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SCRA technology provides gunshot location systems for Birmingham

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*By Shelia Watson,
Contributing Writer*

ShotSpotter Inc., a California-based producer of gunshot location systems developed with technology created by the S.C. Research Authority, recently contracted with the city of Birmingham, Ala.

“ShotSpotter is a company that we’re partnering with to produce the gunshot location system,” said Bill Mahoney, CEO of SCRA. “We’re the integration component—the ‘trusted agent,’ if you will.”

The SCRA also has signed a contract with the state of Alabama to implement ShotSpotter and other components, such as listing devices and video cameras, in the Birmingham area as the initial phase of gun violence reduction in that area, Mahoney said.

The technology, used by public safety agencies and the military, allows the detection of weapons fired over large complex environments. The city of Birmingham’s system will cover more than six square miles, which will improve the ability of the police department to pinpoint gunfire and respond rapidly to incidents.

“We’ve seen the positive results of the ShotSpotter program in other cities and we are anxious to bring this technology to the city of Birmingham,” said Pete Cosgrove, deputy director of the SCRA’s Public Safety and Homeland Security Directorate.

ShotSpotter, which operates out of Santa Clara, Calif., has been delivering the gunshot location and detection systems for more than 10 years and has more than a dozen operational systems in place across the country. ShotSpotter officials claim the program has produced a 50% increase in gunfire-related arrests, a 30% drop in violent crime rates and a 60-80% drop in gunfire rates in areas using the system.

According to data provided by SCRA, the gun violence reduction program allows products such as ShotSpotter to implement acoustical and geographic information system technology to identify, within about 40 feet, the location of gunshots.

The ShotSpotter network includes 12 to 20 sensors per square mile. The devices are inconspicuous, hidden in places such as on rooftops or on utility poles.

A microphone gives the sensor a 360-degree coverage, which makes it possible to determine the direction of the sound. A global positioning system receiver keeps track of the location of the sensors and serves as an internal clock, while an air temperature thermometer determines the speed of sound, which is critical for determining the location of the shot.

Each sensor is in constant contact with the server, and each has a memory chip in case communication is interrupted or the bandwidth is overloaded.

Besides the real-time notification of gunshots, complete with an audio file, ShotSpotter captures information that can be used for detailed forensic and intelligence analysis, including weapon type and direction of fire as well as information on drive-by shooter on the move.

The system interoperates with camera and surveillance systems and crime analysis tools. Mahoney noted that, for SCRA, the contract with Alabama is a mark of recognition.

“Other states are starting to follow what we’ve been able to accomplish,” Mahoney said. “It’s certainly a feather in South Carolina’s cap.”

SCRA also has just signed a contract with the state of Tennessee for the South Carolina Information Exchange for Law Enforcement. The SCIEX is a network that combines all case and arrest records for criminals.

“We’re becoming well recognized around the region as having the only fully integrated law enforcement records integration that is capable of implementing across the entire state, combining local, municipal, county, state and federal law enforcement,” he said.

Ultimately other states may choose to implement the Palmetto 800 statewide 800 MHz radio and mobile data system that is active in South Carolina and Georgia, with 69 transmitter sites across the two states, Mahoney said.

“If a state bought all three systems (ShotSpotter, SCIEX and Palmetto 800) and implemented them, it would be a complete state-of-the-art system for that state’s law enforcement,” he said.

Besides providing the technology, SCRA is in the role of vetting and deploying the systems, Mahoney said.

“SCRA has taken a real leadership position in technology for public safety,” he said.

The ShotSpotter also was field tested with the U.S. Joint Forces Command in December 2005 as part of a U.S. Marine Corps exercise in Louisiana. In field testing, the ShotSpotter “provided improved awareness of the intelligence, surveillance and reconnaissance data in near real-time with less than a ten-second delay,” said Cmdr. James Joyner of the U.S. Joint Forces Command. After field testing, the ShotSpotter military system was deployed in three ways: as a soldier-worn system, as a vehicle-mounted system and on fixed installations.