

# SOUND & COMMUNICATIONS

SINCE 1955

AV FOR SYSTEMS INTEGRATORS, CONTRACTORS AND CONSULTANTS

## BOUNDLESS FLEXIBILITY

SAN ANGELO COLISEUM'S AUDIO EXCELS.

## SOUND OF SUCCESS

DOVER STADIUM SYSTEM EXCEEDS EXPECTATIONS

## ROHS ENVIRONMENTAL DIRECTIVES

WHAT THEY MEAN TO THE US MARKET.

DIGITAL SIGNAGE NETWORK DESIGN  
LEVERAGING BRAND LOYALTY



*As a result of the recent install, the sound system was much better during this graduation ceremony.*



# SOUND OF SUCCESS

Dover stadium system exceeds expectations.

## **BY CATHLEEN LEREW**

Dover Area School District, located in Dover PA, first catapulted to national attention in 2005. The United States federal courts saw Case No. 04cv2688 Tammy Kitzmiller, *et al.*, v. Dover Area School District, *et al.*<sup>1</sup> The case involved the controversial topic of “Intelligent Design” as an alternative to evolution to explain biodiversity. The drama surrounding this school district was still hot on everyone’s tongues when the discussion of a new high school stadium

sound system began. The antiquated sound system was in dire need of replacement.

Matt Jacobs, the district media coordinator, initially contacted Jamey Lerew and Bobby Dengler, business partners of A/V Solutions, LLC, to evaluate the Dover Area High School stadium sound system. Jacobs, along with information provided by Joel Riedel, high school principal, and other supervisors, detailed the sound system needs. From these conversa-

tions, it was determined that there were two main reasons for a sound system upgrade.

## **Two Reasons**

The first, and primary reason, was to better serve the players who may require assistance due to an on-the-field injury. It was explained that, in the past, when a player was hurt, the announcers’ call for an ambulance could not be heard over crowd noise. Neither the ambulance crew, which

---

*Cathleen Lerew began her management career at the age of 15 as a front-end manager in a grocery store. Due to advice from her father, she began to study and eventually grew to love business, earning three business degrees, including a Master of Management (MM). Married to Jamey Lerew, one of the owners of A/V Solutions, LLC, she is the company’s business manager.*

was on standby, nor the crowd understood what was happening. This potential for disaster had to be eliminated. The second reason was to better accommodate the plethora of sporting events held at the stadium. With the stadium acting as a multipurpose venue, the need and desire for a dynamic sound system was clear. The school hosts numerous sporting events, such as football, track, field hockey and soccer, and hosts band competitions for the school district.

In addition, Jacobs explained some additional goals for the new system. Directly behind the press box is a practice field. On occasion, this field is used for staging during events such as field and track meets. The school wanted full-range sound coverage for the entire field. Jacobs explained that the school also wanted to be one of the first local high schools to have a headworn microphone for the referee. In addition, the system had to be versatile enough to handle other field events, such as graduation ceremonies. This would eliminate the need to hire a production company to line the track with speakers at an additional expense every year.

## Outdated System

Lerew explained, "Everywhere we go today, we are surrounded by high quality sound, whether at a restaurant or a shoe store on Main Street America." When evaluating the system initially, A/V Solutions noticed that the existing 70 volt horns were designed to project voice only. Dengler explained that some of the horns were rusted completely through, housing yellow jackets and the occasional robin. In addition, after looking at the outdated first generation "solid state" amplifiers and other components in the rack, it was decided mutually by Dengler, Lerew and Jacobs that the best solution would be to replace the entire system.

Through a long bidding process, A/V Solutions was finally chosen for the design and installation of the new stadium sound system. Lerew explained that it was the company's goal to try to exceed the high school's

stadium's requirements. According to Jacobs, the renovation was a long time coming. He stated that the high school used an antiquated system for its special events, and would put a microphone up to a boom box to play music to get the crowd pumped up. Dengler explained, "The 70 volt horns are not made for this use."

A/V Solutions created a design that would allow for all of the requested provisions. For the bleacher and field area, Community R series speakers were selected because of their durability, frequency range and dispersion. These speakers were located on the press box. Lerew explained, "We had to use a fill speaker for the concession area because of the building that protrudes halfway down the bleachers on one side." Dengler detailed, "With plenty of low frequency coming from the Rs, it did not require a full-range speaker; instead, we used the tried and true 70 volt drivers PD60AT on Atlas round horns on a delay, which would clarify all announcements."

## Next Goal

The next goal was to determine coverage for the practice field. Because the object of this part of the sound system was voice, Atlas was again the speaker of choice. Due to the reliability and stability, processing is handled

by a Rane RPM26z. Power is supplied by Crown's new XTI lightweight, low power consumption line of amps. All equipment is housed in a Raxxess rack with locking front and rear doors.

For the referee's microphone, a well-crafted, water-resistant AKG C 477 headset was chosen. It connects to a pt400 body pack that features a large remote mute switch that can be connected to a belt for ease of turning on and off. Lerew explained, "Now, the referee easily can be amid all of the action without having to be concerned with his microphone." Reception was achieved anywhere on the field using two AKG SRA2B Active Paddle antennas.

According to Dengler, "We added diversity to the system with a handheld system with a C900M wireless condenser microphone." This microphone allows the principal to move freely around the bleachers during pep rallies and provides good pickup during graduation. An added benefit to this mobile microphone is that the school can use it effectively during school hours for any emergency situation or drill in which students are evacuated to the football field.

Lerew offered, "The principal can have immediate control over the student body and the situation by hitting the power switch and grabbing the

*A broad view of the field, from the press box.*



## A/V Solutions, LLC

Located in Biglerville PA, A/V Solutions, LLC, serves south central Pennsylvania and northern Maryland. Collectively, the owners have been serving the audio, video and lighting industry for more than 20 years. Their knowledge and experience in electronics and technology gives them a reliable foundation for meeting the needs of their customers.

The company's client base includes house of worship, business, residential, education, entertainment and government entities. It provides sales, service, design, installation, repairs, rentals and training. A/V Solutions conducts an annual audio/video seminar each February.

For more information, go to [www.pasound.com](http://www.pasound.com).



*Speakers are mounted on the press box for maximum coverage.*

microphone.” There are no wires to contend with and no limitations as to where the user can stand. To play back the tracks, a Denon combo deck is used. In addition, there are RCA jacks in the press box for iPod or computer hookup. Main mixing utilizes a Rane MLM103, while secondary microphone hookups use a Crown 28m preamp/mixer.

### Additional Features

Additional stadium sound system features include microphone jacks on top of the press box for band practice and competitions. There are also microphone jacks on the front of the bleachers for various events. Both of these locations have monitor out jacks for powered monitors and for recording the events for the local television station (Adams County Television, ACTV) and the school's video team.

Prior to final approval, Lerew, Dengler and Jacobs attended a school board meeting to put to rest some concerns over the new stadium sound

## Equipment

- 1 AKG D880M dynamic handheld mic
- 1 AKG PS4000 wideband antenna multi coupler (1-in/4-out) w/o power supply
- 1 AKG PSU01/4000 power supply for PS4000
- 1 AKG RMS 4/Sport remote mute switch for PT400, PT4000 systems
- 2 AKG SRA2B external directional active (paddle) antennas w/amp
- 1 AKG WMS400/pt/477 wireless bodypack system w/C 477WR-L premium omni headset
- 1 AKG WMS4000/HT/C900 wireless handheld system w/C900M condenser mic
- 3 Atlas DR-54 reflex horns, 26" round
- 3 Atlas PD60AT 70V 60W drivers
- 1 Community R.25-94Z 2-way, horn-loaded system, 90°x40° LF 1x8, HF 1x¾ compression driver 200 RMS/500 PGM
- 1 Community R2-52X 3-way long-throw 70-16kHz 50Hx20V LF 2x12", MF 2"M200, 1" comp drvr. 400 RMS/1000 PGM 4 ohm
- 2 Community R2-94X 3-way short-throw 70-16kHz 80Hx40V LF 2x12", MF 2"M200, 1" comp drvr. 400 RMS/1000 PGM 4 ohm
- 3 Community SSYR2 weatherproof silver-color stainless steel brackets for mounting R2 systems; provides a yoke-type mounting with hardware for locking aiming angle
- 1 Crown 1160A commercial audio series-preamp/mixers, amps, 1-in/1-out 80W 4 ohms/80W 70V/100V mode
- 1 Crown 28M commercial audio series-preamp/mixer, amp, 8-in/2-out
- 2 Crown Xti 4000 amps
- 1 Denon DN-T625 combo CD/cassette deck rackmount
- 1 Juice Goose JG8.0L power distribution, 8 outlets 15 amp w/lights
- 1 Rane MLM 103 6 mic/line in; 2 stereo in/3 outputs
- 1 Rane RPM 26Z programmable microprocessor, 2-in/6-out Drag Net
- 1 Raxxess KAR-24-22 24-space 22" deep, 42" tall rack w/accessories
- 1 Telex Legacy4/PH-1 Legacy 4 system w/4 PH1 headsets

*List is edited from information supplied by A/V Solutions, LLC.*



system. The school board wanted clarification to ensure that the proposed design sound level would be well over the ambient noise while covering all the required areas, including home side, visitor's side, concession area and the practice field. Lerew and Dengler came prepared with speaker dispersion diagrams, block diagrams and complete equipment knowledge. They went before the board members to answer their questions and explain system functionality.

At the conclusion of the installation, Lerew and Dengler provided training and attended two school events to ensure proper operation and function of the new stadium sound system. Jacobs explained, "A/V Solutions was highly responsive and cooperative throughout the entire design process, installation and follow-up." Dengler added, "Our mission is to provide audio, video and lighting solutions to our customers with diligence, value and friendliness. Now, school officials and



*Because the brick school building protrudes past the press box, this fill/delay horn is used to cover the concession and restroom area.*

players can rest assured that, if a call for help goes out, they will be able to get the much-required attention promptly. Spectators also know that they will hear the entire event, loud and clear."

According to Principal Riedel, "Ex-

pectations for the new system were met and all is working well. A/V Solutions was able to accomplish this task while keeping a clean work area and not tearing up the facility." ■

**Reference**

<sup>1</sup>[http://en.wikipedia.org/wiki/Kitzmillerv.\\_Dover\\_Area\\_School\\_District](http://en.wikipedia.org/wiki/Kitzmillerv._Dover_Area_School_District)

Used with permission of Testa Communications from the November 2007 issue of *Sound & Communications* magazine. For more information, go to [www.soundandcommunications.com](http://www.soundandcommunications.com)