Memorandum

CITY OF DALLAS

DATE: April 18, 2008

TO: Members of the Public Safety Committee

SUBJECT: **Random Gunfire Detection Systems**

Attached is briefing material on the "Random Gunfire Detection Systems" to be presented to the Members of the Public Safety Committee on Monday, April 21, 2008.

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Attachment

Random Gunfire Detection Systems

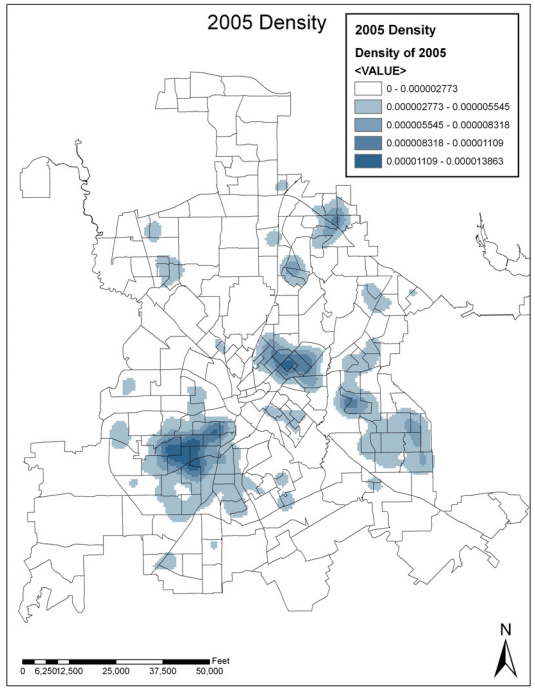
An Overview

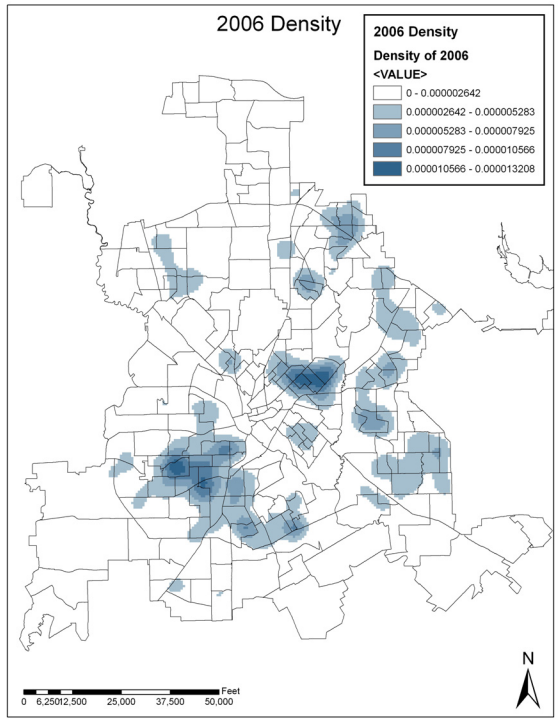
April 21, 2008

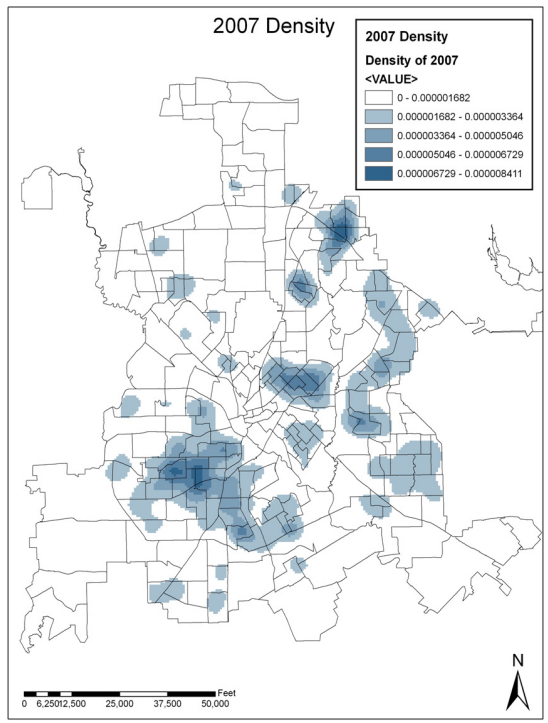
Random Gunfire Statistics

- 2005 – 15,376 calls for service
- 2006 – 14,961 calls for service
- 2007 – 16,017 calls for service
  - DPD Awareness Campaign

- Majority of calls are received on Saturday and Sunday
- Hours are between 9:00pm – 2:00am







- Density Maps are based on number of calls, square footage, and their proximity to each other
- Over the last 3 years, the areas with the greatest density have remained fairly consistent

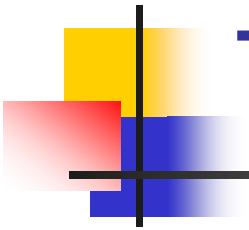
Education & Enforcement

- Currently:
  - Public Service Announcements (PSA's) focusing on New Year's Eve and July 4th
  - Patrol Divisions focus on highest volume beats for July 4th by place flyers in those neighborhoods
  - Officers can make arrests if they observe a subject firing a gun or in possession of a gun

Enhanced Education & Enforcement

- PSA's throughout the entire year
- More specific on all possible criminal charges against violators
- More community involvement – call 911 when hear gunfire, be specific in details to 911 call taker
- Community leaders be more vocal on issue to neighbors

Gunfire Locator Systems



Types of Systems

- Temporal Pattern Recognition
- Acoustic
- Optical

Temporal Recognition Systems

- Employ neural networks to be trained and then listen for a sound signature - gunshots. These "recognizers" of a target sound should work even in the presence of high noise.
- Standard triangulation methods can then be used to locate the source of the gunshot once it has been recognized as a gunshot.

Acoustic Systems

- Use the sound of the bullet as it passes through the air, the sound of the muzzle blast of the weapon when it fires the projectile, or a combination of both.
- Since these systems can detect gunfire events at long ranges, they generally do not require that the sensors be within line of sight of the weapon being fired.

Optical Systems

- Detect either the muzzle flash of a bullet being fired or the heat caused by the friction of the bullet as it moves through the air.
- Such systems usually require that they have a clear line of sight to the weapon being fired or the projectile while it is in motion.

General Information

- Elapsed Time – 3 to 10 seconds from shot fired to information relayed to dispatch center
- Some systems are equipped with a camera to zoom in on gunfire location in an effort to ID possible suspects (average additional cost of $3000 per unit)
- Costs range from $100,000 to $275,000 for a square mile of sensors; service to system is an additional cost (varies with complexity of system utilized)
- City of Dallas – 384.7 square miles

Prior Test in Dallas in 1996

- Under reporting - only 23% of random gunfire incidents were reported to DPD by citizens
- System increased call load for Officers in target area
- System did not lead to more arrests in target area
- Officers lacked confidence in the technology (false alerts, time spent on gunfire alerts & low likelihood of arresting a shooter)
- Officers preferred to respond to citizen calls rather than an alert because they could gather intelligence and pursue an investigation

Agencies who Utilize a Gunfire Locator System

- Boston – "good hits when first operational"; no reduction in crime or call load so far. More sensors being added to alleviate coverage gaps (cost $1.4 million for 6.2 sq mi)
- Minneapolis – "good tool – better compass for patrol"; first 7 hours of operation made arrest of subject due to system alert ($325,000 for 4 sq mi – reduced cost due to Wi-Fi system test)

Agencies who Utilize a Gunfire Locator System, cont.

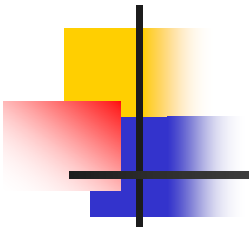
- Metropolitan DC – system installed in 2002 but taken off line until late 2006; have made arrests based on detections from system. In one instance, suspect still had the gun in his hand; expanding into 6 of 7 districts (10.95 sq miles cost $4 million; total coverage 15.5 sq miles)
- Chicago – "pretty good results" while testing three different systems being considered for purchase

Recommendations

- Pilot Project to test the various systems (not a demonstration in a controlled environment)
  - Place in neighborhood with highest number of gunfire reports (Beat 442 Jefferson, Hampton and Clarendon)
  - determine which vendors are willing to participate in a pilot project that will not have costs incurred by the City of Dallas
  - determine time for pilot project (to include either New Year's Eve or July 4th)
  - timeline – up to 10 months including evaluation of the systems utilized

Recommendations, cont.

- If pilot project is successful, explore future purchase (possibly a portable system to cover a square mile which can be used in multiple locations)
- See systems other agencies already have operational



Questions?