CITY OF OAKLAND

AGENDA REPORT

TO: Office of the City Administrator
ATTN: Deborah Edgerly, City Administrator
FROM: Police Department
DATE: April 11, 2006

RE: **Informational Report on Gunshot Location Systems Used to Dispatch Police Officers When Shots Are Fired**

SUMMARY

This information report is to advise the City Council on the availability of new gunfire location technology used to impact violent crime and dispatch police officers more quickly to incidents of gunfire.

FISCAL IMPACT

Length and Cost of Potential Contract

Costs may vary between $300,000 and $500,000, depending on the system, amount of territory covered, and mobility and features included. In addition, some systems are more mobile than others, depending on their configuration and setup.

Annual maintenance costs of Gun Locations Systems after the first year are approximately 15% of the total cost, which in the case of a $300,000 System would be $45,000 per year.

BACKGROUND

Many cities in the United States, including Oakland, have seen an alarming rise in the number of gunshots being reported. Gunfire remains the leading cause of homicide death in the U.S. The Oakland Police Department currently responds to reports of gunshots fired only when reported by citizens who have called 911. It is believed that many incidences of gunshots go unreported. Further, residents often report hearing gunshots but are unable to identify the specific location from which the shots were fired. There is often a significant time lapse between the shot(s) fired, the time it takes residents to call 911, and the amount of time it takes for officers to be dispatched to the scene.

Cities including Chicago, Los Angeles, Washington D.C., Gary Indiana, and Charleston, South Carolina have purchased Gunshot Location System technology to target areas of high crime and

reports of gunfire, and have reported varying successes. The technology is in its early stage, with most deployments starting after year 2000.

How the System Works

Gunfire Location Systems rely on microphone units, which are about the size of bird houses or heating vents, and are placed on buildings in designated areas that will allow coverage of a two to four mile radius. The microphones recognize gunshots within targeted neighborhoods and immediately triangulate the location of the shots fired via GPS tracking devices. The system displays the location of the shots fired on a computer map at police dispatch, alerting police within 5-15 seconds of the occurrence (within approximately 10-30 feet). This allows for faster response times and more accurate deployment, usually before any 911 calls have been received.

KEY ISSUES AND IMPACTS

Over 12 cities nationwide have deployed some form of Gunshot Location System technology. Preliminary findings suggest that the systems are considered a useful tool by local law enforcement.

- An independent test of one system, the Shotspotter, took place in Redwood City in 1998 to address the rise in random gunfire. An independent study by the National Institute of Justice found that the device accurately detected 80% of test shots, and triangulated 72% to within 25 feet.

- In 1998, Redwood City law enforcement officials recorded nearly 400 gunshots on New Year's Eve. Since the implementation of Gunshot Location System technology and an aggressive media campaign, less than 10 gunshots were recorded on New Year's Eve in 2002. A city program that awards residents $500 for reporting neighbors who discharge firearms was also implemented during the same time period.

- In Los Angeles County, the Sheriff's Department credits Gunshot Location System technology with reducing gunfire in a targeted area by 60%. The Sheriff's Department also discovered that only 11% of all gunfire was being reported by residents in the target area.

- Many arrests have also been attributed to Gunshot Location System technology. On New Year's Eve 2005, the Gary Indiana Police Department made the largest number of gun-related arrests in its history utilizing Gunshot Location System technology. That evening Gary PD recovered 27 automatic pistols, 1 revolver, 7 assault rifles, 8 shotguns, 2 rifles, and made 15 gun-related arrests.

- Decreases in the number of gunshots in cities that use Gunshot Location System technology were often attributed to a deterrent effect; shooters became aware that law

enforcement could accurately identify and pinpoint the location of gunfire and respond rapidly to the scene.

Summary of Impacts:

- Computer mapping of shot locations within 5-15 seconds of occurrence
- Enable faster police response time
- Improve police officer safety
- Deterrent effect on random gunfire and celebratory gunfire
- Identifies hotspots for police deployment and heightens community awareness
- System can be made mobile to target different areas

PROJECT DESCRIPTION

Gunshot Location System technology is based on acoustic detection of muzzle blast and, depending on the circumstances, the sound of the projectile while it travels. Unlike optical (muzzle flash) detection techniques, acoustic techniques do not require the shooter to be located in the field of view of a sensor. An acoustic system can cover a much larger area than an optical system and is thus most appropriate for covering large areas. But, unlike counter sniper systems, acoustic systems can detect gunfire which is not fired towards its sensors, because it uses muzzle blasts (which radiate in all directions).

Any system which uses acoustic impulses (muzzle blasts, sonic booms, or a combination of the two) must necessarily be capable of differentiating real events from false alarms. Many things, for example, sound like the muzzle blast of a weapon, including car backfires, people hammering nails and even basketballs bouncing. Acoustic systems use various sophisticated technologies to differentiate between real events and false alarms.

The Oakland Police Department is interested in the possibility of using Gunshot Location System technology in Oakland to target problem areas and reduce violent firearm offenses.

The following chart shows the rise in gunshot calls for service over the last three months compared to the same three month period in 2005. In 2006, the total number of gunshot calls for service from January to March grew 53% compared to the same period in 2005.

TOTAL GUNSHOT CALLS FOR SERVICE

Month	2005	2006	Difference	Change
January	135	224	89	66%
February	112	167	55	49%
March (1-22)	98	136	38	39%
Total	345	527	182	**53%**

SUSTAINABLE OPPORTUNITIES

Gunshot Location System technology is a great crime fighting tool for law enforcement officers across the country. When officers immediately respond to shots fired the probability of catching and arresting offenders of illegal weapons possessions and other criminal violations is increased. With more illegal weapons confiscated and removed from streets, neighborhoods are safer and citizens are happier.

DISABILITY AND SENIOR CITIZEN ACCESS

This report contains no ADA or senior citizen access issues.

RECOMMENDATION AND RATIONALE

OPD requests that City Council approve this report and provide further direction regarding the potential acquisition of Gunshot Location System technology.

Respectfully submitted,

Wayne G. Tucker
Chief of Police

Prepared by: Lt. Pete C. Sarna
Special Operations Group
Office of Chief of Police

APPROVED FOR FORWARDING TO THE
PUBLIC SAFETY COMMITTEE:

Office of the City Administrator

Item: _____
Public Safety Committee
April 11, 2006