Cables, connectors, plates and wiring
 4. All necessary design, fabrication, processing and amplification equipment, and installation for a complete sound system as described

1.02 SYSTEM DESCRIPTION

The following is intended to provide an overview of the design concepts and is not an exhaustive description of the Audio System.

- A. The Audio System shall consist of a main speaker cluster located above center court. The Audio System shall provide full range sound reinforcement capable of high speech intelligibility and quality music reproduction. The speaker components shall be of the two- or three-way type, capable of providing full range sound coverage. The speaker components shall be adjustable to cover each seating area independently.
- B. Amplification and related signal processing equipment shall be housed in a new steel equipment rack to be located at the current amplifier rack location. Power amplifiers shall be sized to provide 20% headroom above the maximum power handling rating for each speaker component in the system. The minimum load impedance of each amplifier channel shall not be below 3 ohms.
- C. Scope of work includes the following: Physical mounting of main speaker cluster to the roof truss, speaker cable between the speaker cluster and wall mount rack supplied by the Audio System Installer, signal cable between the control location (designated by owner) and the wall mount rack, a dedicated AC power feed (supplied by owner) to the supplied wall mount rack, and the audio control system. A licensed electrician must perform all high voltage electrical work.
- D. Loudspeaker
1. Safe, secure and permanent manner in their operating position.
 2. The aiming direction of the main loudspeakers must be adjustable vertically 0-25 degrees down in 5 degree increments. The aiming direction of the court loudspeakers must be adjustable vertically 0-90 degrees down.
 3. Rigging, mounting and support systems for loudspeakers reviewed and certified by a registered professional engineer.
 4. Structural support members to have an appropriate safety factor (determined by a structural engineer). All fasteners to be graded and certified for use in the intended applications.

F. The Audio System is to achieve the following performance standards: continuous output level of 120 dBA at 1 meter with sufficient headroom to allow for peaks. The frequency response of the sound system to be at least 45 Hz to 20 kHz, -10 dB at 1 meter.

G. The Audio System utilizes digital signal processing for all applications. All digital signal processing is contained within the amplifier. The digital signal processor will provide the following signal processing capability: output gain control, equalization, delay, crossover, and limiting.

1.03 SUBMITTALS

Submit the following documents with bid proposal. Failure to provide a complete set of submittals will result in disqualification. Provide shop drawings and submittal data containing sufficient information to describe the work to be performed. Prepare drawings at an appropriate scale. Submit shop drawing information at one time. Provide the following information, but not necessarily limited to:

- System description
- Complete system equipment list, with individual specification sheets for each piece of equipment
- Functional system block diagram showing all major equipment and signal flow
- Basic speaker cabinet design drawings consisting of the cabinets' overall dimensions, cabinet integration with a display structure and estimated weight of entire system with all equipment installed
- Speaker cluster drawings showing all speakers in their installed position and estimated electrical draw of the entire system
- Proof of performance illustrations as generated by an acoustical CAD modeling program (EASE or equivalent). Illustrations to include direct field sound pressure level performance throughout the stadium at 125 Hz, 250 Hz, 500 Hz, 1,000 Hz, 2,000 Hz and 4,000 Hz.

1.04 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of audio equipment through one source from a single manufacturer.

B. Manufacturer's qualifications: A minimum of five (5) years' experience with the specified types of products and installation.

C. Installer's qualification: Business familiar in the installation of systems similar in complexity to those essential for this project; and fulfillment of the following:

1. The primary business of contractor shall be in the installation of sound and video systems.
2. At least (5) five years' experience with systems of the specified types and products included.
3. Experience with comparable scale sound reinforcement projects within the last three (3) years.
4. Retain a fully staffed and equipped service facility with fulltime field technicians.
5. Be a franchised dealer and approved service facility for all amplifiers, digital and analog signal processing equipment and loudspeaker products specified or proposed; if not, supply detailed description of how warranty service on these items will be obtained, and if any manufacturer's warranties will become void.
6. Installer to be factory educated in the installation and maintenance of any digital signal processed based control systems.
7. At the request of the owner, the Installer must demonstrate having:
 - Sufficient plant and equipment to complete the work within the agreed timetable
 - Sufficient staff with commensurate technical experience
 - Appropriate financial status to meet the obligations of the work
 - Capability to provide performance bonding

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. To establish the minimum functional, aesthetic and quality standards, products and product series of the manufacturers listed below are required.
- B. Substitutions: Products of other manufacturers are acceptable provided they meet the performance and reliability standards of the recommended equipment.

2.02 GENERAL

- A. Regardless of the length or completeness of the descriptions below, each device shall meet published manufacturers' specifications.
- B. Equipment and materials must be new and conform to applicable UL or ANSI provision.
- C. Product quantity is as required. If a quantity is given, Audio System Installer shall provide at least the given amount.

2.03 MAIN SPEAKER CLUSTER – SSN-250

- A. Engineered single source speaker system
 1. Frequency response (-10 dB @ 1 m): 45 Hz to 20 kHz
 2. Max SPL (@ 1 m): 120 dBA
 3. Overall coverage: Main Seating = 45 V X 150 H (@ 2), Court Coverage = 85V x 110 H (@ 2)
 4. Acceptable products:
 - Daktronics Sportsound® SSN-250 System (@ 1)
 - JBL CBT 70J-1 + 70JE-1 Array System (@ 2), Control 29AV-1 (@ 2), and ASB6112 (@ 1)

2.04 CONTROL RACK

- A. Rack
 1. Tilt-out wall rack with 4RU of rack space
 2. Tamper resistant design ideal for use in non-secure areas
 3. Vented design for effective passive thermal management
 4. Acceptable products:
 - Middle Atlantic TOR-4-20SP (@ 1)
- B. Amplifier
 1. 4 Channel; 1250 W per channel
 2. Frequency Response: (at 8 ohm, 20 Hz to 20 kHz): +/-0.25 dB
 3. Total Harmonic Distortion (at full rated power, 20 Hz to 20 kHz): 0.35%
 4. Network monitoring and control capabilities
 5. IEC Power Connector: 20 A IEC
 6. On-board Digital Signal Processing (DSP) with:
 - a. Limiters for inputs and outputs
 - b. Input Compressor
 - c. Input and Output Delay
 - d. Input and Output EQ
 - e. Crossover
 7. Acceptable products:
 - Crown DCi 4|1250N (@ 1)

2.05 AUDIO CONTROL SYSTEM – SSR-100-1H-1B

- A. Equipment Rack
1. 3RU vertical rackmount
 2. Rear Access Panel
 3. Acceptable product:
 - SKB Shallow Roto Rack / 1SKB-R3s
- B. Audio Mixer
1. 4 balanced mic/line inputs with 15V Phantom Power and Bi-Color Signal indicators
 2. 4 balanced Stereo Line Inputs (TRS) with Independent Mono Switch
 3. Two Balanced Outputs (XLR)
 4. Internal Universal Power Supply (100-240 VAC)
 5. Acceptable products:
 - Rane MLM82S
 - RDL RU-MX4 @ 2
- C. Audio Signal Switch
1. Style: 2 Position
 2. Operator action: maintained
 3. 1 RU standard rack space, black
 4. Laser etched text
 5. Acceptable products:
 - Daktronics Signal Switch
- D. Push-to-Talk Announcer Interface
1. Balanced XLR input, balanced XLR output, and 1/4" headphone jack
 2. Momentary and continuous audio output modes
 3. Acceptable products:
 - Daktronics Announcer's Interface
 - Studio Technologies, Inc. Model 210 Announcer's Console
- E. Handheld Vocal Microphone
1. Dynamic microphone with unidirectional (cardioid) polar pattern
 2. Frequency response: 50 Hz to 15 kHz
 3. Acceptable product:
 - Shure SM58
 - AKG D5
- F. Dynamic Headphones
1. Neodymium magnet
 2. Gold 1/4" and 1/8" plug
 3. Acceptable product:
 - Sony MDR7506
- G. Laptop Interface
1. 1/8" (3.5 mm) male input
 2. Balanced XLR male output
 3. Adjustable output volume control
 4. Acceptable products:
 - LTIBLOX Laptop Interface
 - Whirlwind podDI

- H. Wireless Microphone Receiver
1. 1/2 RU unit
 2. 24 bit digital audio
 3. XLR balanced mic/line outputs
 4. RF Sensitivity: -97 dBm at 10⁻⁵ BER
 5. Audio Frequency Response: 20 Hz to 20 kHz, +/- 1 dB
 6. Audio Dynamic Range: > 120 dB (A)
 7. Total Harmonic Distortion: < 0.1%
 8. Acceptable products:
 - Shure QLXD4
 - AKG DSR700 V2
- I. Additional Wireless Microphone Receiver
1. 1/2 RU unit
 2. 24 bit digital audio
 3. XLR balanced mic/line outputs
 4. RF Sensitivity: -97 dBm at 10⁻⁵ BER
 5. Audio Frequency Response: 20 Hz to 20 kHz, +/- 1 dB
 6. Audio Dynamic Range: > 120 dB (A)
 7. Total Harmonic Distortion: < 0.1%
 8. Acceptable products:
 - Shure QLXD4
 - AKG DSR700 V2
- J. Wireless Handheld Transmitter
1. Microphone element: Cardioid, Dynamic Vocal Microphone
 2. Working Range: 100 m (328')
 3. Battery life: 9+ hours
 4. RF Output: Selectable 1 mW or 10 mW
 5. Acceptable products:
 - Shure QLXD2/58
 - AKG DHT700 V2
- K. Additional Wireless Handheld Transmitter
1. Microphone element: Cardioid, Dynamic Vocal Microphone
 2. Working Range: 100 m (328')
 3. Battery life: 9+ hours
 4. RF Output: Selectable 1 mW or 10 mW
 5. Acceptable products:
 - Shure QLXD2/58
 - AKG DHT700 V2
- L. Wireless Bodypack Transmitter
1. Connector: 4-pin male mini connector (TA4M) for microphone or mute switch
 2. Working Range: 100 m (328')
 3. Battery life: 9+ hours
 4. RF output: Selectable 1 mW or 10 mW
 5. Acceptable products:
 - Shure QLXD1
 - AKG DPT700 V2

- M. Referee Headset
1. Electret condenser microphone element
 2. Bi-Directional/noise cancelling polar pattern
 3. Waterproof and sweat resistant
 4. Acceptable product:
 - Special Projects Audio SP746
- N. High Gain Antenna Kit
1. Cardioid directional antenna
 2. 6 dB gain
 3. Acceptable product:
 - Shure PA805 @ 2
- O. USB Audio Interface
1. 24-bit, 96 kHz quality audio
 2. Two balanced XLR outputs (left and right)
 3. 3.5mm TRS headphone output
 4. Ground lift and mono-sum switches
 5. Acceptable product:
 - Radial® Engineering USB-Pro™
- P. Single-Muff Headset
1. Neodymium magnet
 2. Cardioid condenser microphone
 3. Acceptable product:
 - Beyerdynamic DT 287
- Q. Self-powered Monitor Speaker
1. Three inputs: one ¼" phone, one RCA, one XLR
 2. Tone control (High/Low)
 3. Acceptable product:
 - Yamaha MSP3
- R. Equipment Rack – SSR-200
1. Top is (10U) angled rackmount rails + 6" in rear for cables
 2. (6U) vertical rackmount space below
 3. Locking covers
 4. Acceptable products:
 5. SKB 10x6 Roto Rack Console
- S. Audio Mixer
1. Eight mic/line inputs
 2. Two 1/4" stereo inputs
 3. Three band EQ per channel
 4. Frequency response, mic/line input to any output: 20 Hz to 20 kHz +/- 0.5 dB
 5. One insert per channel
 6. Gain control per channel: +5 to +60 dB
 7. Two aux outputs (pre or post-fader selectable)
 8. 2-track inputs and outputs: Unbalanced RCA connector
 9. Acceptable products:
 - Soundcraft EPM8
 - Allen and Heath WZ3-8:2

- T. Rackmount Surge Suppressor
1. 9 outlets
 2. Resettable circuit breaker
 3. Max surge current: 50 kA
 4. Joule rating: 1800 joules
 5. Acceptable product:
 - Middle Atlantic PD-915R
- U. Audio Signal Switch
1. Style: 2 Position
 2. Operator action: maintained
 3. 1 RU standard rack space, black
 4. Laser etched text
 5. Acceptable products:
 - Daktronics Signal Switch
- V. Wireless Microphone Receiver
1. 1/2 RU unit
 2. 24 bit digital audio
 3. XLR balanced mic/line outputs
 4. RF Sensitivity: -97 dBm at 10⁻⁵ BER
 5. Audio Frequency Response: 20 Hz to 20 kHz, +/- 1 dB
 6. Audio Dynamic Range: > 120 dB (A)
 7. Total Harmonic Distortion: < 0.1%
 8. Acceptable products:
 - Shure QLXD4
 - AKG DSR700 V2
- W. Wireless Handheld Transmitter
1. Microphone element: Cardioid, Dynamic Vocal Microphone
 2. Working Range: 100 m (328')
 3. Battery life: 9+ hours
 4. RF Output: Selectable 1 mW or 10 mW
 5. Acceptable products:
 - Shure QLXD2/58
 - AKG DHT700 V2
- X. CD Player
1. 1 RU rack mountable
 2. Supports CD-DA/WAV/MP3/AAC/AIFF audio file formats
 3. USB mass storage device playback, including direct digital playback from iPod/iPhone
 4. Balanced (XLR) and unbalanced (RCA) audio outputs
 5. Acceptable products:
 - Denon DN-501C
 - Tascam CD-500B
- Y. Push-to-Talk Announcer Interface
1. Balanced XLR input, balanced XLR output, and 1/4" headphone jack
 2. Momentary and continuous audio output modes
 3. Acceptable products:
 - Daktronics Announcer's Interface
 - Studio Technologies, Inc. Model 210 Announcer's Console

- Z. Handheld Vocal Microphone
 - 1. Dynamic microphone with unidirectional (cardioid) polar pattern
 - 2. Frequency response: 50 Hz to 15 kHz
 - 3. Acceptable product:
 - Shure SM58
 - AKG D5

- AA. Dynamic Headphones
 - 1. Neodymium magnet
 - 2. Gold 1/4" and 1/8" plug
 - 3. Acceptable product:
 - Sony MDR7506

- BB. Laptop Interface
 - 1. 1/8" (3.5 mm) male input
 - 2. Balanced XLR male output
 - 3. Adjustable output volume control
 - 4. Acceptable products:
 - LTIBLOX Laptop Interface
 - 5. Whirlwind podDI

2.06 CABLE AND CONTROL WIRING

All cables must be installed in conduit or closed raceway areas. Use plenum cable as necessary. Exposed cable is not acceptable, unless approved by owner. Cable specifications are as follows:

- 1. 8 conductor, 13 AWG speaker cable (individually colored) from speaker cluster to amplifier rack location
- 2. 1 pair, 22 AWG signal cable from amplifier rack to input plate
- 3. Microphone level cables: No. 22 shielded jacketed - Belden 9451 with black jacket

PART 3 EXECUTION

3.01 GENERAL

- A. Coordinate work with other trades to prevent delays in the construction schedule.
- B. Verify dimensions and location of equipment to be mounted.

3.02 INSTALLATION

- A. Mount speaker cluster and wall rack square and plumb. Permanently installed equipment to be held firmly and safely in place. All mounting brackets must be approved by a structural engineer.
- B. Input Plates shall be 1/8" thick aluminum, standard EIA sizes, brushed black anodized finish unless otherwise noted. Plastic plates are not acceptable. A maximum of 2 input plates may be distributed in venue and interfaced to amplifier wall rack. It is the Installer's responsibility to determine the location of line level input plates needed. Verify with the owner.

3.03 SYSTEM WIRING

- A. For all analog audio interfaces, take precautions to prevent and guard against electromagnetic and electrostatic hum. For analog line level audio signals, float cable shields at the output of source device. Shields not connected to be folded back over cable jacket and covered with heat-shrink tubing. Do not cut off unused shields.
- B. Exercise care in wiring; damaged cables or equipment are not acceptable. Isolate cables of different signals or different levels; and separate, organize, and route to restrict channel crosstalk or feedback oscillation in any amplifier section. Keep wiring separated into groups for microphone level circuits, loudspeaker circuits, and power circuits.
- C. Make joints and connections with rosin-core solder or with audio grade mechanical connectors; where spade lugs are used, crimp properly with ratchet type tool. Spade lugs mounted on 22 gauge or smaller cable to be soldered after crimping.
- D. Microphone, line, and control wiring from receptacle plate/chassis to patch panel/rack to be unbroken and un-spliced unless specifically indicated on drawings. Remove spliced cables and replace without additional charge to the owner.
- E. Connect cable to active components through screw terminal connections and spade lugs whenever available. Make connections to speaker transformers with properly sized closed end connectors crimped with factory approved ratchet type tool. Wire nut or Scotchlock connectors are not acceptable. Do not wrap audio cable splices or connections with adhesive backed tape.
- F. Execute wiring in strict adherence to professional installation standards, as excerpted from Audio System Design and Installation P. Giddings (1st Edition), Howard W. Sams, 1990, and Appendix II "Recommended Wiring Practices", Sound System Engineering. (2nd Edition), D. Davis.
- G. Wiring in rack to be neatly tied in manageable bundles with cable lengths cut to minimize excess cable slack but still allow for service and testing. Provide horizontal support bars if cable bundles sag. Eliminate excess AC power cable from rack mounted equipment. Rack wiring to be handled with plastic cable ties or lacing twine; electrical tape and adhesive backed cable tie anchors are not acceptable.
- H. Connect loudspeakers electrically in phase, using the same wire color code for speaker wiring throughout the project.
- I. Wiring and connections shall be completely visible and labeled in rack.

3.04 EQUIPMENT AND CABLE LABELING

- A. Provide engraved laminated labels on the front and rear of active equipment mounted in racks. Mount labels in a neat, plumb and permanent manner. Embossed labels are not acceptable.
- B. On multiple input devices such as mixers, provide an engraved label over each control that describes the function or purpose of the control. Label size to be adjusted to fit available space.
- C. Equipment labels to have 1/8" high characters minimum. Labels to be black with white characters, except where indicated.
- D. Cables and wiring to be logically, legibly, and permanently labeled for easy identification. Labels on cables shall be adhesive strip type. Self-laminating type labels are acceptable. Hand-written labels are not acceptable.

3.05 FIELD QUALITY CONTROL

- A. Upon completion of installation and initial test adjustments, the audio system installer will conduct a performance evaluation in the presence of the owner or the owner's representative (owner's option). The audio system installer will notify the owner or the installer's representative of the testing schedule.

END OF SECTION

**SS500HD Outdoor Sound System
Athens and Troy High School Stadiums
Specifications**

Part 1-General

1.01 SCOPE

Provide all professional services, transportation services, supervision, coordination, etc., necessary to complete the installation of a high quality Audio System as specified. “Audio System” references the system and “Audio System Installer” references the installer. The Audio System Installer is responsible for sizing the sound cabinet, amplifiers, patch panels, transformers, etc. to ensure a complete and properly operating system in accordance with the performance criteria set forth in this specification. All installed equipment must be new and in unused condition. It is the intent of the specifications to indicate the quality, configuration, and performance of the Audio System. The Audio System installation includes the following:

1. Point Source Sound System
2. Audio Control System
3. Cables, connectors, plates and wiring
4. All necessary design, fabrication, processing and amplification equipment, and installation for a complete sound system as described

1.02 SYSTEM DESCRIPTION

The following is attended to provide an overview of the design concepts and is not an exhaustive description of the Audio System.

- A. The Audio System consists of a main speaker cluster that may be integrated with a display structure. It is composed of horn-loaded, three-way, full-range tri-amplified design with built-in signal processing.
- B. The Audio System includes speaker amplification and signal processing components that are 100% self-contained within the speaker cabinet. All electronic components are to be properly housed and shielded from the elements to ensure long life. Fiber optic cable utilized to interconnect the control rack at the audio mix location to the main cluster. Design the system to ensure that all processing and amplification equipment meets project and manufacturer’s recommendations for allowed headroom. The services of the Audio System Installer include all necessary acoustical, electrical, mechanical, and structural engineering to incorporate a complete sound system.
- C. The Audio System has remote diagnostics capabilities including – temperature monitoring, amplifier status, and speaker coil impedance.
- D. The audio system will incorporate an analog back-up system. In the event of a failure in the digital audio system, the operator will be able to engage a single switch to bypass all digital equipment to deliver analog audio to the power amplifiers.
- E. Scope of work includes the following: fiber optic cable between the press box (designated by owner) and the control enclosure supplied by the Audio System Installer, and AC power feeds to the main speaker cluster and control equipment. A licensed electrician must perform all high voltage electrical work.
- F. All structural components provided by the Audio System Installer must be certified by a structural engineer. Documentation of engineering reviews and structural certification of the speaker cabinet structures must be provided. Structural steel accommodations for incorporating the speaker cabinet into a complete display structure will be the responsibility of the Audio System Installer. The internal structure of the cabinet is constructed to minimize structural vibrations induced by the speaker components. Access doors on the back of the cabinet allow for easy access to internal components. The mesh on the front of the cabinet is bolted into place.

- G. Provide the front of the main speaker cabinet that consists of an extruded aluminum grille frame covered with signage grade, vinyl mesh material. The vinyl material must be acoustically transparent and provide the capability of creating a speaker grille covering with custom printed graphics. The specified graphic art is printed using a large format, photographic quality, color printing process.
- H. Provide external surfaces of the cabinets that are skinned with powder-coated black aluminum. Provide exterior paint which is automotive grade, resistant to fading, peeling or chipping.
- I. Loudspeaker
 - Safe, secure and permanent manner in their operating position.
 - The aiming direction of the mid/high loudspeakers must be adjustable by 0-30 degrees horizontally.
 - Rigging, mounting and support systems for loudspeakers reviewed and certified by a registered professional engineer.
 - Structural support members to have an appropriate safety factor (determined by a structural engineer). All fasteners to be graded and certified for use in the intended applications.
 - All loudspeakers rigidly supported inside of the sound cabinet. Wire rope and/or chain suspension of loudspeaker components inside the sound cabinet is unacceptable.
- J. The Audio System is to achieve the following performance standards: continuous output level of 122 dBA at 1 meter with sufficient headroom to allow for peaks. The frequency response of the sound system to be at least 45 Hz to 13 kHz, -10 dB at 1 meter.
- K. The Audio System utilizes digital signal processing for all applications. All digital signal processing is contained within each amplifier. Each amplifier's digital signal processor will provide the following signal processing capability: gain control, minimum four band filtering or equalization, delay, crossover, and limiting.

1.03 SUBMITTALS

Submit the following documents with bid proposal. Failure to provide a complete set of submittals will result in disqualification. Provide shop drawings and submittal data containing sufficient information to describe the work to be performed. Prepare drawings at an appropriate scale. Submit shop drawing information at one time. Provide the following information, but not necessarily limited to:

- System description
- Complete system equipment list, with individual specification sheets for each piece of equipment
- Functional system block diagram showing all major equipment and signal flow
- Basic speaker cabinet design drawings consisting of the cabinets' overall dimensions, cabinet integration with a display structure and estimated weight of entire system with all equipment installed
- Speaker cluster drawings showing all speakers in their installed position and estimated electrical draw of the entire system
- Proof of performance illustrations as generated by an acoustical CAD modeling program (EASE or equivalent). Illustrations to include direct field sound pressure level performance throughout the stadium at 125 Hz, 250 Hz, 500 Hz, 1,000 Hz, 2,000 Hz and 4,000 Hz.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of audio equipment through one source from a single manufacturer.
- B. ETL listed and conform to IEC 60065, UL 60065 and EN 60065
- C. Certified to CSA C22.2 #60065
- D. Carries the ETL US, ETL Canada, ETL EU, and CE marks
- E. Manufacturer's qualifications: A minimum of five (5) years' experience with the specified types of products and installation.
- F. Installer's qualification: Business familiar in the installation of systems similar in complexity to

those essential for this project; and fulfillment of the following:

- The primary business of contractor shall be in the installation of sound and video systems.
- At least (5) five years' experience with systems of the specified types and products included.
- Experience with comparable scale sound reinforcement projects within the last three (3) years.
- Retain a fully staffed and equipped service facility with fulltime field technicians.
- Be a franchised dealer and approved service facility for all amplifiers, digital and analog signal processing equipment and loudspeaker products specified or proposed; if not, supply detailed description of how warranty service on these items will be obtained, and if any manufacturer's warranties will become void.
- Installer to be factory educated in the installation and maintenance of any digital signal processed based control systems.
- Currently hold a membership to the National Systems Contractors Association.
- At the request of the owner, the Installer must demonstrate that he has:
 - Sufficient plant and equipment to complete the work within the agreed timetable
 - Sufficient staff with commensurate technical experience
 - Appropriate financial status to meet the obligations of the work
 - Capability to provide performance bonding

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. To establish the minimum functional, aesthetic and quality standards, products and product series of the manufacturers listed below are required.

B. Substitutions: Products of other manufacturers are acceptable provided they meet the performance and reliability standards of the recommended equipment.

2.02 GENERAL

A. Regardless of the length or completeness of the descriptions below, each device shall meet published manufacturers' specifications.

B. Equipment and materials must be new and conform to applicable UL or ANSI provision.

C. Product quantity is as required. If a quantity is given, Audio System Installer shall provide at least the given amount.

2.03 MAIN SPEAKER CLUSTER – 500HD-D SYSTEM

A) Engineered speaker cluster consisting of self-powered three-way active devices

1. Frequency response (-10 dB @ 1 m): 45 Hz to 13 kHz
2. Max SPL (@ 1 m): 122 dBA
3. Overall cluster dispersion: 40 V X 60 H @ 2
4. Audio input: CobraNet® digital audio
5. Weather treatment: polyurea coating
6. Acceptable products:
 - Daktronics Sportsound® 500HD-D System
 - JBL PD764-WRC (@ 2) and ASB6125 (@ 1)

B) Amplifier Rack

1. Tri-amplified system with CobraNet® input, DSP and monitoring for each speaker set
2. Frequency response: 20 Hz to 20 kHz +/- 1 dB
3. Signal to noise: -95 dB, 20 Hz to 20 kHz
4. THD+N: 0.02%
5. Acceptable products:
 - Daktronics Audio 500-1000-1000 and 500-1000 amplifiers
 - Crown Cts 600 w/ PIP-USP3/CN (@ 1) and Cts 3000 w/ PIP-USP3/CN (@ 2)

C) Fiber Conversion Box

1. Media Converter/Network Switch
 - a. Four (4) 10/100 Mbps ports
 - b. Auto speed-sensing UTP ports
 - c. One (1) 10/100 BASE-TX (RJ45) to 100BASE-FX 1300nm multimode
 - d. Acceptable products:
 - MOXA EDS-205A-M-ST-T
 - Netgear ProSafe™ FS105 (@1) and Transition Networks J/E-PSW-FX-02 (@ 1)
2. CobraNet® Injector
 - a. Two channel analog input
 - b. CobraNet® networking protocol
 - c. Frequency response: +/- .25 dBv 20 Hz to 20 kHz at unity gain
 - d. Input impedance: 20 kΩ balanced
 - e. Acceptable products:
 - Biamp Audia EXPI/O-2

2.04 AUDIO CONTROL SYSTEM – SSR-100-1H

- A. Equipment Rack
 1. Top is (10U) angled rackmount rails + 6" in rear for cables
 2. (6U) vertical rackmount space below
 3. Locking covers
 4. Acceptable products:
 - SKB 10x6 Roto Rack Console
- B. Audio Mixer
 1. Eight mic/line inputs
 2. Two 1/4" stereo inputs
 3. Three band EQ per channel
 4. Frequency response, mic/line input to any output: 20 Hz to 20 kHz +/- 0.5 dB
 5. One insert per channel
 6. Gain control per channel: +5 to +60 dB
 7. Two aux outputs (pre or post-fader selectable)
 8. 2-track inputs and outputs: Unbalanced RCA connector
 9. Acceptable products:
 1. Soundcraft EPM8
 2. Allen and Heath WZ3-8:2
- C. Rackmount Surge Suppressor
 1. 9 outlets
 2. Resettable circuit breaker
 3. Max surge current: 50 kA
 4. Joule rating: 1800 joules
 5. Acceptable product:
 - Middle Atlantic PD-915R
- D. Audio Signal Switch
 1. Style: 2 Position
 2. Operator action: maintained
 3. 1 RU standard rack space, black
 4. Laser etched text
 5. Acceptable products:
 - Daktronics Signal Switch
- E. Wireless Microphone Receiver
 1. 1/2 RU unit
 2. 4 bit digital audio
 3. XLR balanced mic/line outputs
 4. RF Sensitivity: -97 dBm at 10-5 BER

5. Audio Frequency Response: 20 Hz to 20 kHz, +/- 1 dB
 6. Audio Dynamic Range: > 120 dB (A)
 7. Total Harmonic Distortion: < 0.1%
 8. Acceptable products:
 - Shure QLXD4
 - AKG DSR700 V2
- F. Wireless Handheld Transmitter
1. Microphone element: Cardioid, Dynamic Vocal Microphone
 2. Working Range: 100 m (328')
 3. Battery life: 9+ hours
 4. RF Output: Selectable 1 mW or 10 mW
 5. Acceptable products:
 - Shure QLXD2/58
 - AKG DHT700 V2
- G. CD Player
1. 1 RU rack mountable
 2. Supports CD-DA/WAV/MP3/AAC/AIFF audio file formats
 3. USB mass storage device playback, including direct digital playback from iPod/iPhone
 4. Balanced (XLR) and unbalanced (RCA) audio outputs
 5. Acceptable products:
 - Denon DN-501C
 - Tascam CD-500B
- H. Push-to-Talk Announcer Interface
1. Balanced XLR input, balanced XLR output, and 1/4" headphone jack
 2. Momentary and continuous audio output modes
 3. Acceptable products:
 - Daktronics Announcer's Interface
 - Studio Technologies, Inc. Model 210 Announcer's Console
- I. Handheld Vocal Microphone
1. Dynamic microphone with unidirectional (cardioid) polar pattern
 2. Frequency response: 50 Hz to 15 kHz Acceptable product:
 - Shure SM58
 - AKG D5
- J. Dynamic Headphones
1. Neodymium magnet
 2. Gold 1/4" and 1/8" plug
 3. Acceptable product:
 - Sony MDR7506
- K. Laptop Interface
1. 1/8" (3.5 mm) male input
 2. Balanced XLR male output
 3. Adjustable output volume control
 4. Acceptable products:
 - LTIBLOX Laptop Interface
 5. Whirlwind podDI
- L. Additional Wireless Microphone Receiver
1. 1/2 RU unit
 2. 24 bit digital audio
 3. XLR balanced mic/line outputs
 4. RF Sensitivity: -97 dBm at 10-5 BER
 5. Audio Frequency Response: 20 Hz to 20 kHz, +/- 1 dB
 6. Audio Dynamic Range: > 120 dB (A)
 7. Total Harmonic Distortion: < 0.1%

8. Acceptable products:

- Shure QLXD4
- AKG DSR700 V2

M. Wireless Bodypack Transmitter

1. Connector: 4-pin male mini connector (TA4M) for microphone or mute switch
2. Working Range: 100 m (328')
3. Battery life: 9+ hours
4. RF output: Selectable 1 mW or 10 mW
5. Acceptable products:
 - Shure QLXD1
 - AKG DPT700 V2

N. Referee Headset

1. Electret condenser microphone element
2. Bi-Directional/noise cancelling polar pattern
3. Waterproof and sweat resistant
4. Acceptable product:
 - Special Projects Audio SP746

O. In-Ear Monitor System

1. Audio frequency response: 35 Hz to 15 kHz
2. Operating range: 300 ft
3. Total harmonic distortion: 0.8% typical
4. Signal-to-noise ratio: 90 dB typical
5. RF output power: 100 mW typical
6. Acceptable products:
 - Shure PSM-900
 - Sennheiser EN300 IGMG2

P. ADA Hearing Assist

1. Signal-to noise ratio: SQ enabled: 70 dB; SQ disabled 50 dB
2. 57 channels
3. Frequency response: 50 Hz to 15 kHz +/- 3dB
4. Acceptable products:
 - Listen LS-54-216
 - Telex SMP400

Q. High Gain Antenna Kit

1. Cardioid directional antenna
2. 6 dB gain
3. Acceptable product:
 - Shure PA805 @ 2

R. USB Audio Interface

1. 24-bit, 96 kHz quality audio
2. Two balanced XLR outputs (left and right)
3. 3.5mm TRS headphone output
4. Ground lift and mono-sum switches
5. Acceptable product:
 - Radial® Engineering USB-Pro™

S. Single-Muff Headset

1. Neodymium magnet
2. Cardioid condenser microphone
3. Acceptable product:
 - Beyerdynamic DT 287

- T. Self-powered Monitor Speaker
 - 1. Three inputs: one 1/4" phone, one RCA, one XLR
 - 2. Tone control (High/Low)
 - 3. Acceptable product:
 - Yamaha MSP3

2.05 CABLE AND CONTROL WIRING

- A. All cables must be installed in conduit or closed raceway areas. Use plenum cable as necessary. Exposed cable is not acceptable. Cable specifications are as follows:
 - Multi-mode fiber optic cable from audio control to sound cabinet
 - Microphone level cables: No. 22 shielded jacketed - Belden 9451 with black jacket

PART 3 - EXECUTION

3.01 GENERAL

- Coordinate work with other trades to prevent delays in the construction schedule.
- Verify dimensions and location of equipment to be mounted.

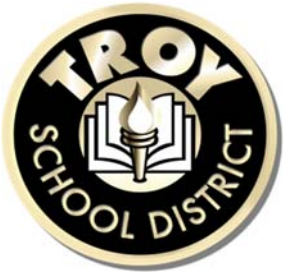
3.02 INSTALLATION

- Mount equipment and enclosures square and plumb. Permanently installed equipment to be held firmly and safely in place. Loudspeaker mounting systems and sound cabinet mounting systems to be approved by a structural engineer. All mounting brackets must be approved by a structural engineer
- .

3.03 FIELD QUALITY CONTROL

- Upon completion of installation and initial test adjustments, the audio system installer will conduct a performance evaluation in the presence of the owner or the owner's representative (owner's option). The audio system installer will notify the owner or the installer's representative of the testing schedule.

END OF SECTION



DUE: 10:30 a.m., Thursday, July 6, 2017
PROPOSAL: BID 9843 Sound System Replacement

PROPOSAL FORM

We propose to furnish, deliver and install new Sound Systems for both Athens and Troy High School Gymnasiums and outdoor Stadiums, for Troy Schools, in accordance with these specifications:

Athens High School Total \$ _____

Troy High School Total \$ _____

Grand Total \$ _____

Performance Bond \$ _____

BIDDER'S FIRM NAME _____

ADDRESS _____

CITY/STATE _____ ZIP _____

TELEPHONE NUMBER _____ FAX # _____

SIGNED BY _____ TITLE _____

TYPED NAME _____ DATE _____

E-MAIL ADDRESS _____

SWORN AND NOTARIZED FAMILIAL DISCLOSURE STATEMENT

FAMILIAR DISCLOSURE AFFIDAVIT

The undersigned, the owner or authorized office of the below-named contractor (the ‘Contractor’), pursuant to the familial disclosure requirement provided to Troy Schools, hereby represents and warrants that, excepts as provided below, no familial relationship exists between the owner or key employee of the Contractor, and any member of the Troy School Board or the Troy School Superintendent. A list of the School District’s Board of Education Members and its Superintendent may be found at <http://www.troy.k12.mi.us>.

List any Familial Relationships:

Contractor:

 Print Name of Contractor

By: _____

Its: _____

Subscribed and sworn before me, this _____ Seal:

day of _____, 20 ____, a Notary Public

in and for _____ County, _____

(Signature)
NOTARY PUBLIC

My Commission expires _____

#

#

CERTIFICATION OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT

Michigan Public Act No. 517 of 2012

The undersigned, the owner, or authorized officer of the below-named Company, pursuant to the compliance certification requirement provided in Troy School District’s Request For Proposal, the “RFP”, hereby certifies, represents, and warrants that the Company and its officers, directors and employees, is not an “Iran Linked Business” within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the “Act”), and that in the event the Company is awarded a contract by Troy School District as a result of the aforementioned RFP, the Company is not and will not become an “Iran Linked Business” at any time during the course of performing any services under the contract.

The Company further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or two (2) times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of Troy School District’s investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date the it is determined that the person has submitted the false certification.

NAME OF COMPANY

NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

SIGNATURE

DATE

Acceptance of Proposal

The undersigned agrees to execute a Contract for work covered by this Proposal provided that he is notified of its acceptance within thirty days after the opening of the Proposal.

It is agreed that this bid will not be withdrawn until after forty-five (45) days after receipt of bids.

The undersigned affirms that the bid was developed without any collusion, undertaking, or agreement, either directly or indirectly, with any other bidder(s) to maintain the prices of indicated work or prevent any other bidder(s) from bidding the work.

BIDDER'S FIRM NAME _____

BUSINESS ADDRESS _____

TELEPHONE NUMBER _____

FAX NUMBER _____

BY (SIGNATURE) _____

PRINTED NAME _____

TITLE _____

SIGNED THIS _____ DAY OF _____, 20 _____

E-MAIL ADDRESS _____

Bid Tabulation
BID 9843 Sound System Replacement
Athens and Troy High School
Gymnasiums and Stadiums

| | Athens High School Total | Troy High School Total | Grand Total |
|-------------------------------|-----------------------------|---------------------------|----------------|
| Vendors | | | |
| Hardy & Son's Sign Service | \$ 64,648.82 | \$ 64,648.82 | \$ 129,297.64 |
| Sound Engineering, Inc. | \$ 94,159.00 | \$ 94,159.00 | \$ 188,318.00 |
| Sound Planning Communications | \$ 86,933.30 | \$ 86,933.30 | \$ 173,866.60 |