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195280

May 6, 2002

Chris Miles
Research & Technology Division
Office of Science & Technology
810 Seventh St., NW
Washington, D.C. 20531

Dear Mr. Miles:

I enclose an Interim Evaluation Report on the implementation of the SECURES® gunshot detection system demonstration in Austin, Texas, funded under NIJ Cooperative Agreement award number 2000-IJ-CX-K004. Dr. Peter Scharf, Center for Society, Law and Justice, University of New Orleans, and associates, prepared the report. I have also attached to this letter an overview of the SECURES® technology and the Austin implementation details.

The demonstration began July 6, 2001, and will complete in July 2002. The demonstration has been quite successful in indicating the potential for use of SECURES® in community policing, however, there has not been sufficient gunshot incidents to provide a valid statistical inference toward the overall utility of SECURES® as a tool to assist in reducing the gun violence in at-risk neighborhoods, in general.

Salient points of the SECURES® operation in Austin to date, include:

- System operates reliably, and as advertised, such that the Austin Police Department has been able to take ownership and conduct operations without the need for continuous support
- Potential has been demonstrated in four different circumstances (1 arrest) and even in the case of illegal explosions has accurately indicated the locations
- System is easily amenable to sensitivity modifications to customize for target location

Recommendations of the Interim Evaluation Report, include, in part:

- The promise of the system suggests the need for further experimentation
- A broader scope experiment is required in higher crime/shooting event locations
- Consistent patrol validation needs to be attempted

In summary, PSI strongly recommends additional deployments in cities with higher incidents of gun violence to continue refining the use of a gunshot detection tool to aid in community policing. A recommendation fully backed by candidate Police Departments in Hampton/Newport News, Virginia, Phoenix, Arizona, and San Bernardino County, California and the Interim Evaluation Report.

Sincerely,

Glynn Lewis

Glynn Lewis
Vice President
Advanced Programs

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SECURES® SYSTEM OVERVIEW

The SECURES® system is designed to provide outdoor surveillance of gunfire activity and to alert Police of that activity and its location within seconds of its occurrence. SECURES® is designed to detect and classify gunshot activity of a wide variety of weapon types versus loud noises in the vicinity caused by fireworks, automobile backfiring, and so forth. Figure 1 is a pictorial overview of the components and deployment aspects of the SECURES® system.

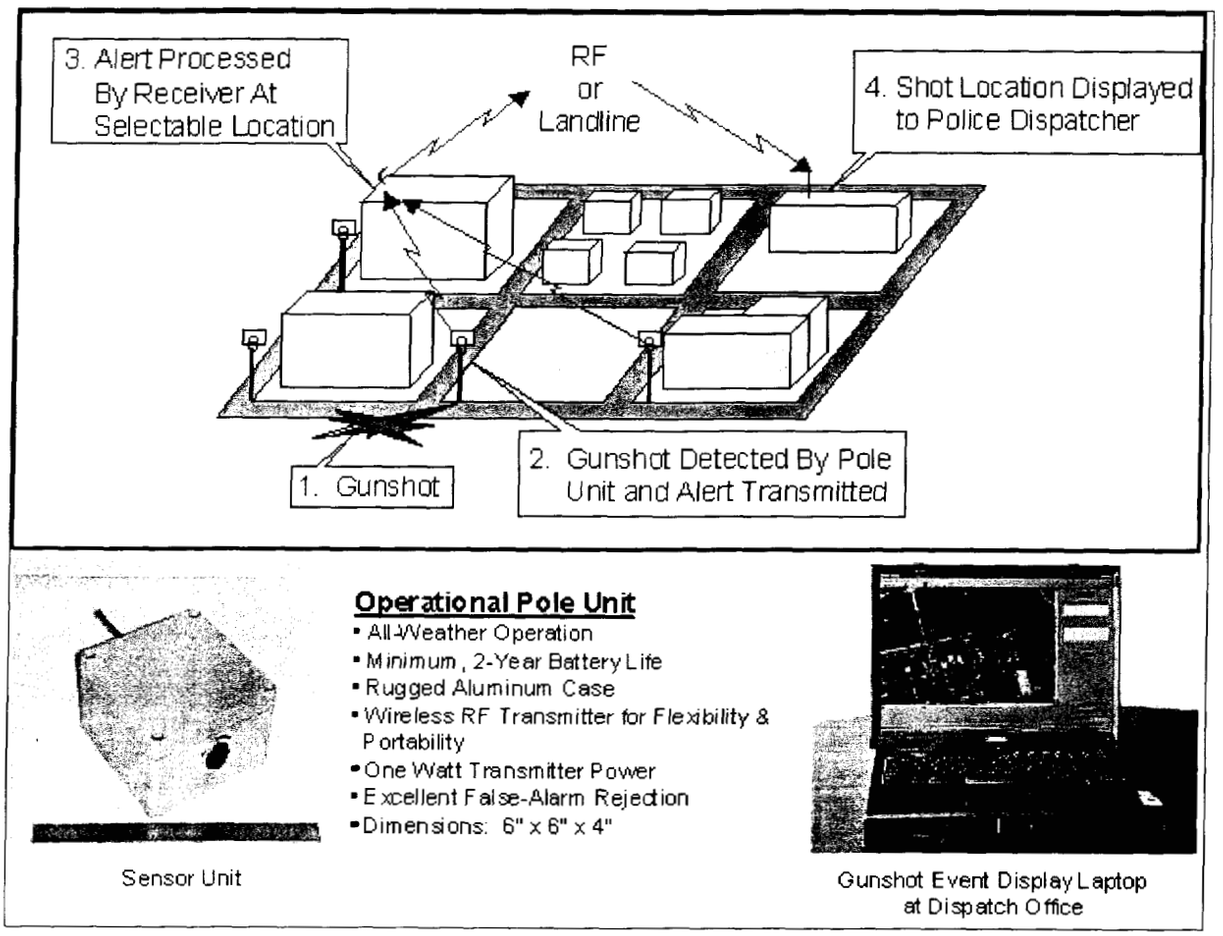

Figure 1. SECURES® depiction typical deployment and pictures of implementation

SECURES® sensor units are deployed as a grid of microphone sensors mounted on utility poles, buildings or other structures and are designed to detect and recognize gunshot sounds. The sensors are typically located on street corners, alley(s), parking lots and park areas to provide surveillance of gunfire activity. The sensors consist of a microphone sensor, electronics for analyzing sounds, a radio transmitter to report gunshot detection events and a long-life battery pack. Each sensor unit is a stand-alone gunshot *discriminator* and is built into a small physical package, approximately 1100 cubic centimeters. Designed to conserve battery life, the sensor module uses a power efficient operating strategy that provides a three-staged power-up

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sequence. Stage One is a continuously operating analog pulse detector that monitors ambient noise for potential gunshot events. If a signal exceeds preset amplitude and temporal thresholds, the first discrimination "test" is passed and the second stage is powered up. Stage Two consists of an analog gunshot identification circuit and a microprocessor. Together, these components determine if the input pulse is consistent with the shape width, and frequency content of a gunshot. Note that no analog-to-digital conversions are required and that the microprocessor monitors only the low frequency outputs of various analog signal-processing circuits. When the pulse is identified as a gunshot, Stage Three, the RF transmitter, is powered and a brief message is sent to the base station.

The receiver and, if needed, relay receiver units are required to receive the sensor unit messages for processing. The primary functions of the receivers are to:

- Receive sensor unit messages
- Perform error detection
- Eliminate redundant messages
- Insert arrival time in message, and
- Transfer messages to the base station unit

The base station portion of this system consists of a desktop computer (DTC) CPU and a laptop computer. After a gunfire event, the DTC CPU logs the time of arrival of each incoming message from the active sensing modules as they are received. Using this timing information supplied by each of the reporting sensor modules, and each module's known sensor geographical location, the base station calculates and reports in two or three-dimensions the position of the shot. The primary functions of the base station unit are twofold: gunshot reporting and sensor unit status reporting, as follows:

- Store message in database
- Extract sensor unit identification, and date and time of event detection or status message
- Perform final decision logic for reporting gunshot or check which units have missed scheduled status checks
- Display shot location on host map or display condition status is shown on the laptop computer at the Dispatch Office

The localization procedure developed for the system is robust for operations in a highly complex multi-path signal environment, characteristic of urban settings.

For installation, the location of the base station unit and sensor field must be initially established. The base station should be installed first, locating the base station unit's RF antenna and receiver.

Receiver units, and relay receiver units if employed, should be located on high structures to ensure good RF reception from sensor units. Power for repeater units is supplied by battery. Sensor unit installation requires hand-mounting the remote sensor units on structures such as utility poles, trees or buildings. The locations of the sensors must be determined (preferably with differential GPS) and entered into the base station DTC CPU computer. The laptop computer is located at the Dispatch Operator's station to display gunshot events.

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The sensors should be spaced between 500 ft. and 1000 ft. apart, depending upon the acoustic environment and desired performance requirements to give good localization solutions. A recommended grid field of sensors for a one-square mile area would typically consist of about 80 sensors.

SECURES® / AUSTIN DEMONSTRATION OVERVIEW

SECURES® on 6 July 2001 began a one-year demonstration in Austin, Texas, under a National Institute of Justice (NIJ) Cooperative Agreement. Partners in the conduct of this demonstration are PSI (System Provider), Center for Society, Law and Justice, University of New Orleans (CLSJ/UNO) (Liaison and Training), and the City of Austin Police Department (APD) (System Operator). The following figures (Figure 6-8) display the set-up for the demonstration in Austin, Texas. Figure 2 is a map overlay depicting the notional sensor laydown for the area selected by the APD. The selected area is noted for the "highest crimes against persons" in the Austin city limits. IH-35, to the west, separates tourist areas, the State Capital and the University of Texas campus from the high crime area. Three large open areas are incorporated in the demonstration area: a small college campus, a state cemetery, and a junior high school.

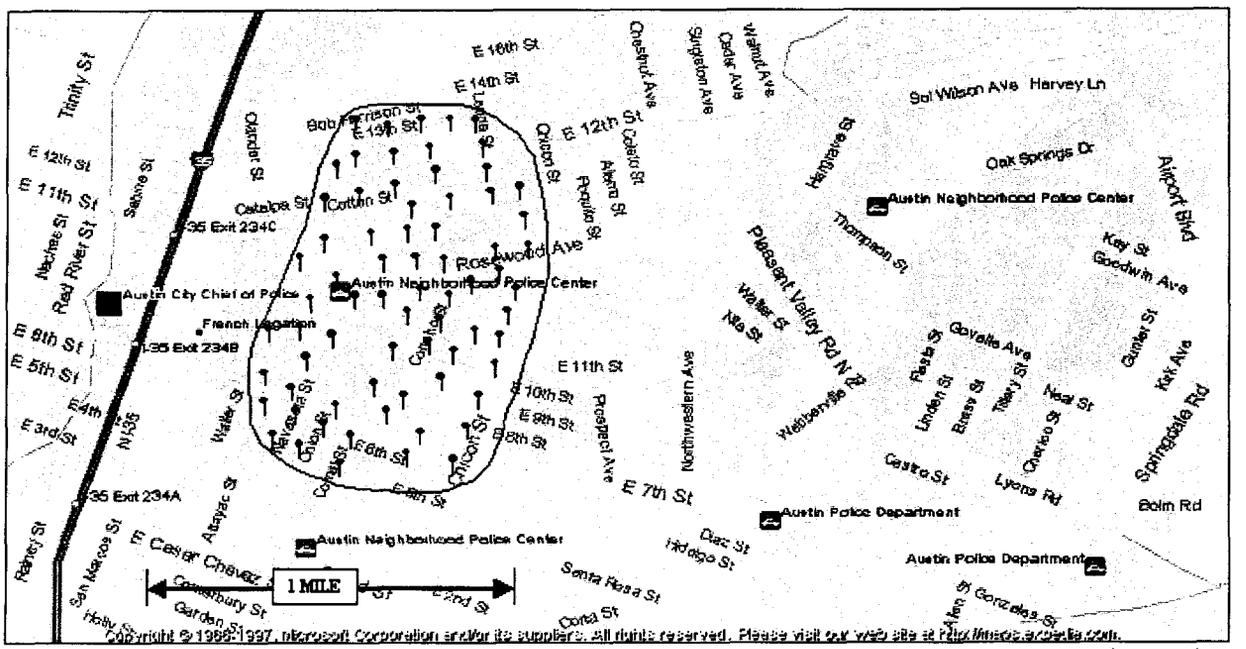

Figure 2: Implementation site in Austin, Texas (directly east of the IH-35 Expressway from 5th to 15th Streets)

Figure 3 depicts the operational procedure when a gunshot is detected. This implementation is peculiar to Austin and may vary for other cities. Essentially, the sensor units are mounted on utility poles, the RF receiver has line-of-sight reception with the instrumental neighborhood from the tenth floor of the Waller Creek Building, and one block south is Police Headquarters where

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the Dispatcher's Office is located. When a gunshot event is displayed to the Dispatcher, it is manually entered into that database and relayed to patrol cars for investigation.

Implementation of SECURES® required participation by many groups in the Austin community who gave willingly of their time and resources. Foremost was the enthusiastic response of the APD for the demonstration. They identified the neighborhood and changed the APD standard operating procedures to focus on SECURES® identified gunshot events. In essence, they took ownership of SECURES® for the year. The City of Austin Information Systems Department provided space in their facility, the Waller Creek Building, and assisted in mounting the antenna, clearing space for the DTC CPU, interfacing with the city LAN and provided internet access to the CPU.

The APD Emergency Communication Division provided mapping and addressing software for the laptop screens and liaison with APD and City personnel. Austin Energy, a city-owned utility company, provided assistance with choosing utility poles for the sensor units and a linesman to install them. The neighborhood community association welcomed the effort to deter gunfire. Keeling Junior High School and Huston Tillotson College, in the demonstration area, offered one of their buildings should instrumentation need to be located there. All-in-all, a very rewarding and satisfying experience.

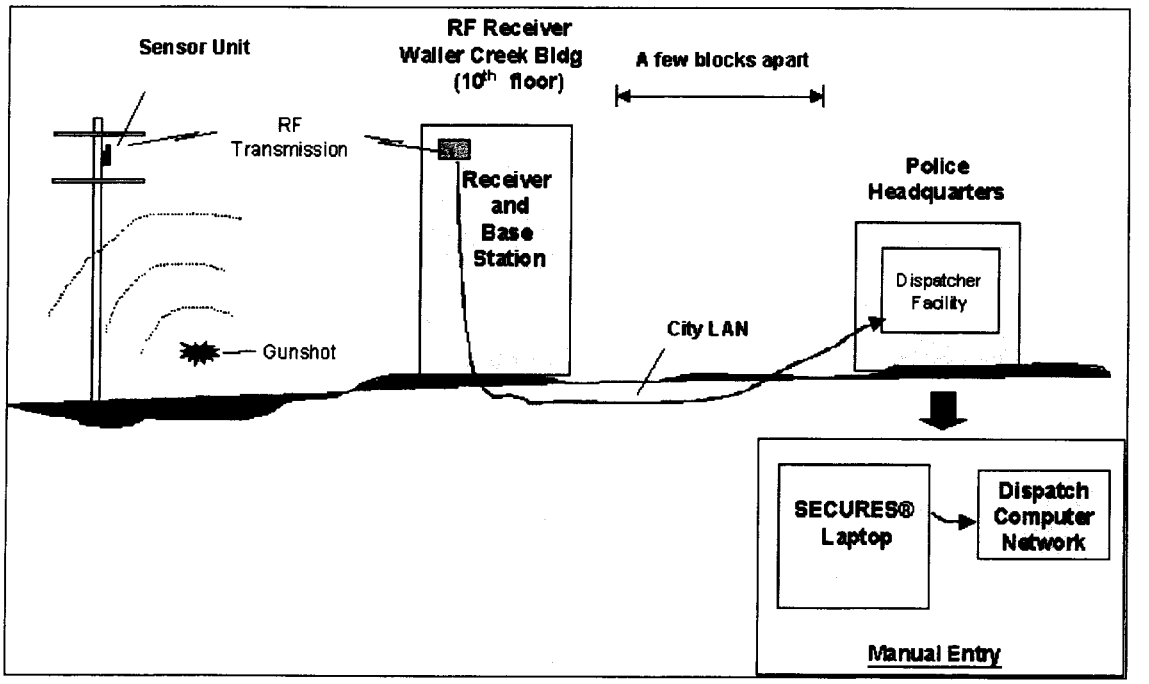

Figure 3: SECURES® Equipment Implementation Overview

Figure 4 shows two real screen shots from Austin that depict the displays as seen by the Dispatch Operator. The screen on the left shows the entire instrumental area. When a gunshot event is localized, the screen automatically zooms to the suspect locale, shown on the right-hand screen.

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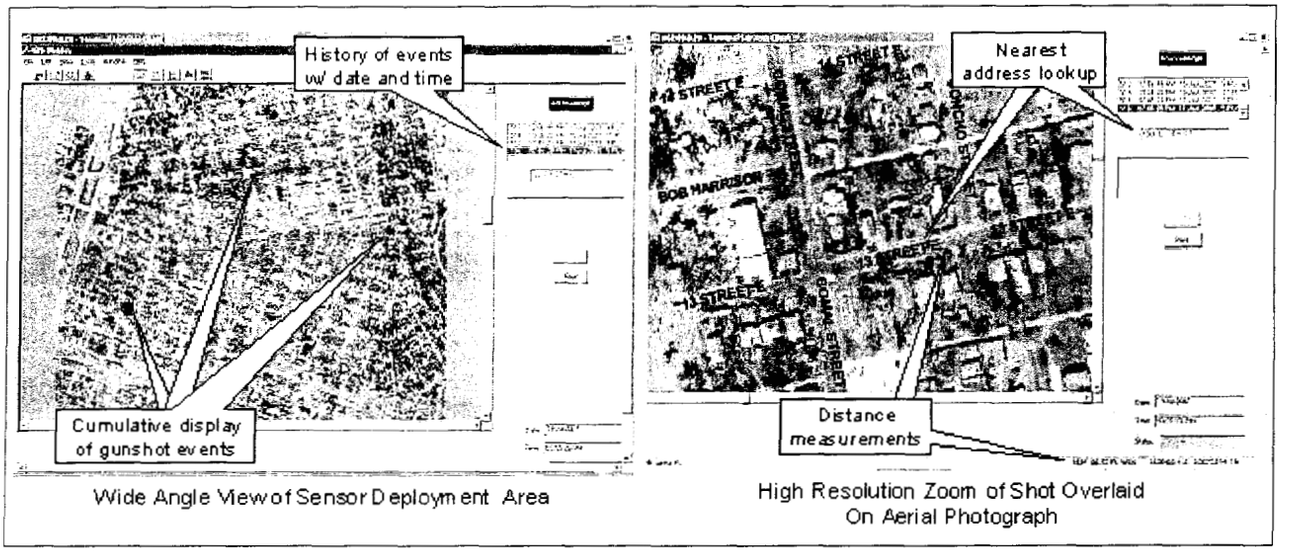

Figure 4: Dispatch Screens from Austin, Texas demonstration

The SECURES® dispatcher's screen provides powerful tools that enable the dispatcher to detect and monitor events, collect data, and dispatch patrol officers to the precise location of a gunshot.

- Provides audio and visual alerts within seconds after the shot is fired
- Automatically zooms to and displays a gunshot's location on an aerial photograph
- Displays the gunshot's date, time and geographical coordinates
- Displays the location of the pole units that detected the shot
- Automatically identifies the address nearest to the gunshot
- Displays a cumulative history of gunshot events

Lessons learned to date, include:

- Operates reliably, hands-off operation, "Works As Advertised"
- Initial configuration was over-sensitive to fireworks and bottle rockets
- SECURES® design easily amenable to sensitivity modifications to customize for location requirements
- SECURES® has demonstrated potential in four different circumstances (one arrest)
- Changes and personnel rotation in district police structure has been continuous, requiring close attention to demonstration activities and re-training needs

INTERIM EVALUATION REPORT ON THE IMPLEMENTATION OF THE SECURES® GUNSHOT DETECTION SYSTEM IN AUSTIN, TEXAS

Prepared by the Center for Society, Law and Justice at the University of New Orleans for the National Institute for Justice

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April 11, 2002

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Table Of Contents

I. Executive Summary

The Center for Society, Law and Justice at the University of New Orleans presents this interim report of the SECURES® test conducted in Austin, Texas from July of 2001 to the present date with a statistical focus on events from July of 2001 to October 11, 2001. Recent "static"(shots fired into an armory capture device) field tests conducted in February after system adjustments were made are also included as a part of this report. It must be emphasized this report is preliminary in nature.

Since the system was initially deployed in July 2001, 35 activations of the system were recorded through October 11, 2001. Response to incidents was officially halted in Mid-December 2001 due the detection of a significant number of verified fireworks incidents by the system. During this initial 100 plus day test period the SECURES® system detected three "validated firearms events" and has been critical to the arrest of one-armed subject. Two of the validated detections were related to military funerals where rifle salutes were conducted. Officer response was initially very favorable regarding the system, but became less than favorable as the number of "fireworks incidents detected" began to overwhelm the verified number of shooting incidents detected.

In February 2002 a field test of the system was conducted following both sensor and software adjustments made by PSI to lower the sensitivity of the system. The "dialing down" of the system to eliminate fireworks events was made at the request of the Austin Police Department.

The initial buy in to the system by APD administrators, supervisors, and line officers was high with training and administrative response procedures developed jointly with APD. The number of actual firearms events reported by the system is, however, too low for statistical inference. The information available suggests that the system as initially configured did not perform as predicted

regarding fireworks detection. This in combination with the small number of actual firearms events created a "false alarm" mentality from the field officer's perspective.

Only three of thirty-five incidents required police follow-up assuming that few police departments would send a police car to investigate a fireworks incident. There was an observed effect degrading the data as officers, believing that the system was outputting false positive information, "gave up" on the process resulting in a degradation of data quality. A larger number of validated incidents may have affected this circumstance.

The scope of the post October live fire test of the less sensitive adjusted system proved insufficient to reach a firm assessment of the value of the system in a "dialed down" mode. The post October test fire data indicated success in detecting 9mm and 380 shots fired. The post October adjusted system failed to detect .22 and blank shotgun blasts.
Resetting the system has reduced firecracker false positive rate well below the initial threshold.

The initial promise of the system suggests the need for further experimentation in locations where the frequency of firearms activity is higher than the Austin test area. There is also a need to further test the full range of *street weapons* including .44 caliber, 357 caliber and a range of semi-automatic assault weapons. The assessment team was not certain if perceptions in the Central East District were sufficiently positive to re-attempt the study in the present location. The low level of actual firearms events will in all probability still be present.

Additional testing and associated enhancements of SECURES® may be required before widespread adoption is undertaken. A recalibrated, redesigned, or revitalized technology in a higher firearms incident area represents the best approach in order for the important vision inherent in this project to be realized.

II. Overview

This is an interim report regarding the implementation of a gunshot detection system in the Austin, Texas Police Department (APD) Central East District. Following the award of *earmark* funding in 2000, Planning Systems, Inc. (PSI) along with a team of implementation specialists sought to negotiate for an experiment within Austin, Texas to determine if the PSI technology could enhance police operations in the following areas:

1. To test the ability of the SECURES® technology to determine the locations of shots fired within the area;
2. To facilitate law enforcement problem solving within the area given knowledge of shots fired patterns;
3. To enhance coordination among dispatch and patrol units; and
4. To help target response efforts by APD personnel within the targeted area.

Following submission of a formal proposal to NIJ a period of needs assessment and preparation was undertaken. This coordination included discussions with APD related to selecting a target area; negotiating technical logistics and support; finalizing pole locations; planning for installation; and defining APD dispatch and patrol responsibilities.

The SECURES® system was intended to be a useful tool for law enforcement in achieving the following goals:

- Creation of an immediate, validated alert for dispatchers regarding possible shots-fired incidents;
- Creation of a more precise shots fired location for response and field investigation efforts;
- Development as a potential problem-solving tool for law enforcement shots fired incidents.

In the spring of 2001 training (see appendix I) was administered to all officers within the district using video and print materials developed by the *Center for Society, Law and Justice*. Once the system was deployed in July 2001, 35 activations of the system were recorded through October

11, 2001, until response was halted in Mid-December 2001. In February 2002 a field test of the system was conducted comparing the following types of events:

- 9mm semi-automatic pistol shots
- .380 semi-automatic pistol shots
- .22 semi automatic pistol shots
- 12 Gauge shotgun (blank) discharges
- Bottle rockets ignitions
- Large fire cracker ignitions

This document provides a preliminary assessment of SECURES® that will attempt to present the best available information with the following objectives:

- To describe the natural history of the experiment in Austin through March 1, 2002;
- To describe the process of implementation within APD;
- To present findings from the "deployment" of SECURES® from July 1, 2001-October 11, 2001;
- To present findings from the "field evaluation" of the experiment; and
- To draw reasonable conclusions from evidence collected to date.

III. Method

This document presents information related to the experimental introduction of the SECURES® gunshot detection technology within Austin, Texas. The methodological approach uses both process and outcome methodology to achieve the following aims and objectives:

Methodological Approach

Aims	Data Sets	Strategy
To describe the natural history of the experiment in Austin through March 1, 2002	• Interviews • Logs • Site visit reports • Dispatch and patrol reports	• Contact with APD • Periodic interviews with patrol, administrative, and other staff • Review of logs • Review of reports
To describe the process of implementation within APD	• Training materials • Training records • Interviews	• Training assessment • Follow up monitoring • Supervisor debriefs • Line officer interviews
To present findings from the "deployment" of Secures® from July 1, 2001- October 11, 2001	• CAD Reports • SECURES® generated data • Patrol incident records	• Review of dispatch logs • Analysis of arrest reports • Review of follow-up reports • Statistical analysis • Graphic representation • Presentation and write-up
To present findings from the "field evaluation" of the experiment	• Gunshot • Firecracker reports • Follow-up reports	• Initial experimental design • Live fire logistics-neighbors, safety review • Live fire experiment • Re-analysis PSI • Interpretation • Presentation
To draw reasonable conclusions to date from evidence collected to date	• Inferences from the above	• Graphic Presentation • Team analysis • Review • Draft write-up • External review • Final presentation

IV. Training and Implementation

In order to implement training, *The Center for Society, Law and Justice* first conducted a needs assessment. In this assessment they analyzed how and what they were going to do in the training. It was decided to effectively utilize SECURES® that APD personnel must have a general understanding of the software, a firm understanding of all operating procedures and a specific field reference resource to be used as a refresher.

There were two levels of training. The first level was general training and consisted of a train-the-trainer session. This was geared toward educating agency members who would be responsible for the actual training of field personnel using the SECURES® software. In the second level of training instructional materials were provided and presented by instructors and to field personnel. This consisted of:

- SECURES® training videotape
- SECURES® quick reference instructional guide for instructors
- SECURES®quick reference guide for personnel

The *Center* repeated training because of subsequent adjustments during the period December of 2001 to February of 2002 that were made to the SECURES® system[1*]. The second time that training was implemented, the *Center* did not execute a train-the-trainer session.

SECURES® quick reference guide for personnel, developed by the *Center*, includes sections on dispatch procedure, field requirements, documentation, and report writing. The quick reference instructional guide for instructors covers the same material and includes an instructor notes section that the instructor can use during training implementation. The training video, developed by *The Center,* reiterates the information presented in the quick reference guide.

1

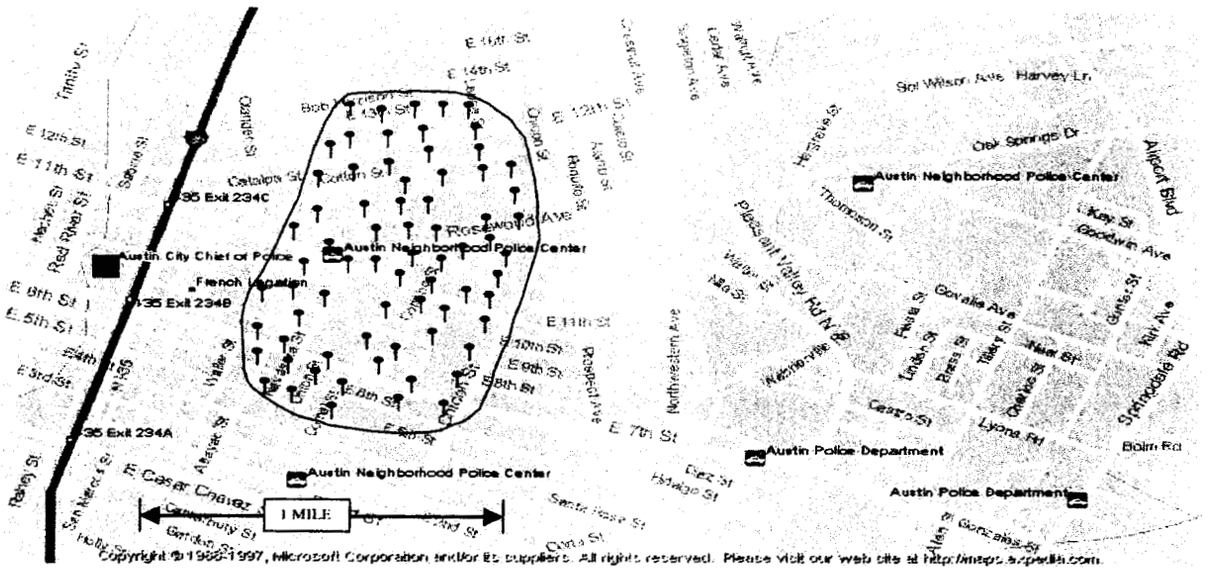
Because of a high turnover in Central East personnel and the equipment adjustment made, it was decided that additional training would be necessary.

Training impact appears to have been successful from a number of points of view:

- Quality of materials;
- Supervisor buy in;
- Use of training in response by patrol officers;
- Post Training interviews; and
- Interviews with patrol officers after training

Specific user oriented systems were developed for dispatch, patrol response and reporting. This has created an archive of data for the overall evaluation. The following is an example of the system layout in Austin (not to scale):

Example of SECURES Layout in Austin
(70 Pole Unit Configuration)

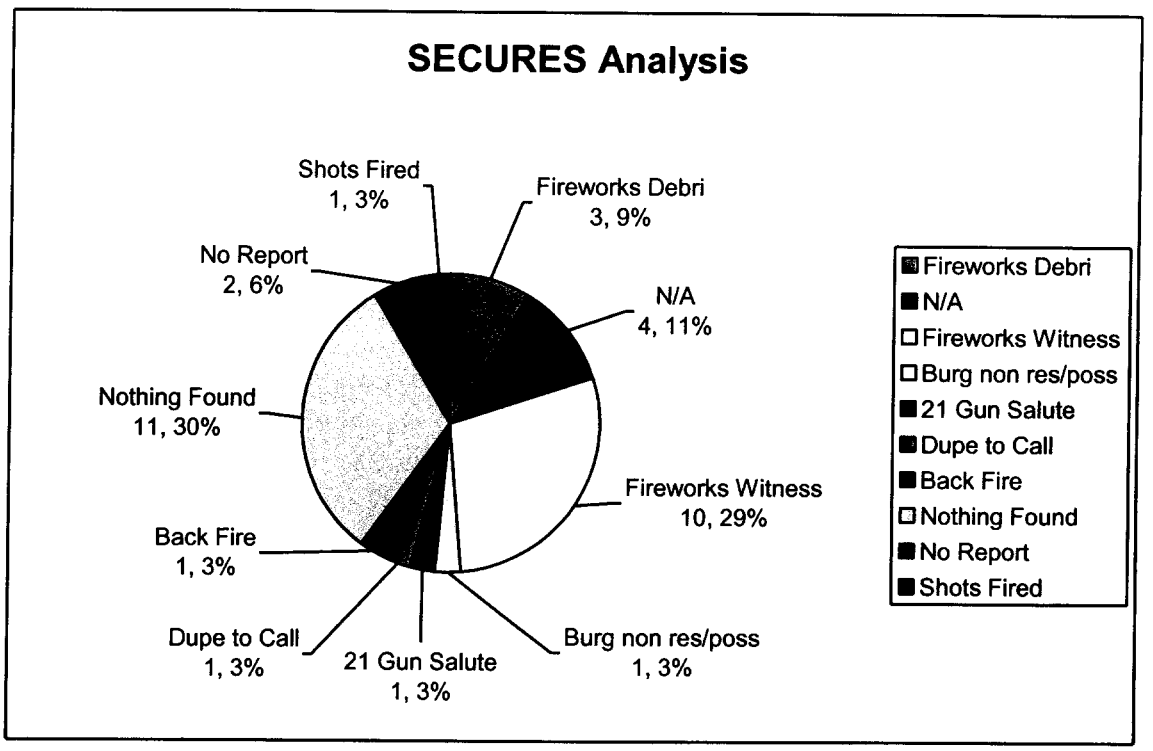


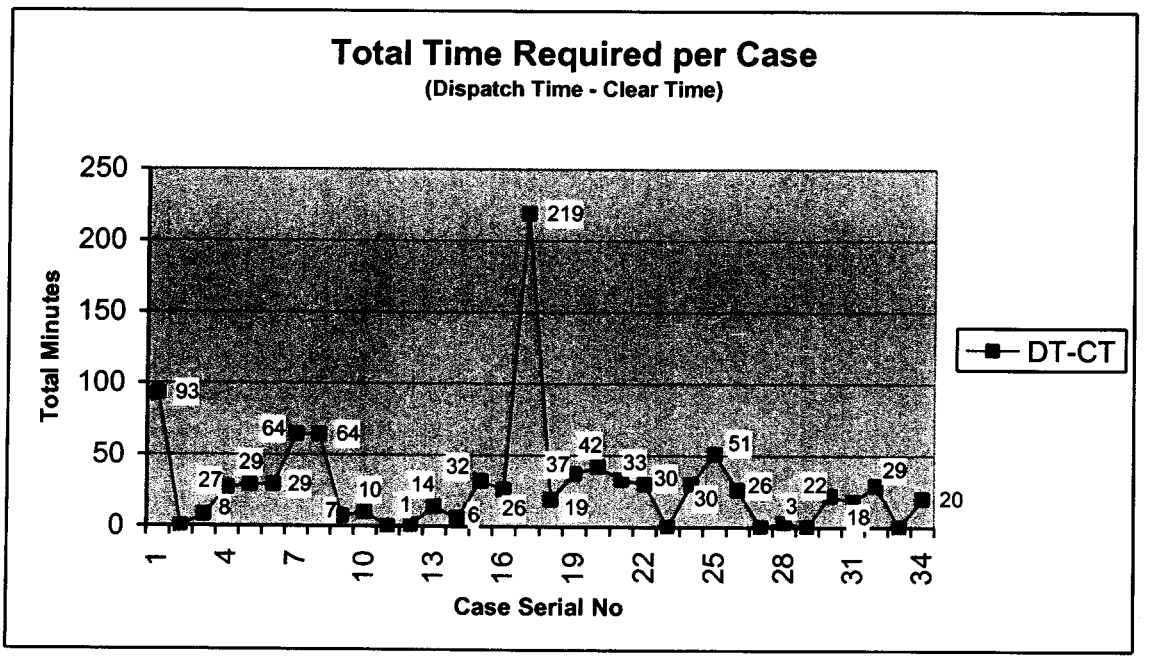
V. SECURES® July-October 2001 Field Validation Experiment

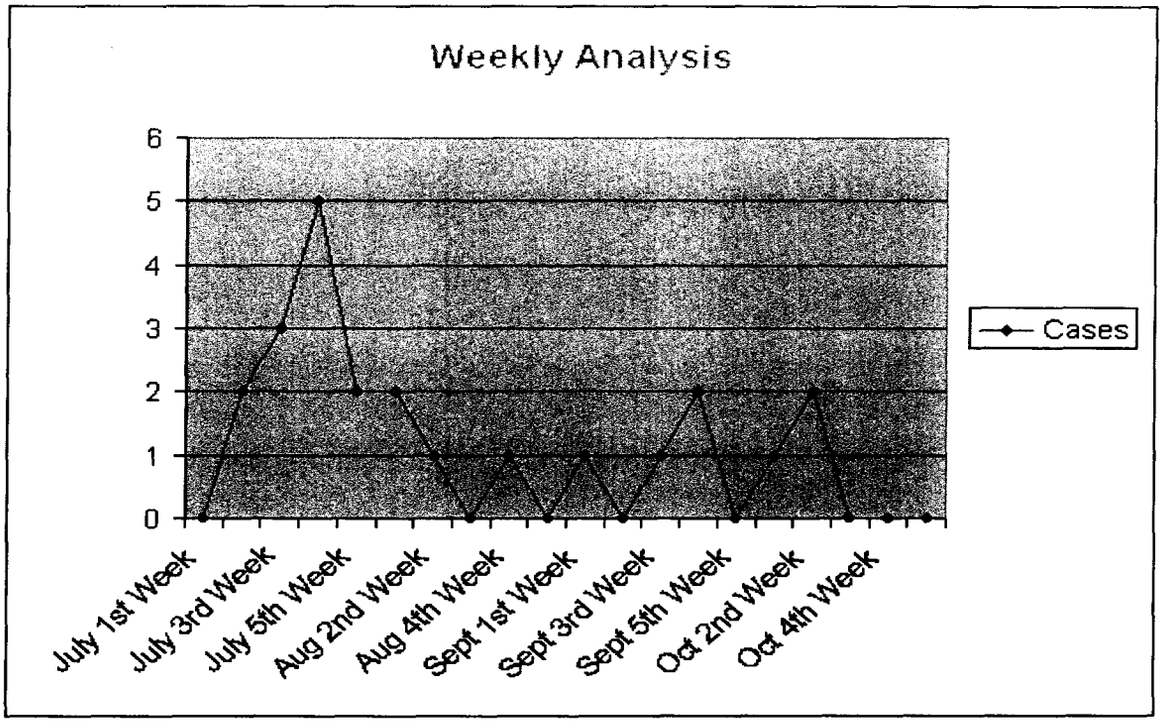
The analysis of activations recorded by APD Dispatch reveals 35 reports indicating activation of the system. As suggested in Table 1 below most of the activations were due to fireworks, followed by nothing found in area to indicate what caused the activation. The SECURES® technology "absence of detection" of genuine gunfire was attributed to some of the following factors:

- Reduction of firearms related crimes in area;
- Gentrification of area;
- Over-estimation of shots fired in previous years in area;
- Community policing initiatives;
- Proactive police strategies;
- Reduction in disorder calls;
- Community awareness of the system; and
- Reduction in violent crime.

Limitations of field experiment data include: small number of incidents; variable report and follow-up quality; unknown baseline data; uncertainty about non-reported events; and uncertain about calibration. With these limitations in mind, the preliminary findings include the detection of 4 explosives (fireworks) incidents confirmed by the visual documentation of residue (11% of the total). Two incidents of documented firearm related criminal activity that included a drive by shooting and the arrest of a convicted felon in possession of a firearm (6%). One incident where it was reported a shot had been fired when SECURES® and subsequent witness testimony verified it was a false report (3%). A single firearms discharge incident that was determined through investigation to be a firearms salute during a military funeral (3%). The remaining incidents, a total of 27, are currently listed as unresolved (77%). Most of these are partially cleared as fireworks related based on witness testimony with no residue discovered (see below).







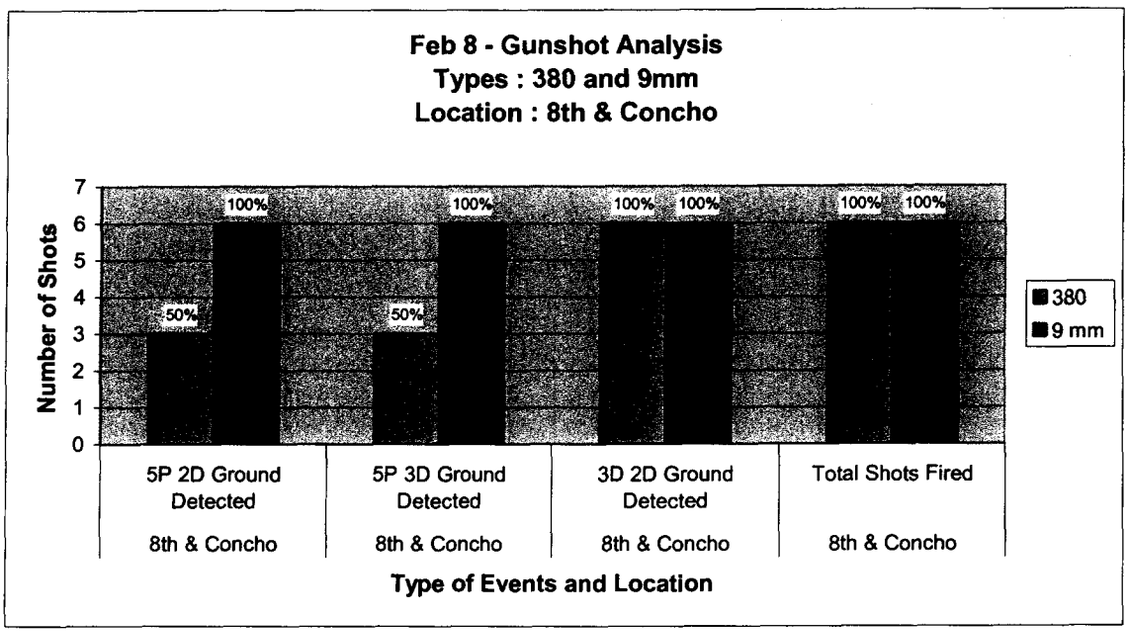
From a statistical perspective, 30% (11) of the total responses resulted in officers finding no evidence, witnesses, or crime scene. In these cases no determination could be made as to the reliability of the detection although, clearly, no police action was required. In 29% (10) of the responses officers identified fireworks as the probable cause of the detection through witness testimony. A total of 17% (6) of responses were labeled "Not Applicable" or "No Paperwork" because no paperwork or documentation was created around the response. Nothing could be construed from these responses except that mentioned in the conclusions (see section VII.) to this assessment. It should be noted that these calls occurred near the end of the test period and likely reflect a growing disillusionment among dispatch and line personnel with the efficacy of the SECURES® system. Such inferences may be drawn by a careful reading of the optional comments located at the bottom of the detection reports. About 6% (2) of responses were labeled "No Report"

The first detection that generated a police response occurred on July 12, 2001. The final detection that generated a response for the purposes of this report occurred on October 11, 2001. Although the system was operating 24/7, only 35 police responses were actually generated. As indicated earlier, two of the responses (6%) actually resulted in the location of a situation that was potentially criminal in nature and/or required a police response.

VI. Austin SECURES® Shot Detection Field Demonstration

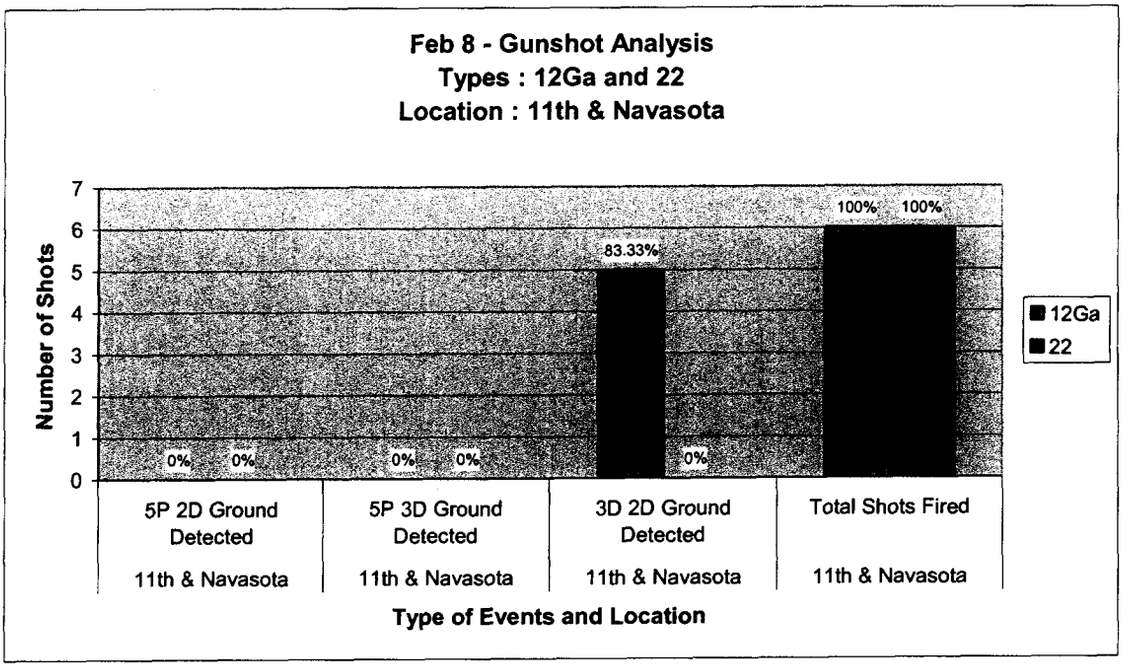
Due to the suspected high incidence of fireworks related activations and the low number of actual crime related gunshot detections a field demonstration test of the SECURES® system was initiated in February 2002. Prior to the February test SECURES® engineers made adjustments to reduce activations by fireworks (particularly aerial fireworks such as bottle rockets). On February 7 a preliminary test was conducted and subsequent to that test, additional adjustments were made to the software and system. On February 8 shotgun, .22, 9mm, 380, firecracker, and other environmental sounds were assessed in terms of number of detections. Current settings at the time of this test required five (5) pole detection units to activate in order for the dispatcher to be notified by the system. Modifications were tested for 3-5 poles and dimensions of 2-5[2]. Reported results include:

SECURES® system was able to detect (independent of setting) both 9mm and 380 gunshot sounds in a field controlled setting. The percentage of correct detections exceeded 75%.

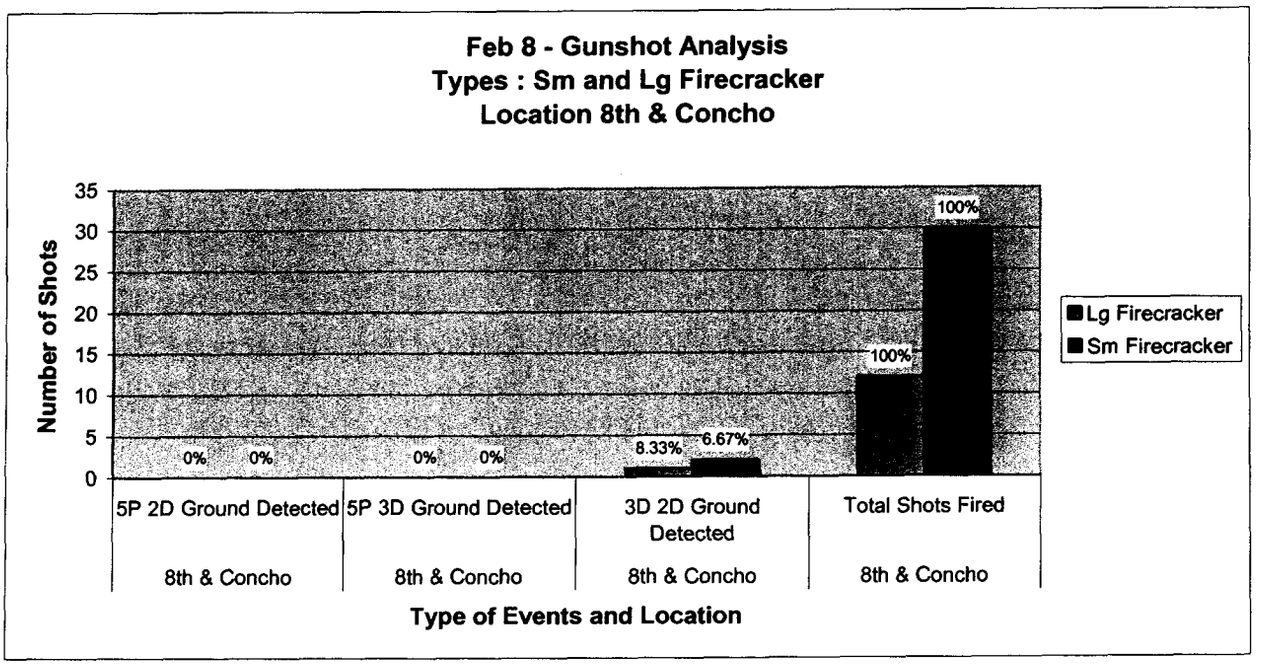


[2] Sample of required detections: 5 (5P) pole; in 2 (2D) dimensions; localized events reported 5P/2D.

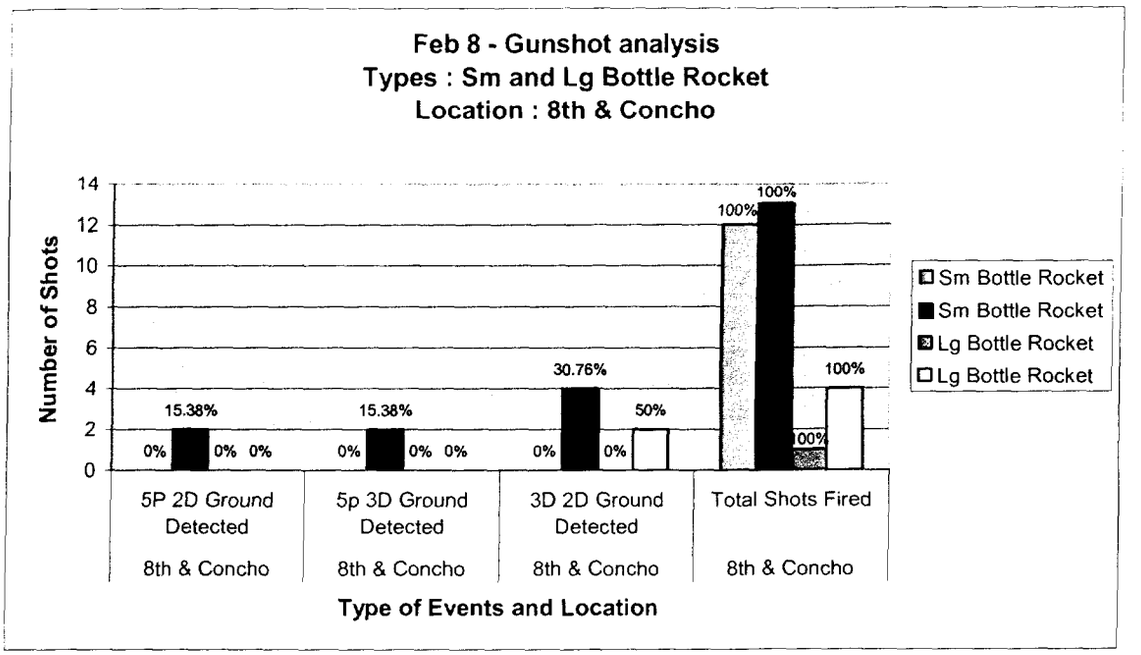
SECURES® had difficulty identifying both blank shotgun and .22 discharge sounds.



The SECURES® system did not respond to almost any (3%) of the small or larger firecracker activations.



Elevated off the ground bottle rockets activations appeared to present less of an identification problem to the SECURES® system due to the 3 dimension upgrade. About 30% triggered an aerial response:



VII. Conclusions

The general limited conclusions drawn from this interim assessment by the assessment team were as follows:

1. There was initial successful buy-in to the system by APD administrators, supervisors and line officers;
2. Training was administered effectively to the Austin Police Department APD;
3. The system as initially configured was apparently successful in detecting firearms discharges;
4. Multiple sensor triangulation resulted in the discovery of fireworks residue;
5. The total number of cases was two few for statistical inference;
6. The information available suggests that the system as initially configured did not perform as predicted regarding fireworks detection;
7. Only two of thirty-five incidents required police follow-up assuming that few police departments would send a police car to investigate a fireworks incident;
8. There was an observed effect degrading the data as officers, believing that the system was outputting false positive information related to fireworks incidents, "gave up" on the process resulting in a degradation of data quality;
9. The assessment team is not certain if perceptions in the Central East District are sufficiently positive to re-attempt the study in the present location;
10. The February test fire data indicated success in detecting 9mm and 380 shots fired.
11. The post October adjusted system failed to detect .22 and blank shotgun blasts; and
12. Resetting the system and adding the 3 dimensional response element has apparently reduced firecracker/fireworks false positive response.

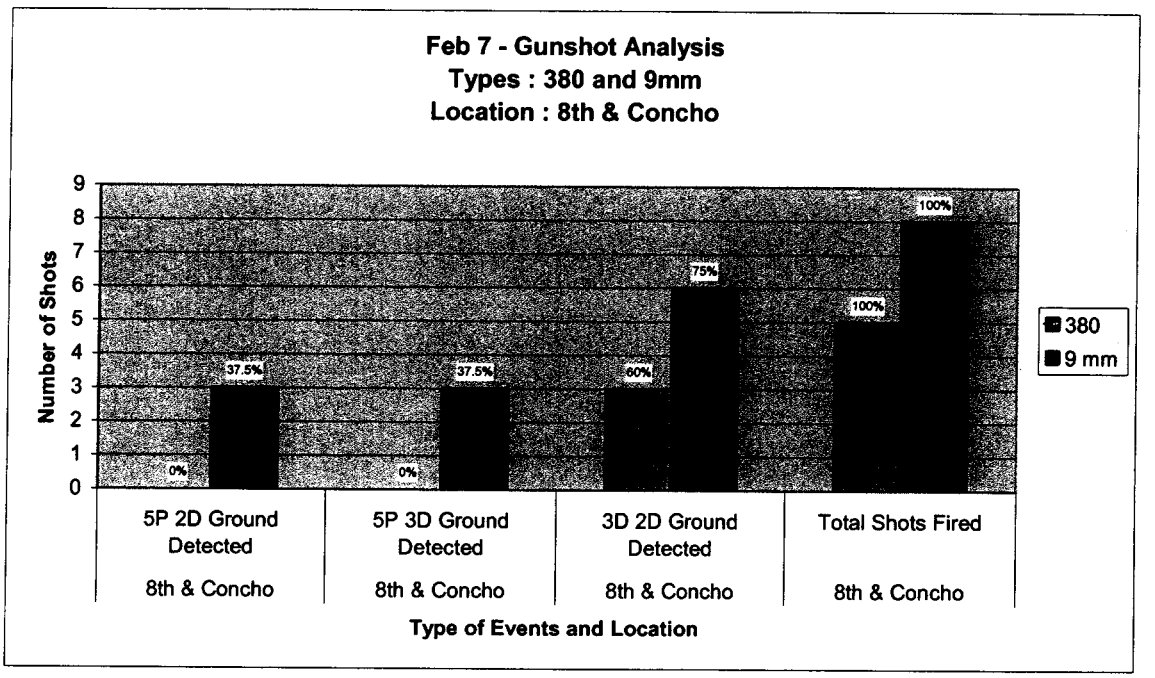
VIII. Recommendations

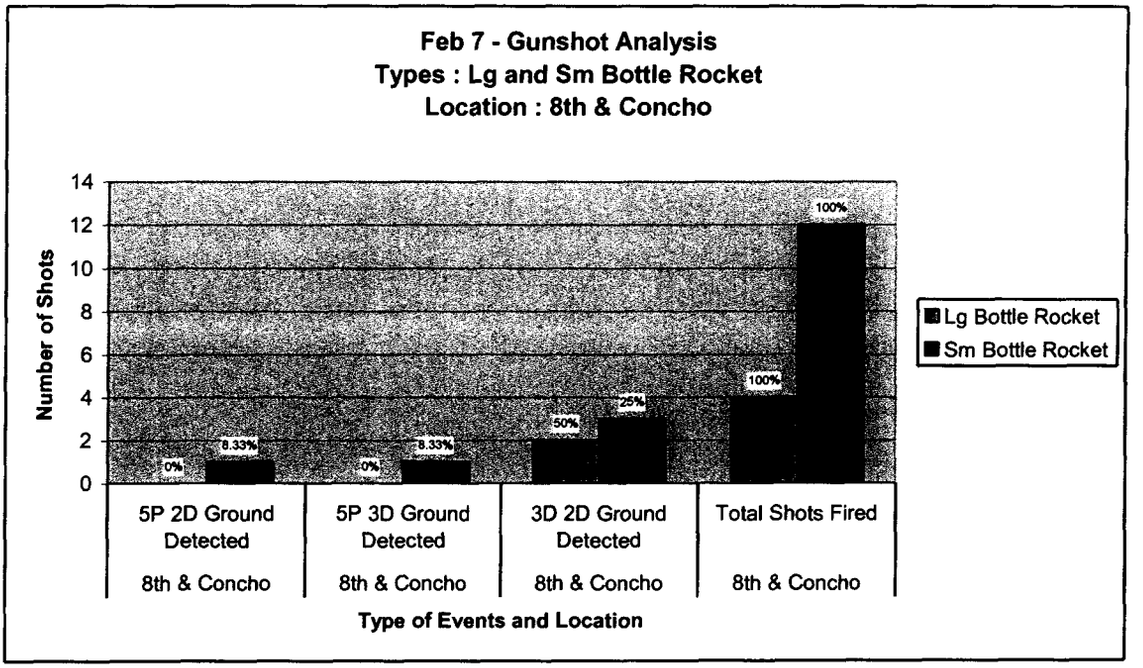
Based on the conclusions drawn during this interim assessment the following recommendations are made:

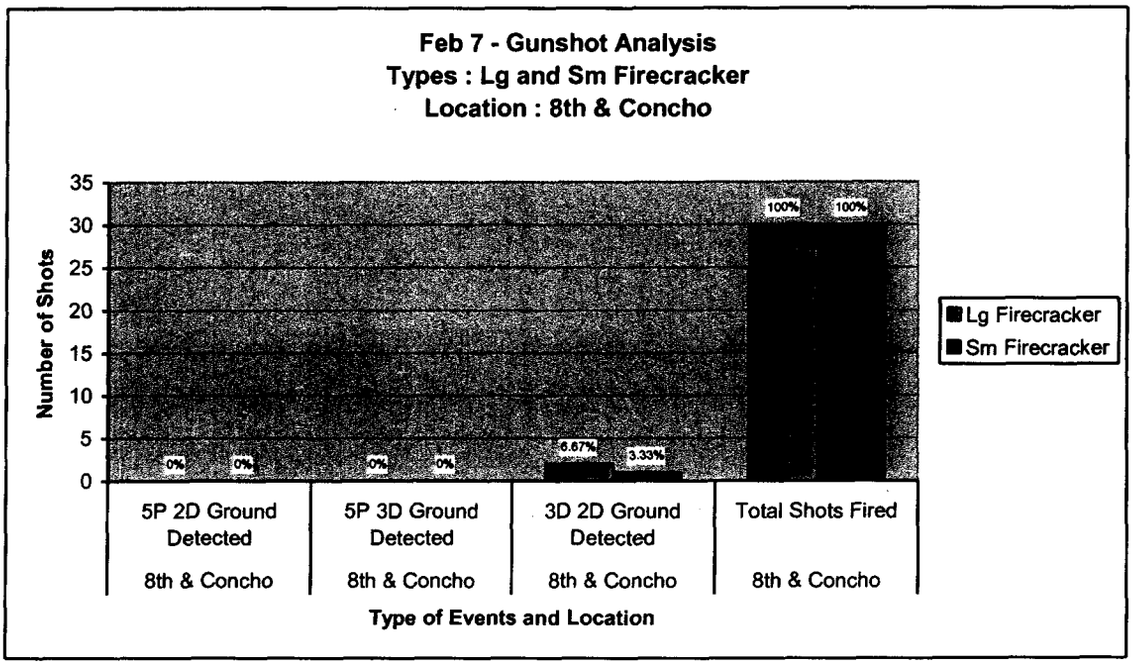
1. The promise of the system suggests the need for further experimentation;
2. There is a need to further test full range of *street weapons* including .44. , 357 and semi-automatic weapons;
3. To validate the system with regard to officer response, a broader scope experiment is required in higher crime/shooting event locations;
4. Initial calibration must be attempted prior to field validation;
5. Baseline data prior to incident needs to be collected; and
6. Consistent patrol validation needs to be attempted.

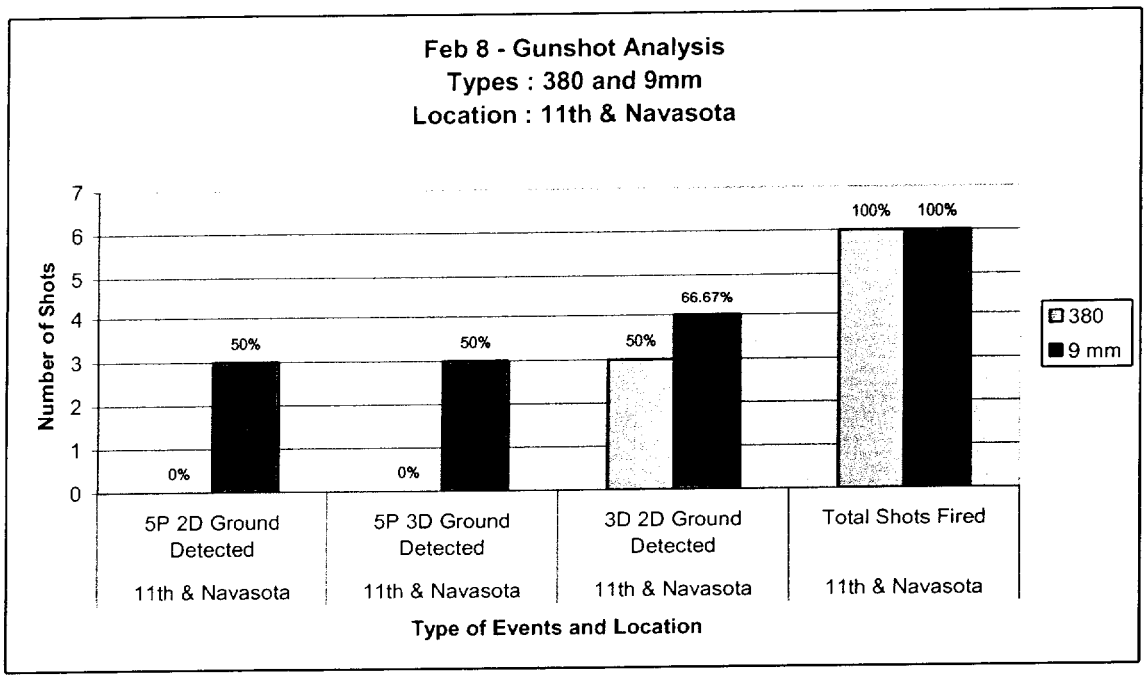
Additional testing and associated enhancements of SECURES® may be required before widespread adoption is undertaken. A recalibrated, redesigned or revitalized technology represents the best approach for the important vision inherent in this project to be realized. For example, the military currently uses an acoustically triggered anti-tank mine that can reliably discriminate between types of tracked vehicles and destroy the one identified by the explosive technician. The opportunity to reduce violent gun crime through this technology is clearly worthy of continuing effort. What law enforcement agency would not want to be able to reliably identify and quickly respond to shots fired calls in hopes of saving lives or preventing injury. Yet without additional work and better testing, this vision may not come to fruition.

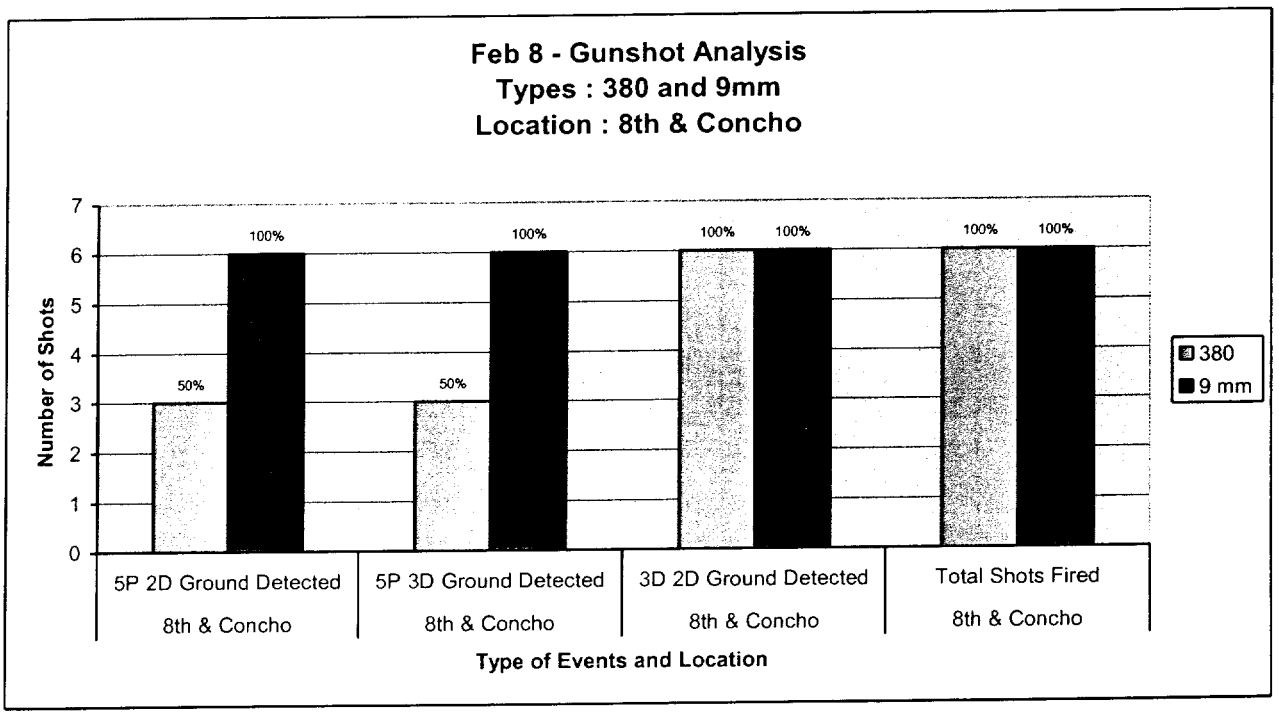
IX. Appendixes

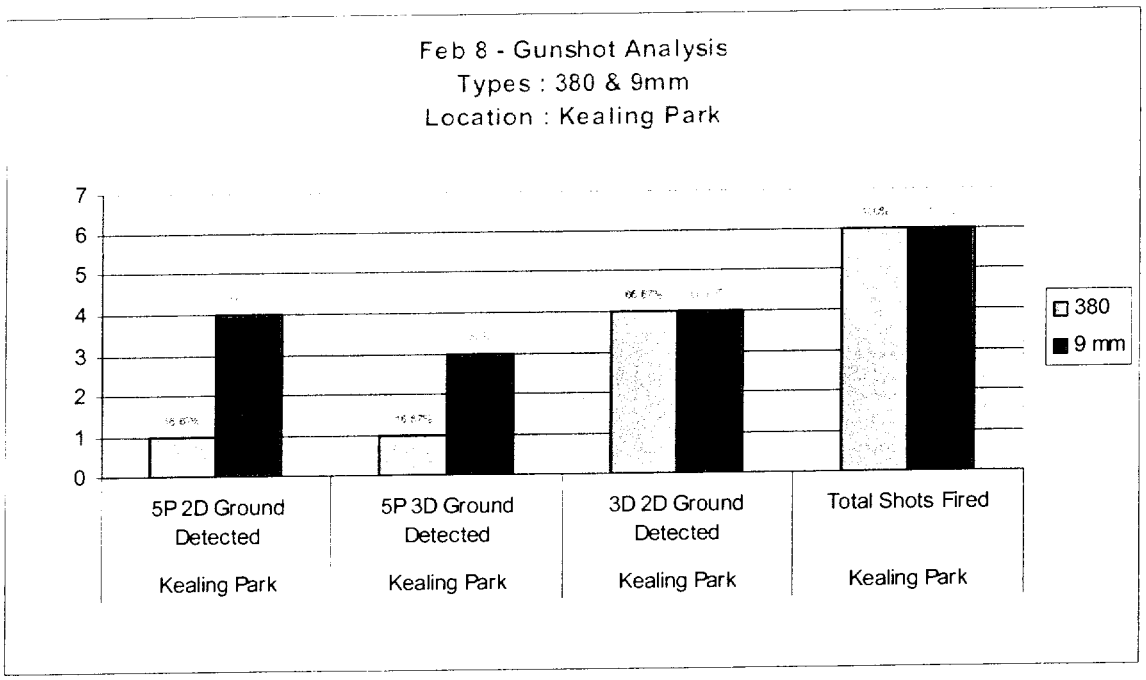


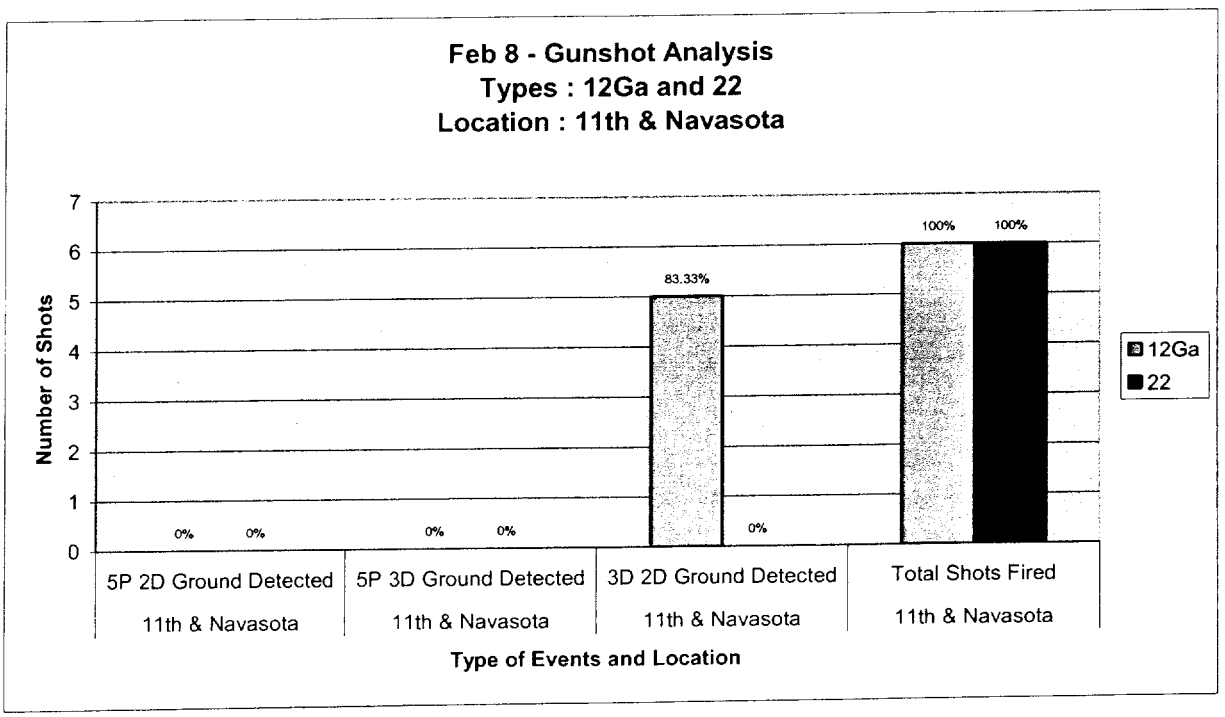


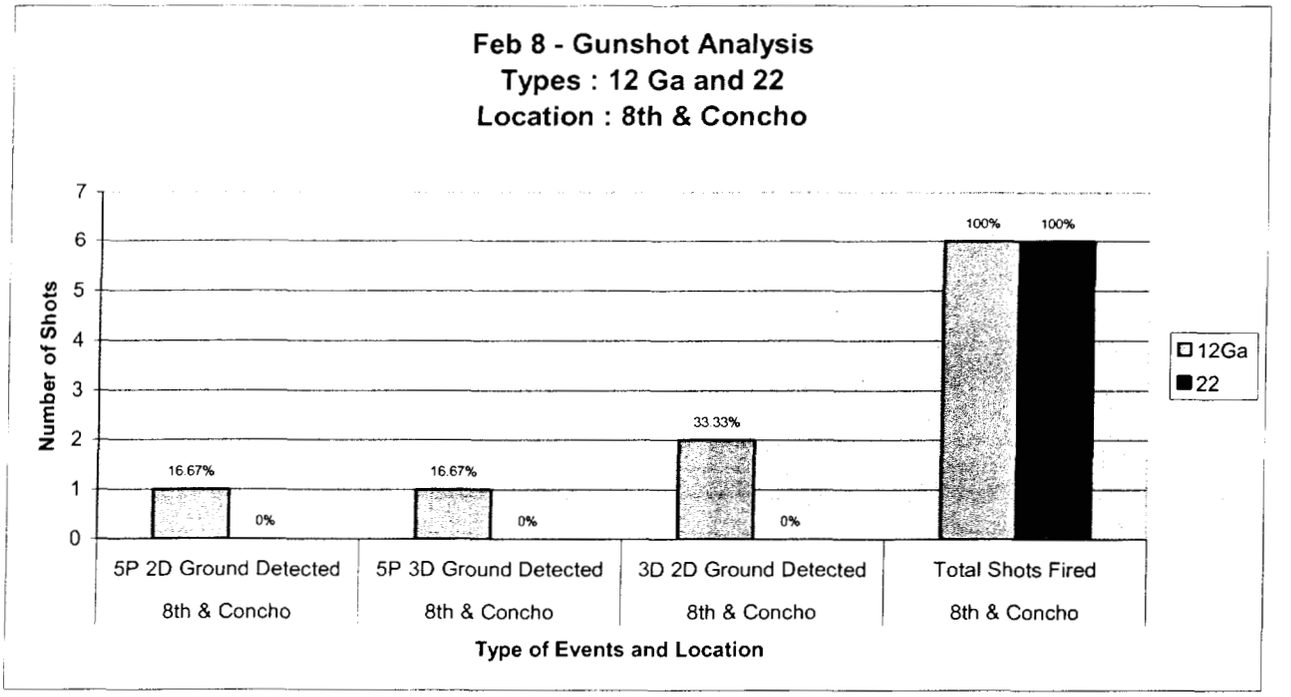


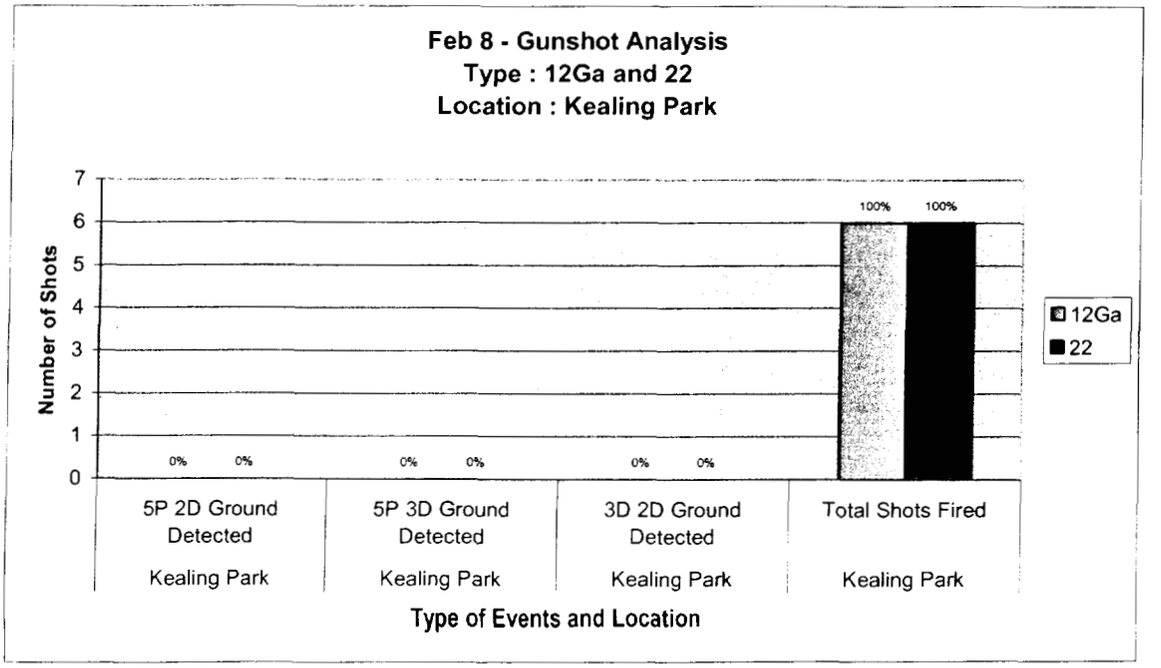


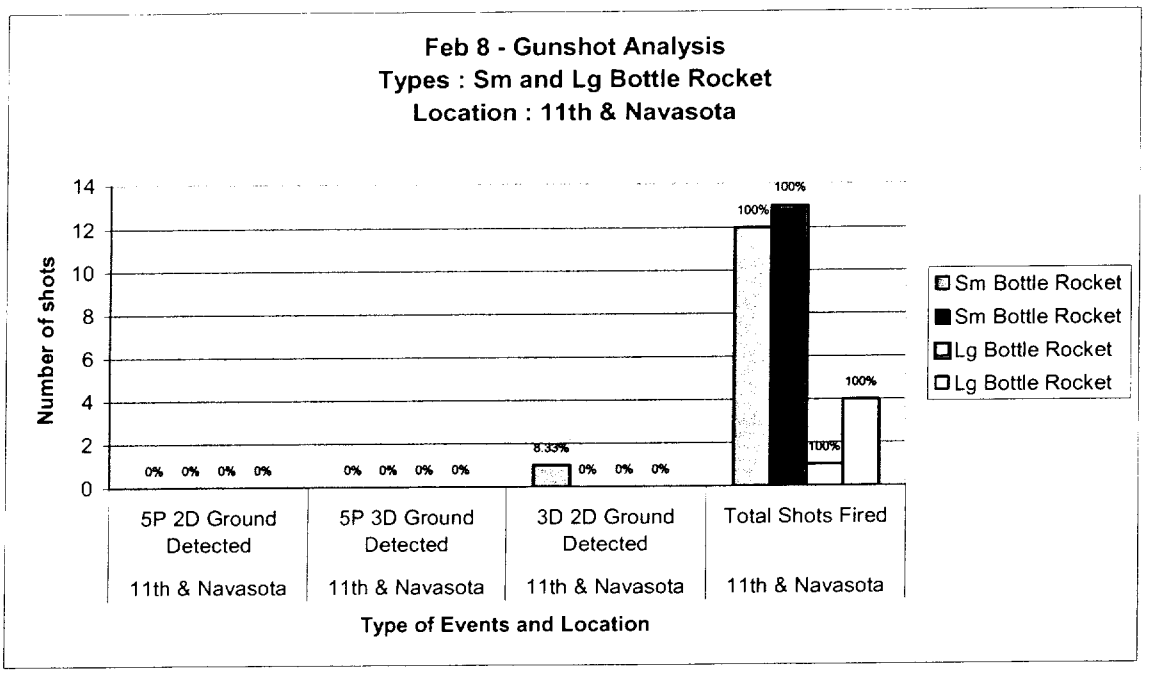


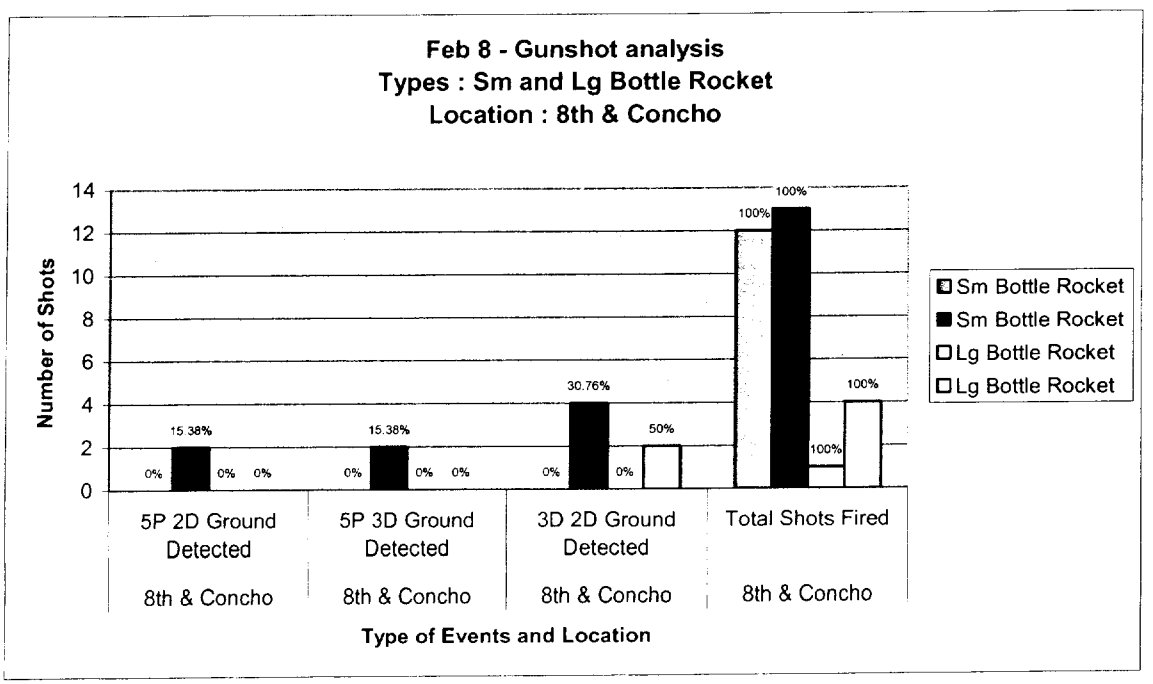


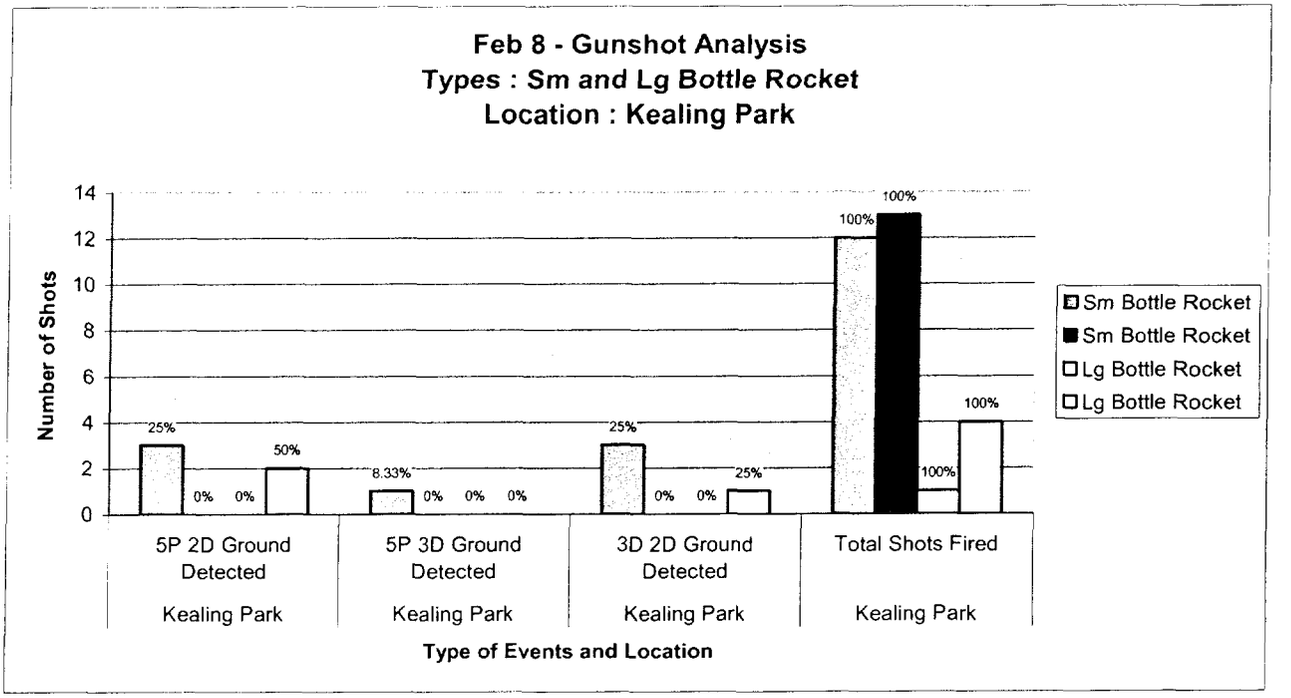


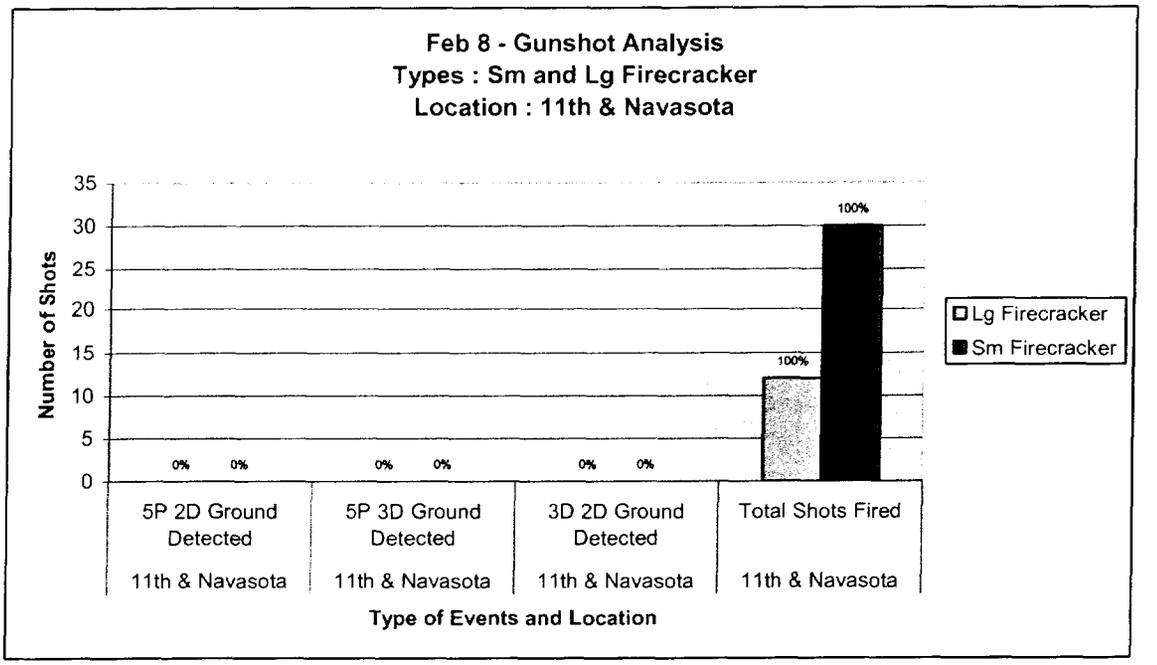


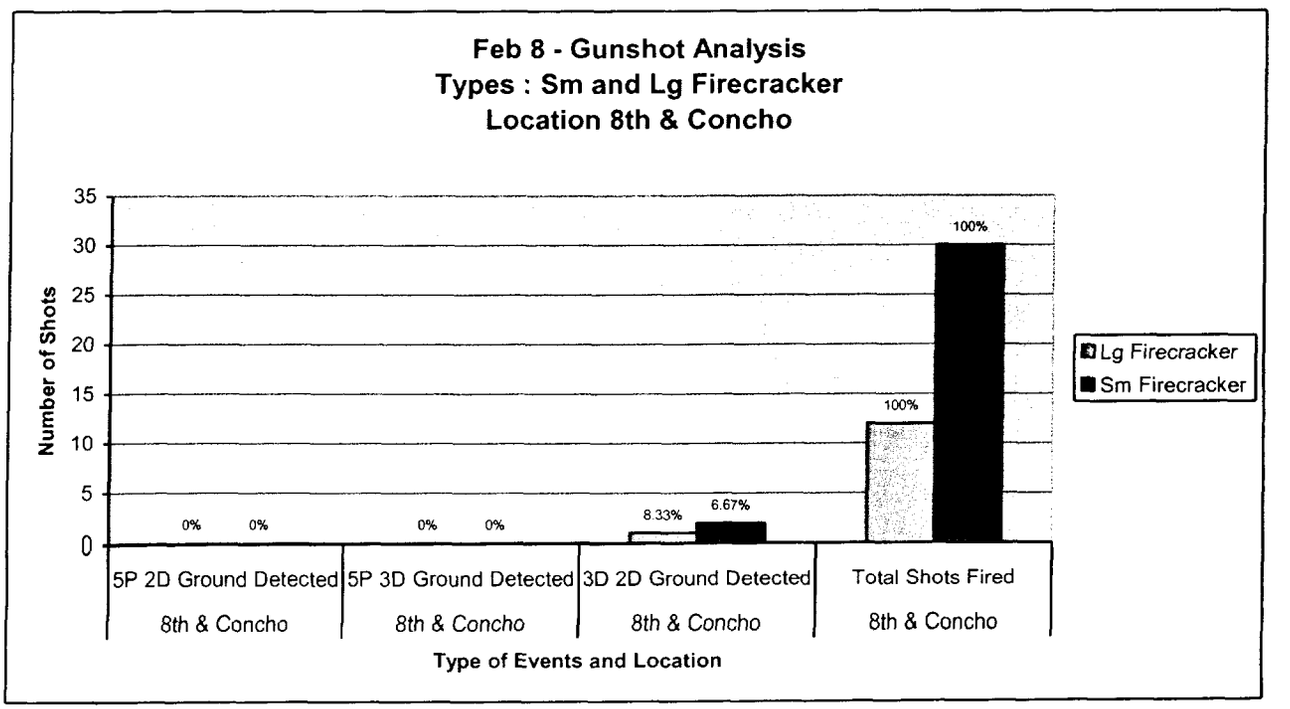


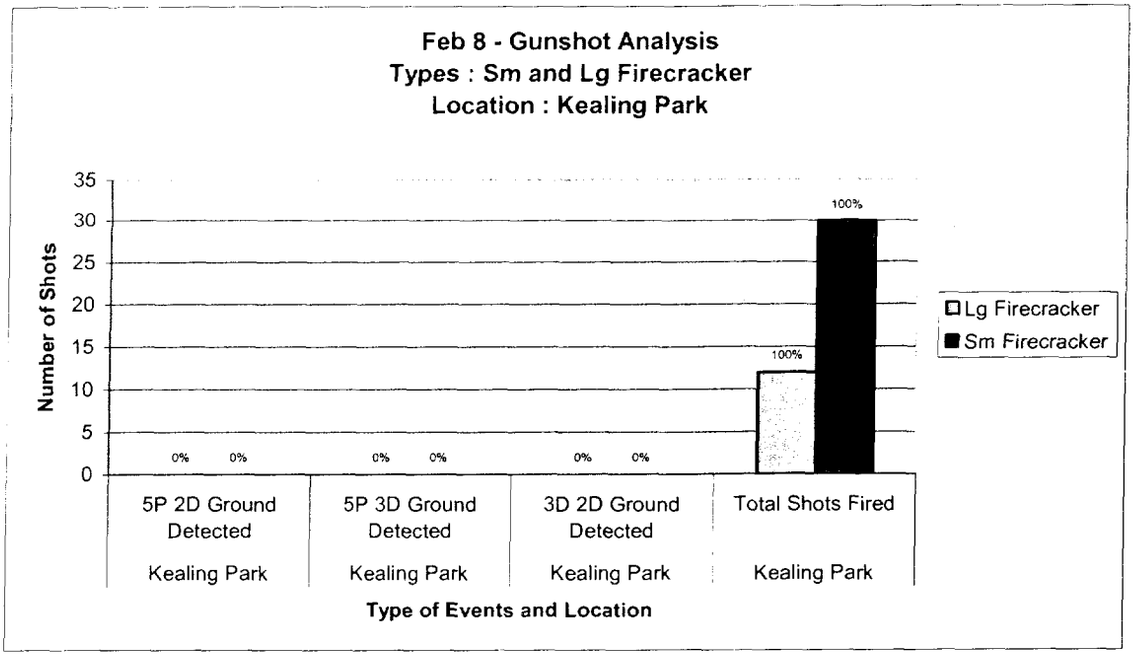


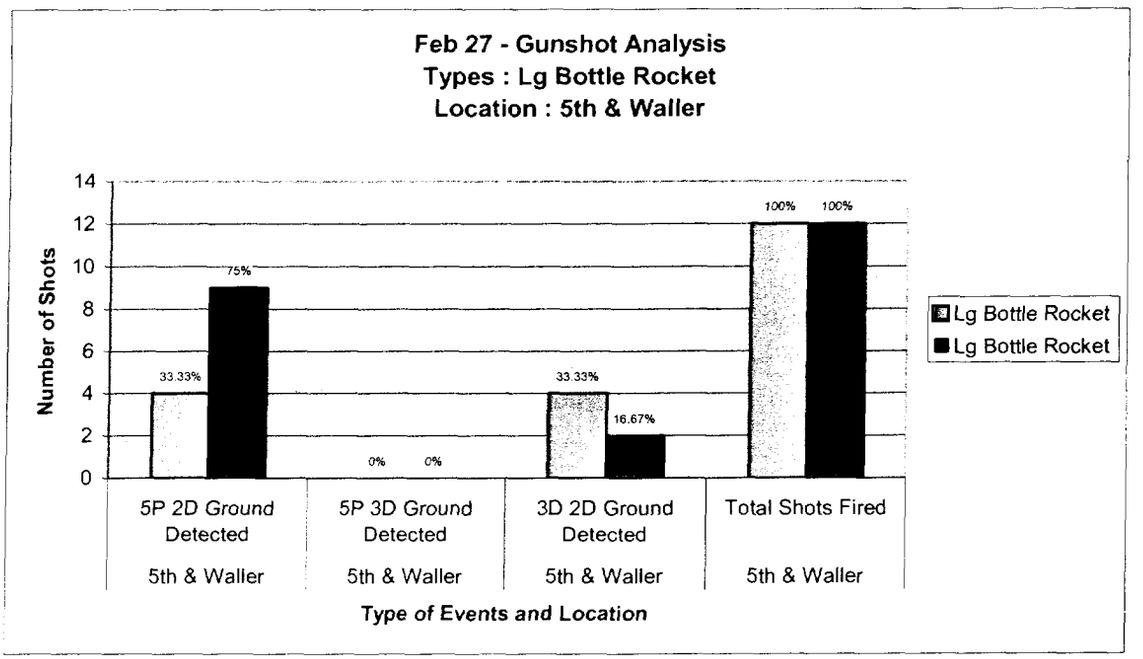


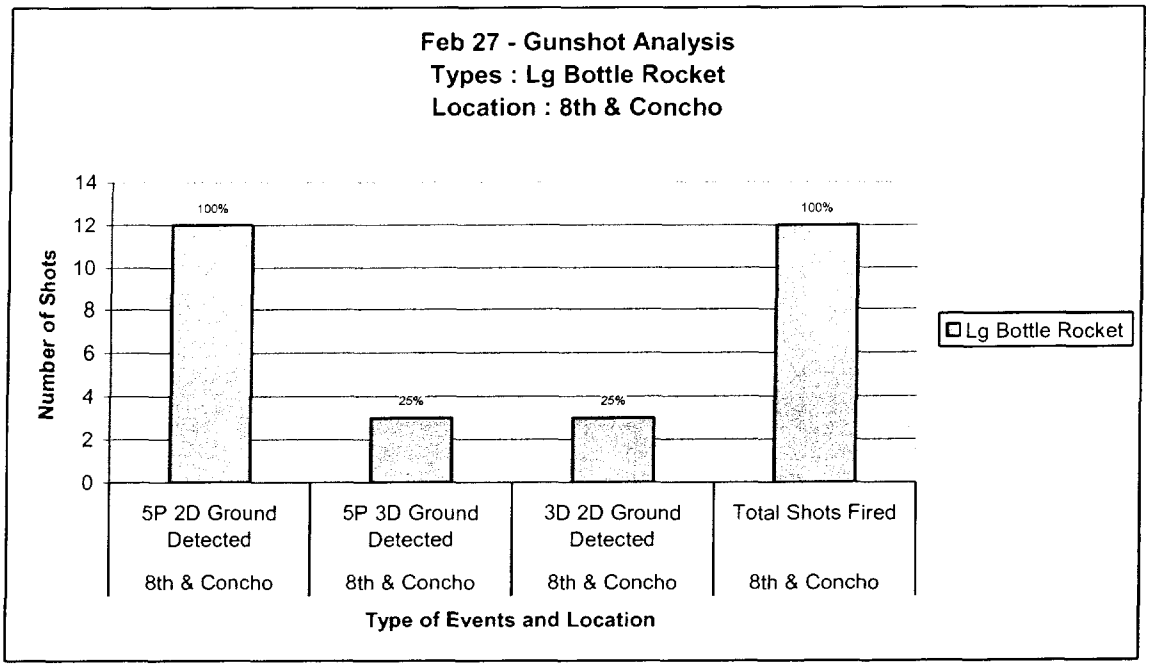


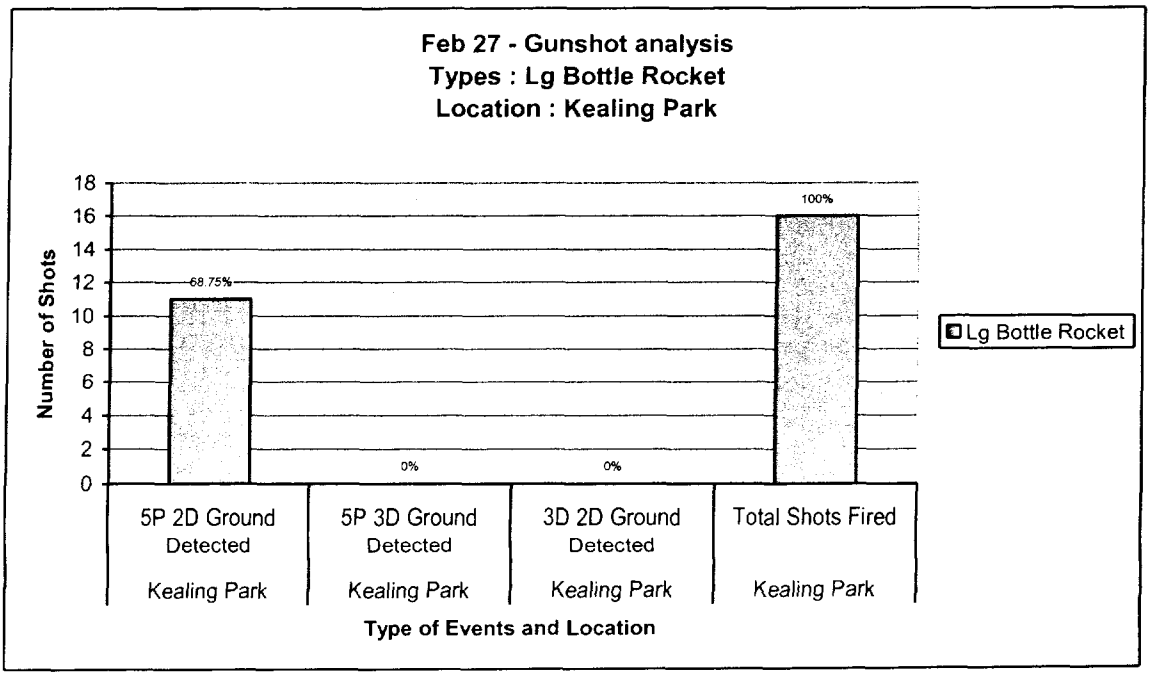


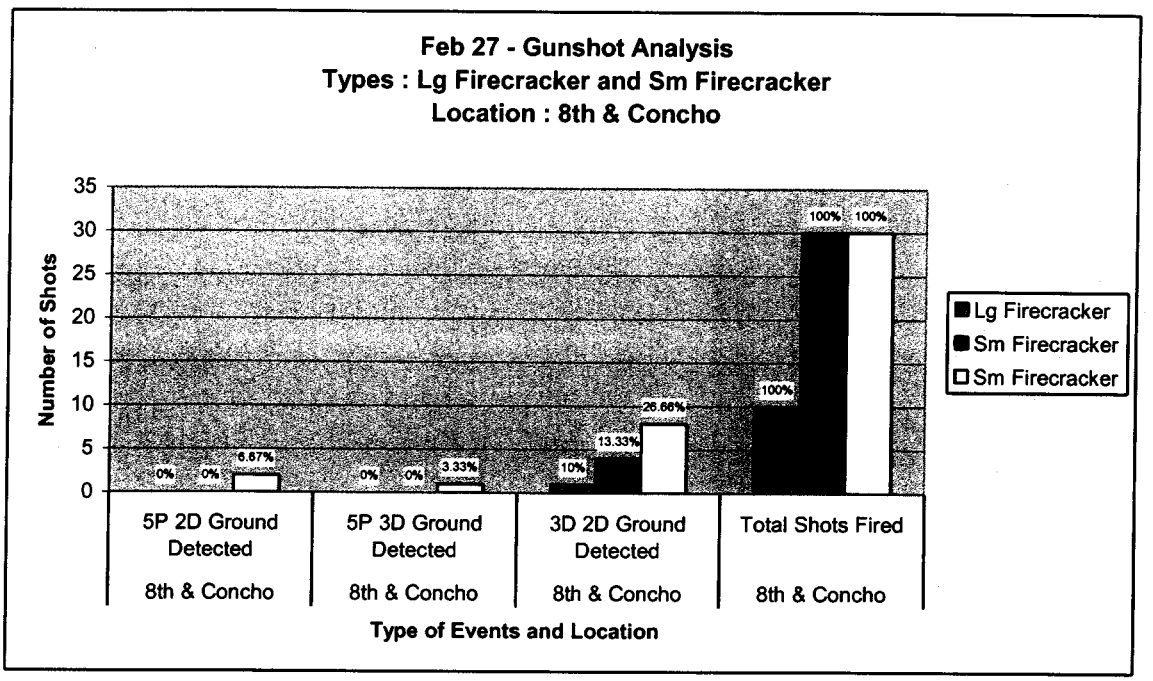


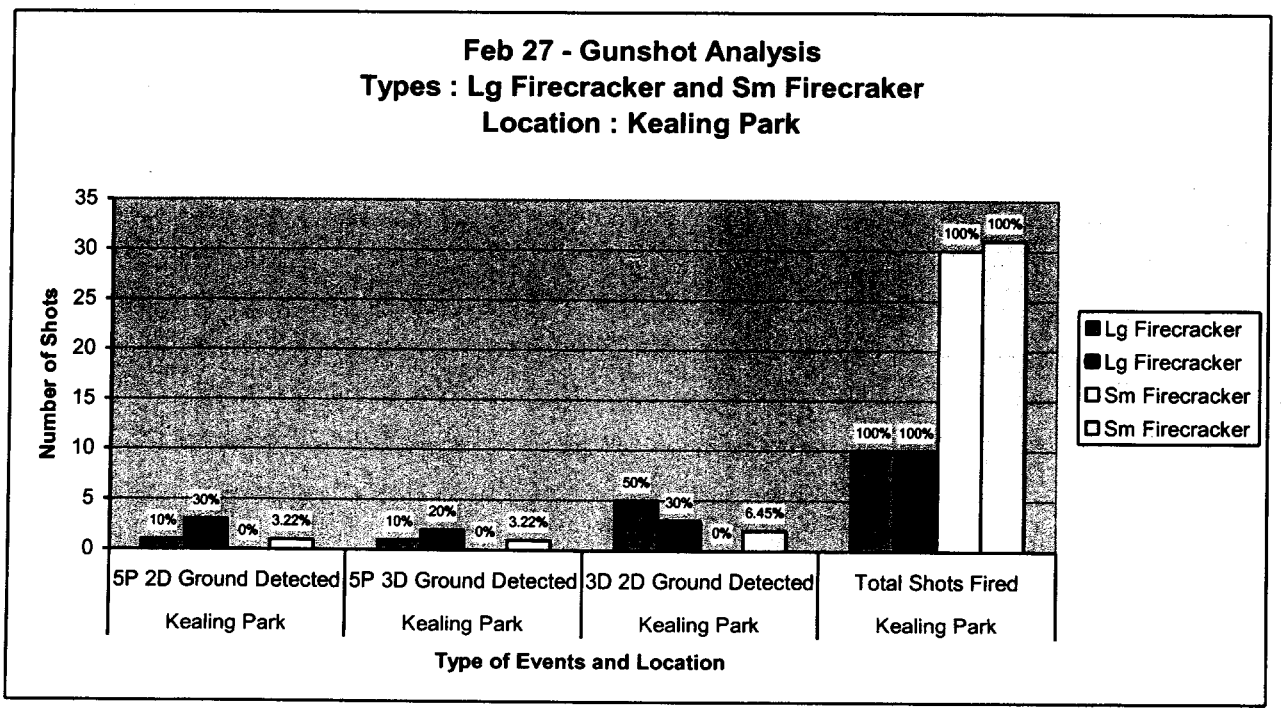


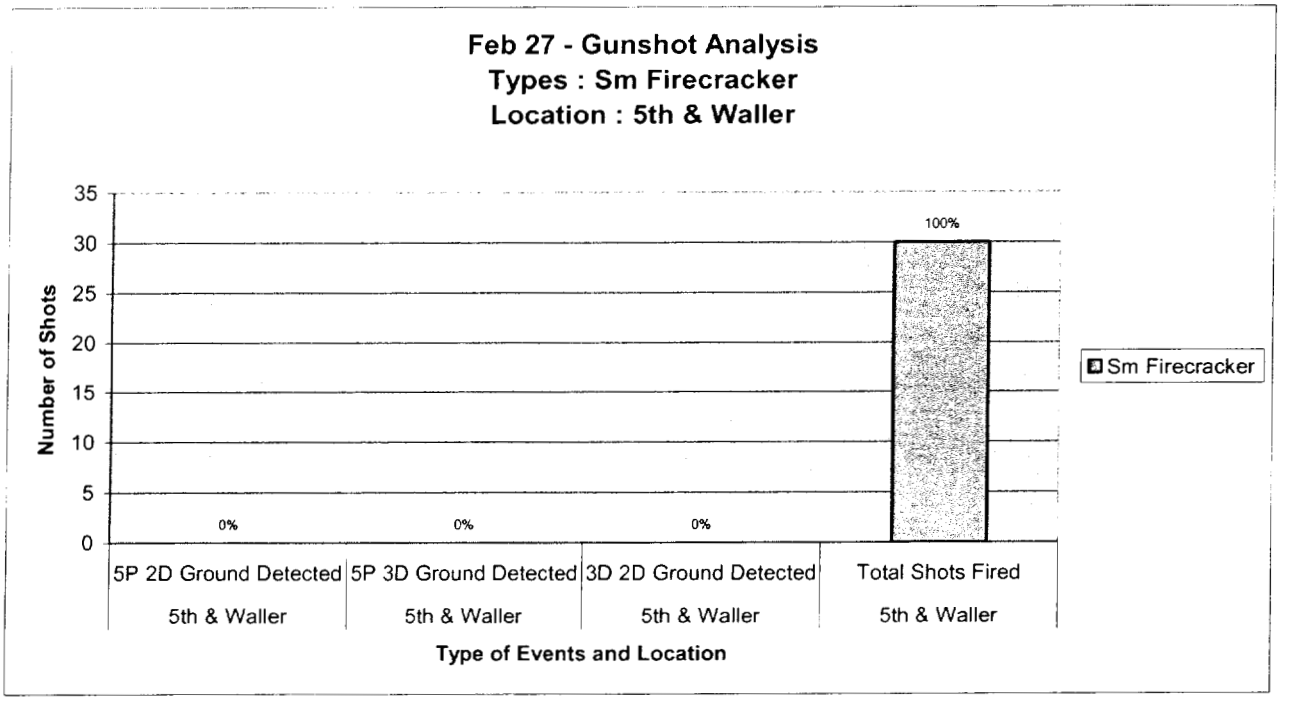


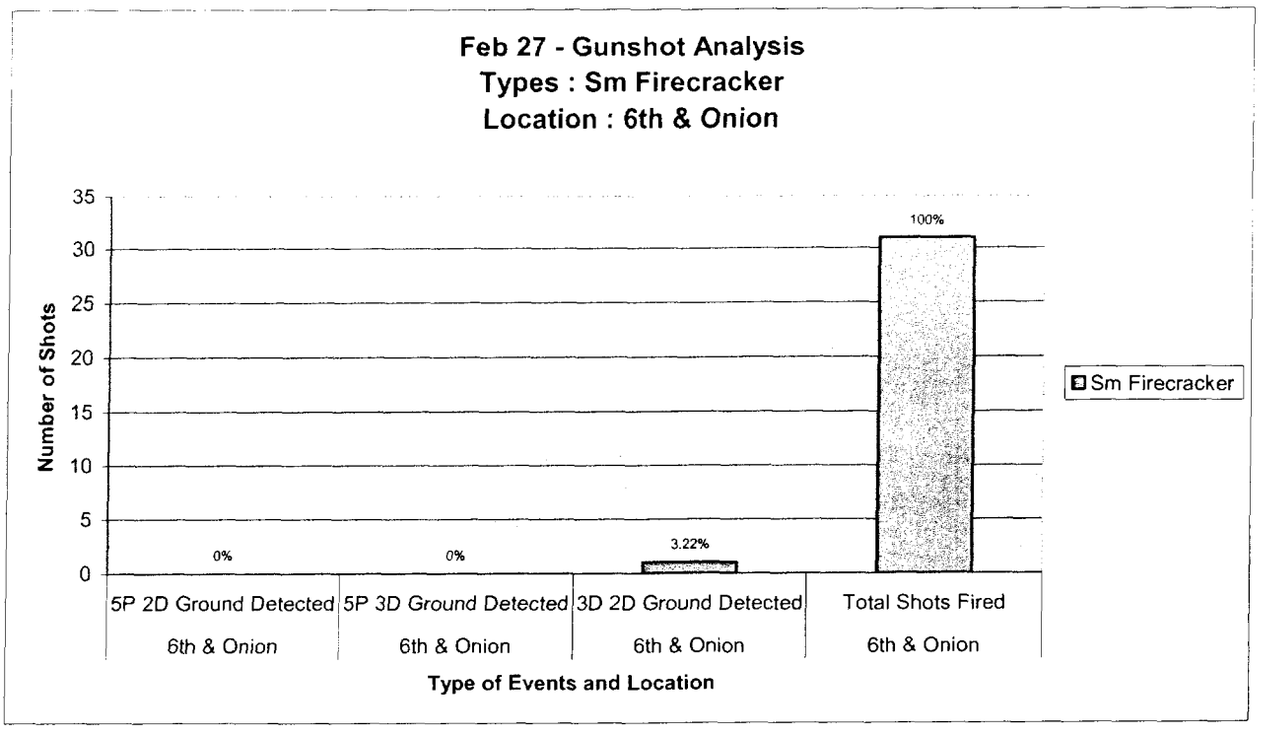








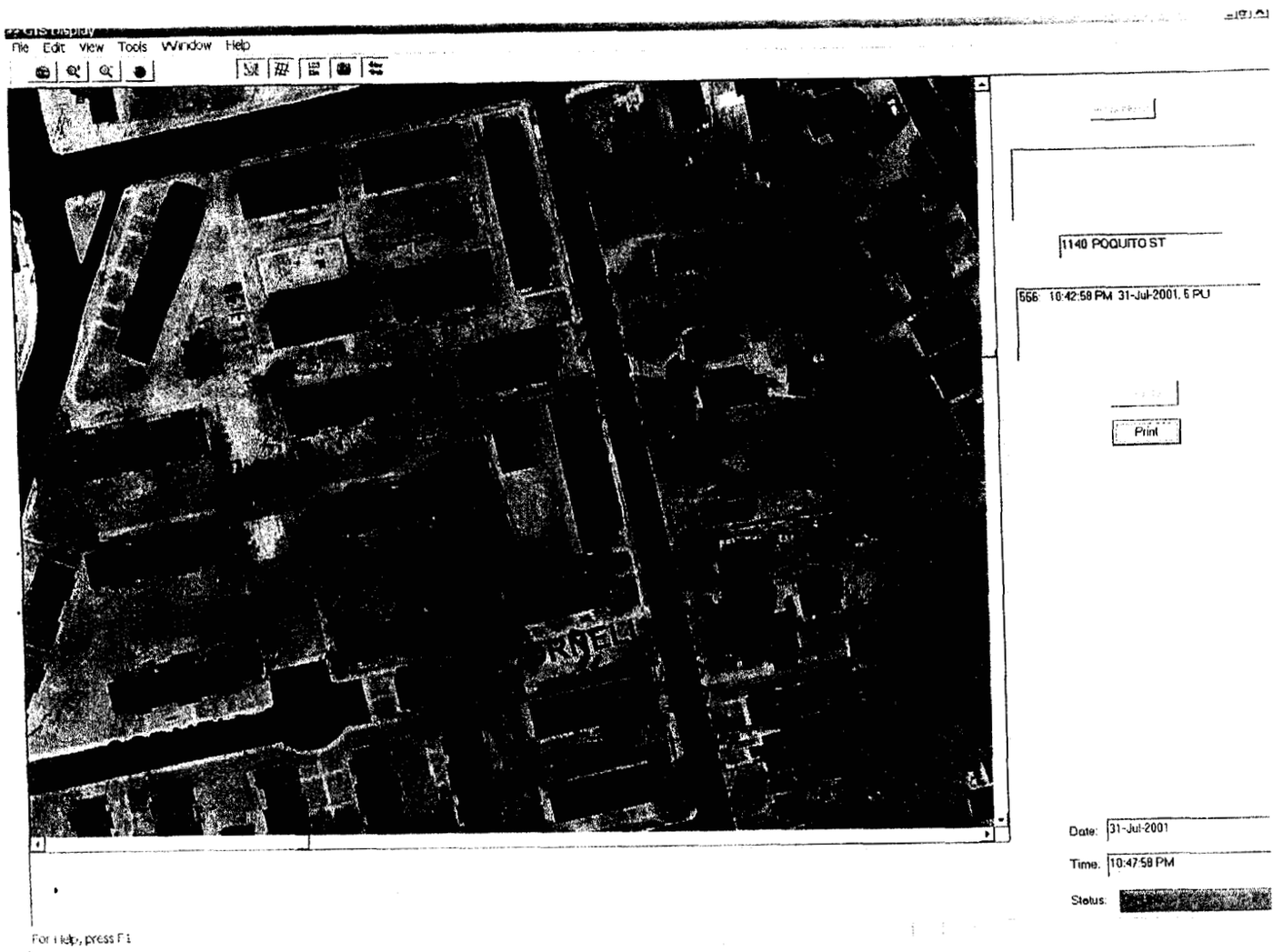




```
 P S W 3          COMPLAINT HISTORY DETAIL: A012121634                  08/02/01
  C A D                  AUSTIN POLICE DEPARTMENT                        08:01
************************************************************ MSG #0121417616
INITIATE: 22:44:06  07/31/01   CALL NUMBER:    A1634
ENTRY:    22:44:06             CURRENT STATUS: CLOSED
DISPATCH: 22:44:14             PRIMARY UNIT:   C305  (DISPATCH EXCEPTION)
ONSCENE:  22:44:14             JURISDICTION:   AP
CLOSE:    23:14:05             DISPOSITION:    1
LOCATION: 1140 POQUITO ST,AUS (CORNELL ST & ROSEWOOD AV)
DAREA:    CHAR
BEAT:     C3                   TYPE:     SECURE SHOT FIRED/COMP
RDIST:    417                  PRIORITY: 1
FIRE BOX: 701                  EMS GRID: 417


22:44:06 PDFF VIEW     3446/UNK- UNKNOWN OFFICER
22:44:06 PDFF PRIOR    AP FLAG 07/24/01 @ 23:20:29 (42 MORE)
22:44:14 PDFF SUGGEST  C403 C704
22:44:14 PDFF DISP ONS C305/003466-SAVAL,NICOLE C402/004421-ROSALES, RAFAEL
                       003674-SALDIVAR, CARLOS
22:44:30 PDFF BACKUP   C390/002186-ORTEN, ROBIN, N.
22:44:33 PDFF BACKUP   C403/004030-BUSTOS, JAVIER
22:45:09      ENROUTE  C390
22:45:10      ENROUTE  C403
22:45:44 PDFF MISC     C305, FIREWORKS .. AT BASKETBALL COURT AT 1142 ..
                       WITNESSES SAW THEM
22:45:51      INSRVICE C390
22:46:16      ONSCENE  C403
22:46:22 PDFF MISC     C305, HM OUT ON 2
22:48:07 PDFF CODE 4   C305
22:48:07 PDFF CODE 4   C402
22:48:07 PDFF CODE 4   C403
22:50:59      INSRVICE C402
22:51:21      INSRVICE C403
22:57:53      PERSCHEK C305 AZAK LIDRAUX33105 .CPL MCCARTHER,MARCUS.022183
23:14:05      CLEAR    C305 1, REPORT
23:14:05      CLOSE

OPERATOR ASSIGNMENTS:  PDFF  003722 LOA, TALISHA
```



01212167

OCCURRED BETWEEN: TITLE CODE: 3446 SHOTS FIRED
[redacted]TE: 07/31/2001 TIME: 2244 4021 SECURES
[redacted]ND: 07/31/2001 TIME: 2244
REPORTED:
DATE: 07/31/2001 TIME: 2244

LOCATION: 1140 POQUITO ST
AUSTIN, TX 78702
COUNTY: TRAVIS
SECT/DIST: C 03 CENSUS TRACT: 8.04
PRA: 417
PREMISE: 0813 HOUSING PROJECT

EVENT ORIGIN: CAD SOLVABILITY: NOT ENOUGH DESC/EVIDENCE
EVENT STATUS: CLEARED ADMINISTRAT.

CAD TITLE CODE: 9999 INVALID CAD TITLE CODE
DISPOSITION: 1 PRIMARY UNIT: C305
DISPATCHED: 07/31/2001 2244 OFFICER: AP 3466 SAVAL, NICOLE
ARRIVED: 07/31/2001 2244
CLEARED: 07/31/2001 2314

ENTERED BY: AP 3466 SAVAL, NICOLE DATE: 07/31/2001 TIME: 2244
ASSIGNED TO: AP DATE: 00/00/0000 TIME:
AP 4251 MEDRANO, STEPHANIE DATE: 08/09/2001 TIME: 2240

[redacted]PERSONS INVOLVED:
[redacted]1 LAST FIRST MIDDLE
NAME: MCCARTHER MARCUS EUGENE
AKA:
INVOLVEMENT: WITNESS R/S: B/M
REASON STOPPED:
SEARCHED: REASON FOR SEARCH:
HEIGHT: EYES: DOB: 02/21/1983
WEIGHT: HAIR: AGE: 18
HOME ADDRESS: 1138 POQUITO ST #102
AUSTIN, TX 78702 COUNTRY: US
HOME PHONE: (512) 797-2738
ID: TX ID 01947301
MARITAL STATUS: RESIDENT STATUS:
PERSONAL INJURY INFORMATION:
NO INJURY

PRESS RELEASE NARRATIVE:
ENTERED: 07/31/2001 22:44 BY: AP 3466 SAVAL, NICOLE

DISPATCHED TO A SHOTS FIRED CALL AT 1140 POQUITO ST. REPORT WRITTEN.

INCIDENT REPORT NUMBER: OF 01 2121634 AGENCY: AP INTERNAL USE
INVESTIGATIVE NARRATIVE:
ENTERED: 07/31/2001 22:44 BY: AP 3466 SAVAL, NICOLE

WHILE ON ROUTINE PATROL I HEARD WHAT SOUNDED LIKE SHOTS FIRED AT ROSEWOOD
AND POQUITO. I ASKED DISPATCH IF THERE WAS A SECURES HIT FOR SHOTS FIRED. I
WAS INFORMED THAT THERE WAS AND IT WAS SHOWING AN ADDRESS OF 1140 POQUITO ST.
I SPOKE WITH A WITNESS MCCARTHER, MARCUS B/M 02/21/1983 WHO STATED HE SAW
SEVERAL HISPANIC JUVENILES ON THE BASKETBALL COURTS BEHIND HIS BUILDING
SETTING OFF FIREWORKS.

HE STATED THAT HE WAS SURE IF WAS FIREWORKS AND NOT GUNSHOTS.

NO FURTHER INFORMATION.

INVESTIGATIVE NARRATIVE:
ENTERED: 08/10/2001 11:46 BY: AP 4251 MEDRANO, STEPHANIE

3446 SHOTS FIRED4021 SECURES

CASE CLEARED ADMINISTRATIVELY, SHOTS FIRED CALL DETECTED BY SECURES SYSTEM
WHICH IS CAPABLE OF PINPOINTING THE ORIGIN OF GUNSHOTS TO APROX. 3FT.

ROUTED FROM CA19 TO AP26030

SECURES®
Enhanced
Quick Reference Guide

Instructor Guide
Austin
Police Department

CENTER FOR
SOCIETY, LAW & JUSTICE

SECURES® is a registered trademark of Planning Systems Incorporated.

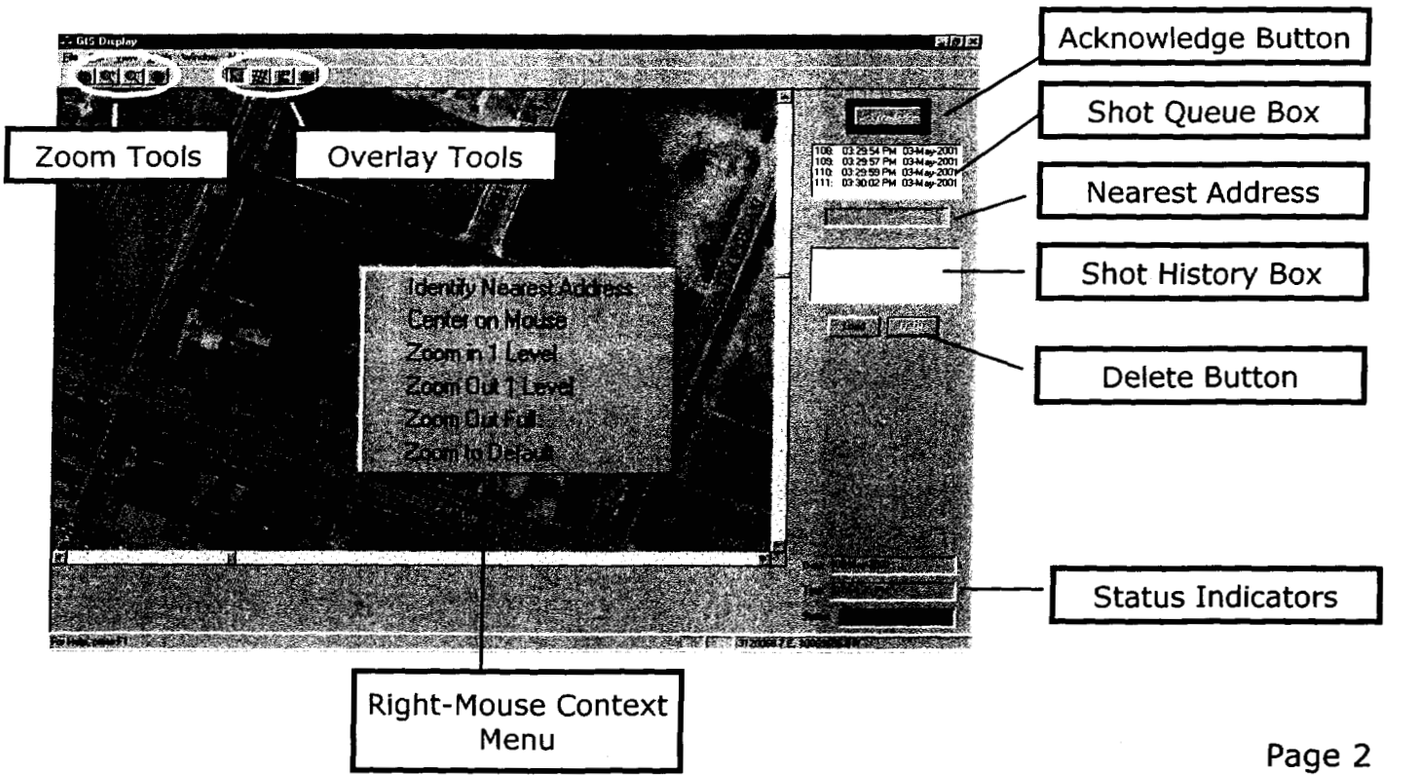
This Quick Reference Guide was designed to be used in conjunction with training and the SECURES instructional video. It was developed with the cooperation of the Austin Police Department and Planning Systems Incorporated. For specific instructions or more information on standard operating procedures, please consult your supervisor.

Instructor Notes

- Mention note taking space on page 11 for dispatch issues.
- This page may be skipped by the instructor during training.
- This page of the manual is a mandatory disclaimer due to the many changes that occur with software and operational procedures.
- If there are changes that invalidate the "Quick Reference Guide" please notify CSLJ for manual update and replacement.

Additional Instructor Notes

Screen Orientation

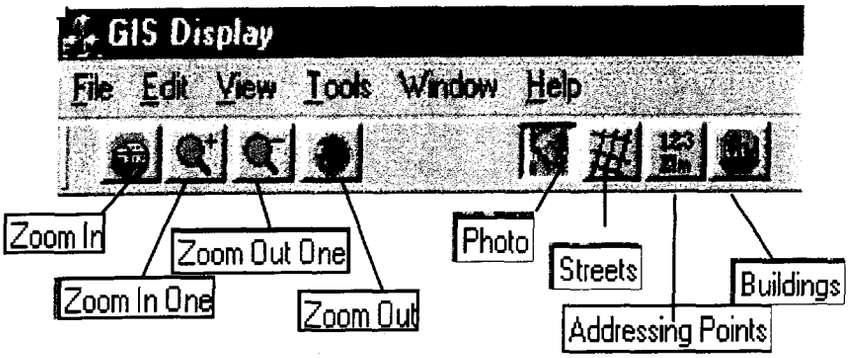


Instructor Notes

- The instructor will discuss the areas of the screen.
- The default view is that of the aerial photo. The red marks are current shots. The green indicators are the pole units.
- The display automatically zooms in to the shot area when a shot is fired.
- It's not really necessary to use the items on the menu bar, so they're not labeled.
- The tools on the toolbar are described on the next page.
- The Acknowledge Button must be pressed as each shot comes in. (Further detail later)
- The Shot Queue box lists all the un-acknowledged shots.
- The Nearest Address area shows the results of the "Identify Nearest Address" command. (Further detail later)
- The Shot History box lists all the acknowledged shots, until they are cleared with the Delete button. (Further detail later)
- The Status Indicators show the current date, time, and system readiness status.

Additional Instructor Notes

Screen Orientation



Use the Overlay buttons to add elements to the screen.

Use the Zoom buttons to change the view of the screen.

Instructor Notes

- This is a companion page to the previous page and describes the "Zoom" buttons on the toolbar:

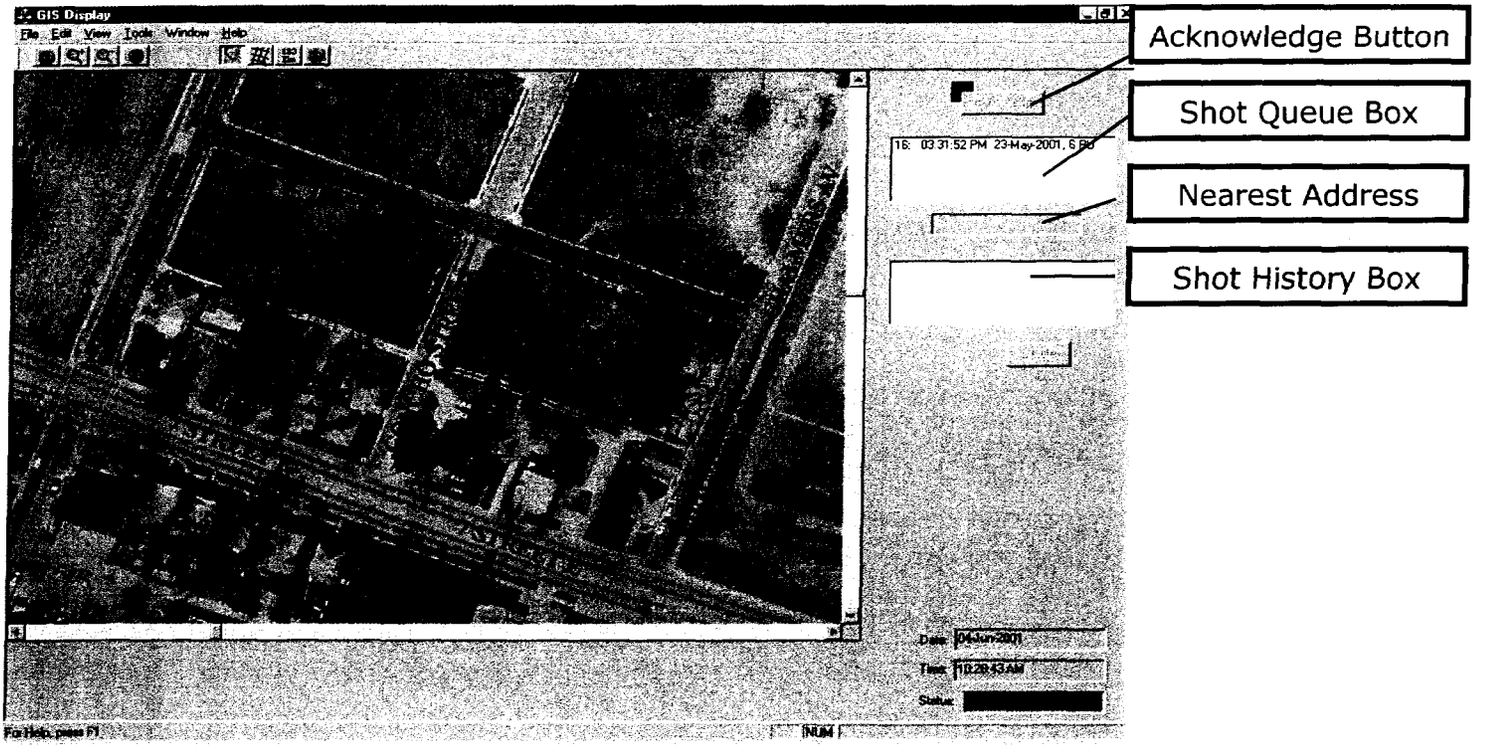
Zoom In	The view is automatically changed to the Zoom In level when a shot is fired. Pressing this button has no effect when the view is already at that level.
Zoom in One	This button zooms in one magnification each time the button is pressed.
Zoom Out One	This button zooms out one magnification each time the button is pressed.
Zoom Out	This button zooms out to the largest map area available.

- Describe the "Overlay" buttons on the toolbar:

Photo	This is the default view. It is an aerial photo of the installed area.
Streets	This overlay draws in the streets in dark blue so they are more distinct.
Addressing Points	The Addressing Points do not all currently have addresses associated with them (only buildings do) so this overlay does not add as much information for the user as the other overlays.
Buildings	This overlay draws the buildings on the map in brown. This makes it easier to right-click a building to get its nearest address.

Additional Instructor Notes

A Shot is Fired



Instructor Notes

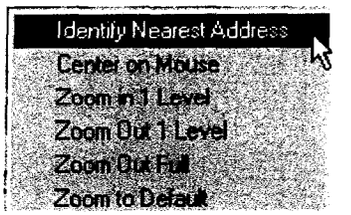
- This page shows a screen and location of a shot that was fired, before it is acknowledged.
- The instructor should note the detail depicted on the screen and its capacity to create a detailed "word picture" for dispatch to the field.
- Specific processes for software manipulation follow.

Additional Instructor Notes

A Shot is Fired

When a shot is fired:

1. The GIS screen will beep, and the shot will show up in red on the screen
2. Left-click the mouse on the shot in the Shot Queue box
3. Left-click the Acknowledge screen button
4. The shot information will move to the Shot History box and the shot color changes to green
5. Right-click on the closest building, choose "Identify Nearest Address" from context menu (If no address information appears, right-click on another building. The building will change color when its address appears.)
6. Address will appear above Shot History box



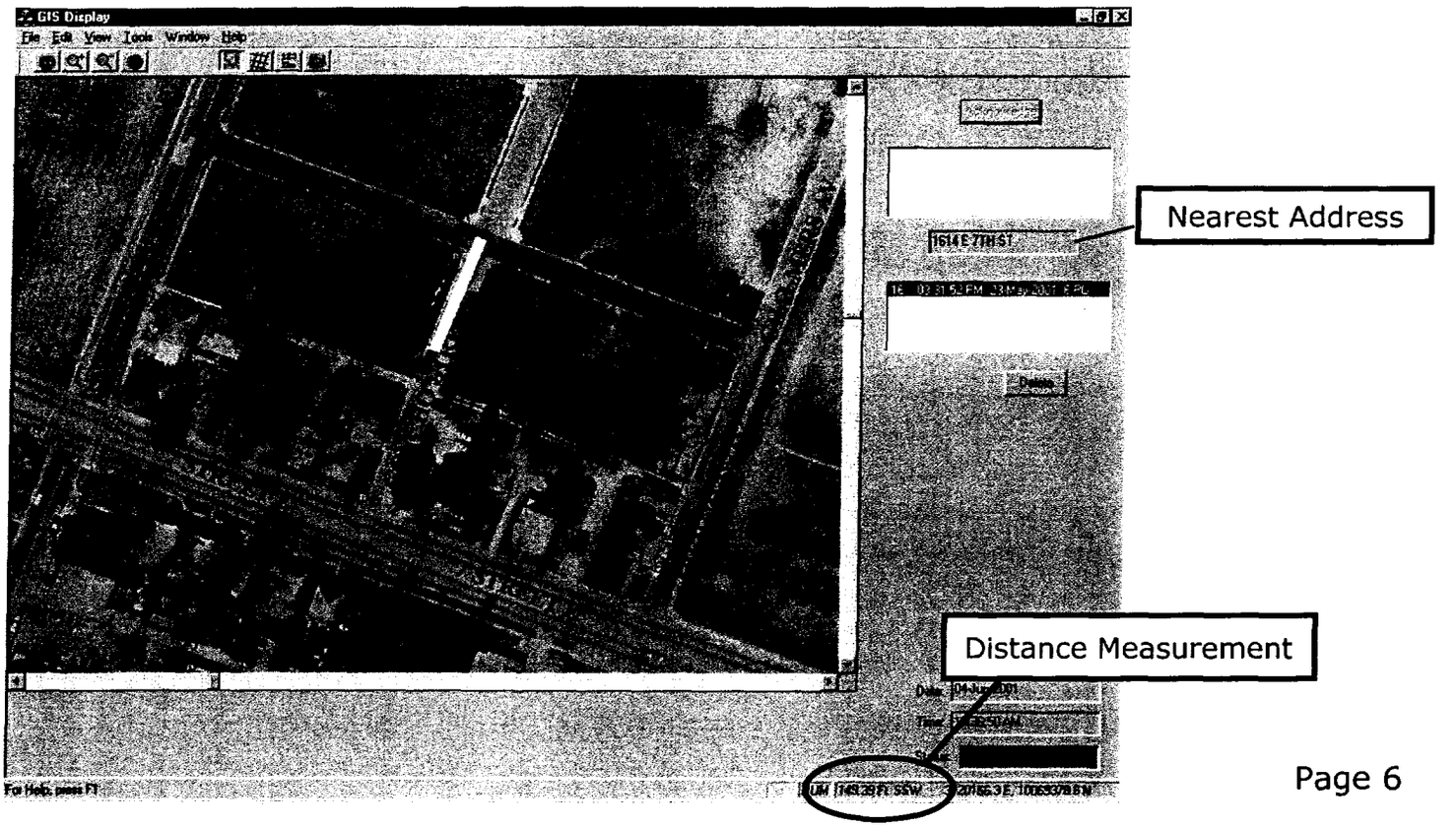
Note: "Identify Nearest Address" doesn't work if an object besides a building is chosen. For instance, it does not work on trees or cars.

Instructor Notes

- This is a companion page to the previous page
- This page gives instruction on how a shot is acknowledged and how address details are determined for dispatch purposes.
- The instructor can demonstrate with a sample shot file, showing the "Identify Nearest Address" feature from several buildings. If software demo is in use.
- Also, the instructor can show how to tell a building from trees, cars, and other features on the photo if software demo is in use. (Building overlay tool on toolbar)

Additional Instructor Notes

Measure Distance



Instructor Notes

- This page illustrates how to do measurements in feet from objects that enables the creation of a detailed word picture for dispatch.
- The main thing to point out on distance measurement is to make sure that the students look at the right number. The numbers to the far right corner are GIS co-ordinates, and are not relevant.
- The distance measurement number is the one directly to the right of the NUM indicator.
- Also, it's important to start the drag motion from the reference point, such as a building or street intersection, and go toward the shot. This will give the correct map direction on the distance measurement indicator.

Additional Instructor Notes

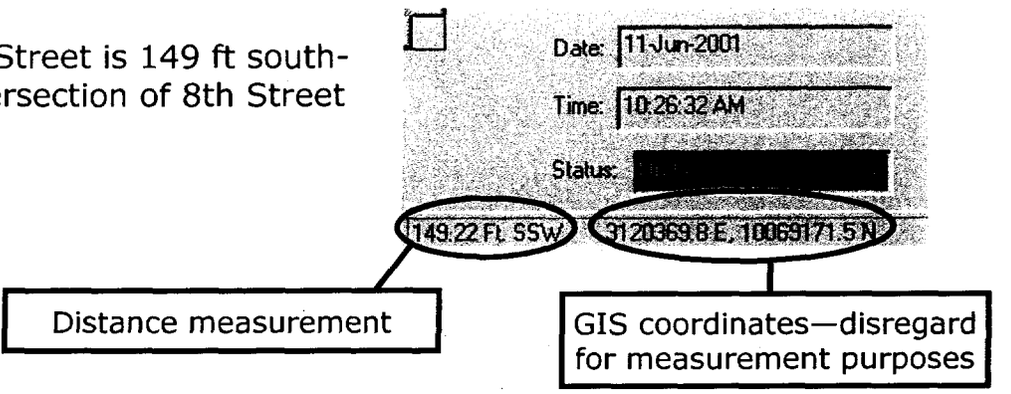
Measure Distance

To measure distance on the screen:

1. *Double-click and drag from any point to the shot.*
2. The display in the bottom right corner of the screen will tell the distance in feet, and direction from the beginning to end of the mouse drag. *This number is* found just to the right of the NUM lock indicator.

For example:
The illustration on Page 6 shows the following measurement:

> The shot on Concho Street is 149 ft south-southwest of the intersection of 8th Street and *Concho* Street.

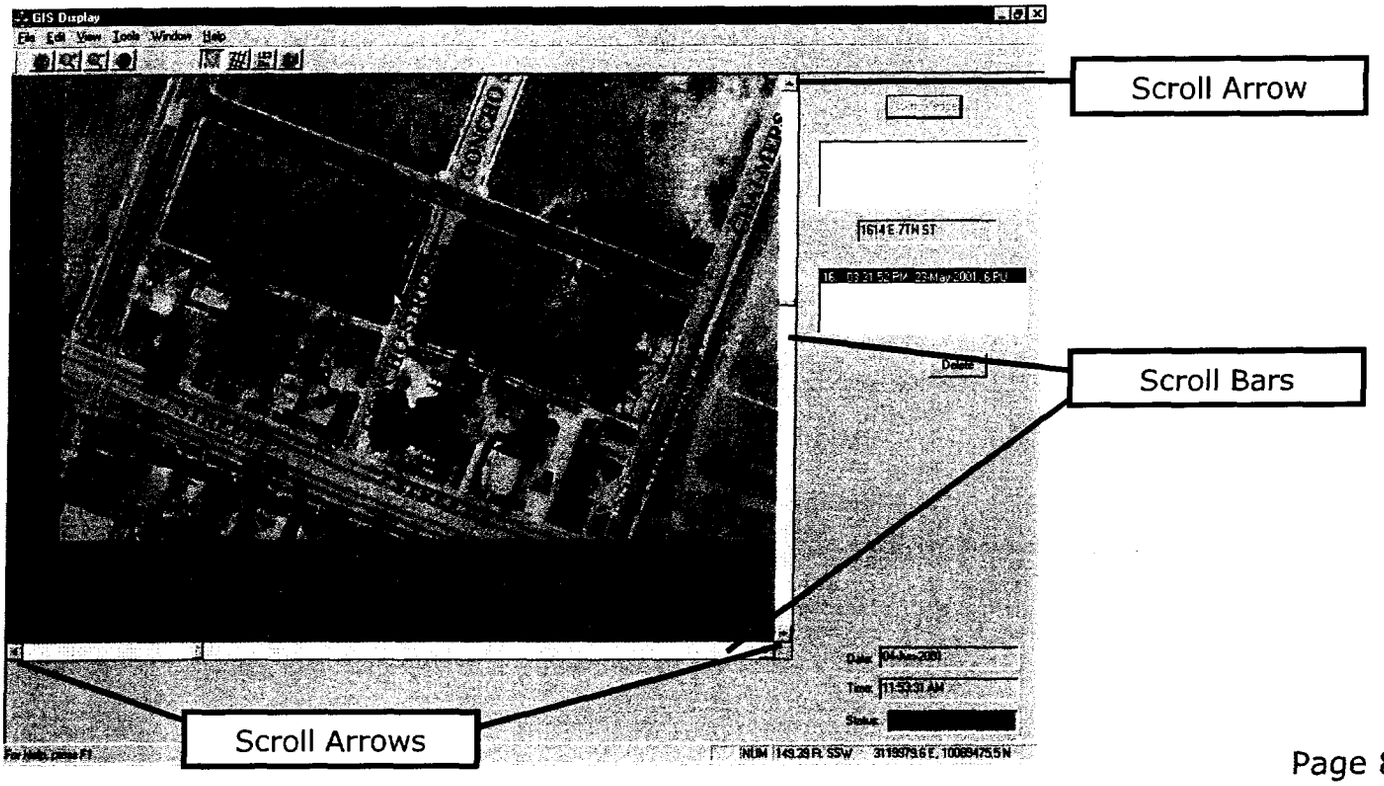


Instructor Notes

- This is a companion to the previous page
- This page gives detailed instruction for making measurements with the software.
- The instructor can demonstrate by measuring the distance from several different landmarks, pointing out the measurement in the bottom right corner of the screen *if the demonstration software is being used.*

Additional Instructor Notes

Manipulate the Display



Instructor Notes

- This page shows the scroll capacities of the software.
- Scrolling may be needed if multiple shots are reported and the direction and distance between them is important.
- The instructor should discuss the fact that a drive by shooting or chase involving shots fired creates multiple shots and this system can determine the direction of travel for a vehicle or someone on foot.

Additional Instructor Notes

Manipulate the Display

Point and left-click on the image.
Then, drag the mouse to move the image within the window.

You may also use the scroll arrows and bars to move the image within the window.

The scroll arrows allow small scrolling movements.
The scroll bars allow larger movements.

Note: Be aware that the **scroll bars** are very sensitive, and a big drag movement may drag the entire image off the screen.

Instructor Notes

- This is a companion to the previous page.
- The instructor can demonstrate how the image can "get lost" when using the scroll bars.
- Also, demo how the image moves in small increments with the scroll arrows.
- The best way to manipulate the image is by placing the mouse on the image and dragging it—the screen refreshes and shows the new image faster.

Dispatch Procedure

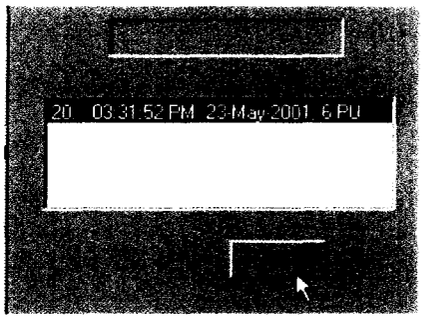
Notes

Instructor Notes

- This is a page reserved for note taking and should be mentioned earlier.

Dispatch Procedure

1. Acknowledge event on SECURES® computer
2. Determine location detail using SECURES® software
   a. Check for landmarks
   b. Click for address
   c. Use software for measurements
3. Prepare and deliver written dispatch as a Priority One call, Code One response
   a. Each event is a Priority One dispatch
   b. Officer response is Code One
4. Dispatch 2 officers
5. When officers go on scene, hold traffic until they advise Code Four
6. Supplement with 911 call information if available
   a. Create second call if sufficient information is received
7. Print 3 copies of event on SECURES® color printer
8. Reset SECURES software® by left-clicking each shot in the Shot History Box, then left-click the Delete screen button



Instructor Notes

- Mention note taking space on facing pages.
- The instructor should elicit interaction from the students by asking questions about their view of the system.
- Remind the students this is a test of the system and new ideas from them are welcome and appreciated.
- Emphasize the need for a detailed word picture for dispatch that includes addresses and measurements.
- We need their input and will adjust the system if needed based on their input.

Additional Instructor Notes

Field Requirements

1. Receive as Priority One
2. Proceed as a Code One response
3. Two officers are dispatched
4. Check out the immediate scene area
    a. Subjects in area
    b. Vehicles in area
    c. Evidence of firearms discharge
    d. Shell casings
    e. Damage to buildings and property
    f. Other signs
5. Notify dispatch
6. Investigate the scene
7. Write a report

Instructor Notes

- The instructor should elicit interaction from the students by asking questions about their view of the field requirements when mentioning the above information.
- Remind the students this is a test of the system and new ideas from them are welcome and appreciated.
- Emphasize the need for a more thorough field response to "shots fired" with this system in place because the information available is now much more detailed.
- Evidence of firearms discharge includes fingerprints on casings and bullet damage plus any other thoughts the class might have.
- We need their input and will adjust the system if needed based on their input.

Additional Instructor Notes

Things to Remember When Responding and Investigating

1. Visual neighborhood canvass of the area
2. Subjects in the area
3. Vehicles in the area
4. Neighborhood interviews
5. Evidence of firearms discharge
6. Correlate with past history of specific targets in the area

Instructor Notes

- The instructor should elicit interaction from the students by asking questions about their view of the system and response potentials.
- Remind the students this is a test of the system and new ideas from them are welcome and appreciated.
- Emphasize the need for interviews and the fact you now know an incident occurred in someone's "front yard" for example.
- Mention this is new and better data than previous "shots fired" calls.

Additional Instructor Notes

Documentation and Report Writing

1. Utilize standard reporting format with narrative
2. Record specific location detail from dispatch
3. Report all actions taken
    a. Intelligence data
    b. Mapping analysis
4. Report any variance from expected norms
    a. System failures - Hardware and Procedural
    b. Officers' concerns/thoughts
    c. Unusual circumstances

Instructor Notes

- The instructor should elicit interaction from the students by asking questions about their view of the system and the report writing requirements.
- Remind the students this is a test of the system and new ideas from them are welcome and appreciated.
- Emphasize the need for detailed reports so the system can get a proper evaluation.
- Mention that problems with the system should be a part of their report– for example "there could not have been a shot fired" or "there was a backfire/firecracker discovered".

Additional Instructor Notes

SECURES®
Aerial Fireworks Incident Feature Enhancement

Instructor Notes

- This is an additional section to explain the changes in the system effective January, 2002.
- There is an accompanying PowerPoint slide show to help the instructor present the material.

Additional Instructor Notes

Adjustments to the SECURES System – January 2002

Due to concerns voiced by field APD Officers related to over sensitivity of the system and the resulting detection of fireworks incidents, the SECURES System has been modified from its original configuration. The following enhancements have been made:

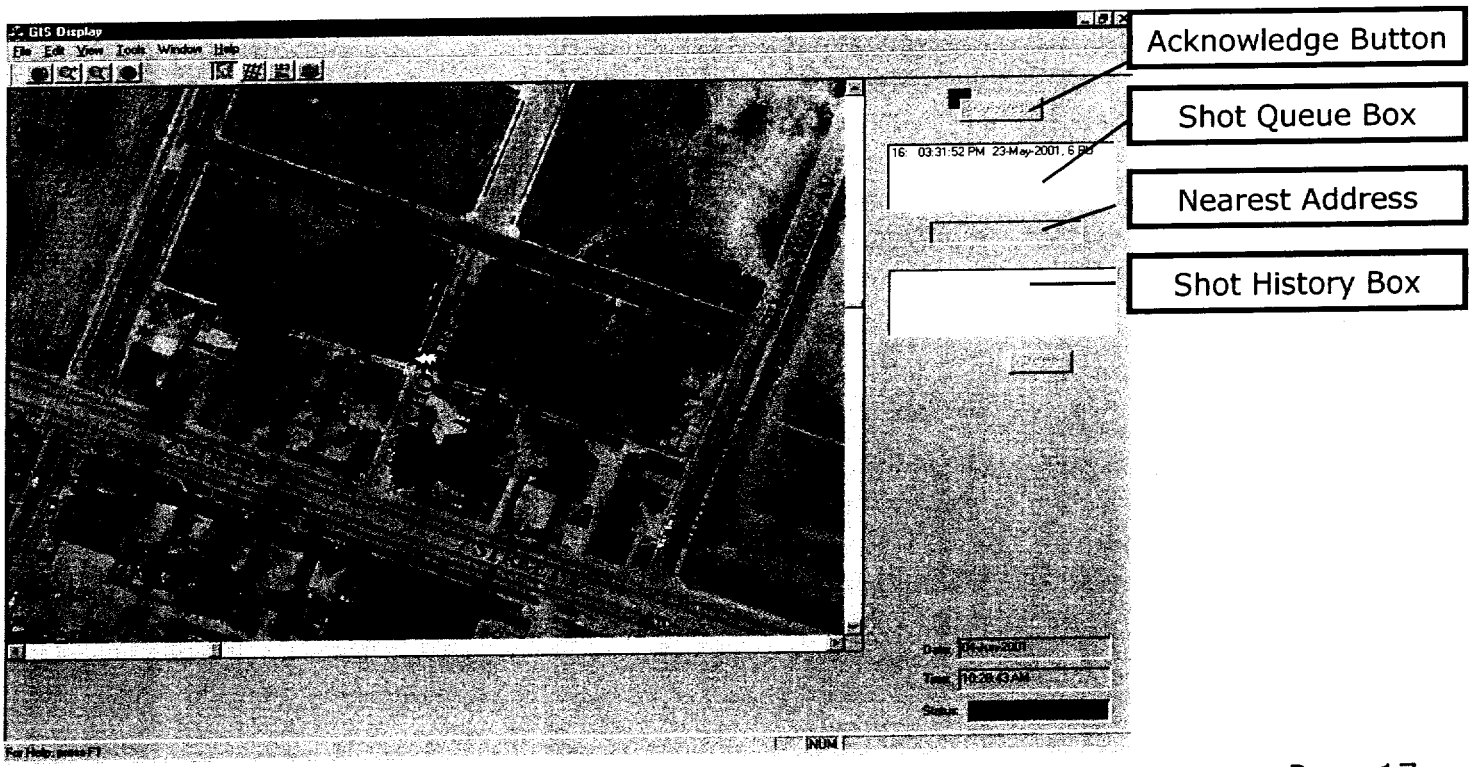
1. The hardware in each field sensor has been altered and "tweaked." These changes will greatly reduce the likelihood that ground level fireworks will be detected. PSI engineering tests indicate less than 3% of ground level fireworks incidents will activate the system.

2. An aerial location element has been incorporated into the triangulation software. This new element will allow dispatch to detect aerial incidents (fireworks such as bottle rockets) and differentiate such activations from ground level incidents. The system will record these incidents as a **yellow dot** rather than a red dot. The presence of a **yellow dot** on the SECURES dispatch screen will indicate an aerial incident occurred and no dispatch response to field officers will be initiated. This information will be retained for "information only" purposes and for correlation with 911 requests for service.

Instructor Notes

Additional Instructor Notes

Aerial Fireworks Incidents (No Dispatch Required)



Instructor Notes

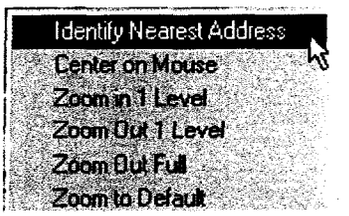
Note that the incident displays in yellow, not red as in a gunshot incident

Additional Instructor Notes

Aerial Fireworks Incidents (No Dispatch Required)

When an aerial fireworks incident occurs:

1. The GIS screen will beep, and the aerial fireworks incident will show up as a **yellow dot** on the screen (no dispatch required)
2. Left-click the mouse on the aerial fireworks incident in the Shot Queue box
3. Left-click the Acknowledge screen button
4. The aerial fireworks incident information will move to the Shot History box and the shot color changes to green
5. Right-click on the closest building, choose "Identify Nearest Address" from context menu (If no address information appears, right-click on another building. The building will change color when its address appears.)
6. Address will appear above Shot History box
7. No dispatch required



Note: "Identify Nearest Address" doesn't work if an object besides a building is chosen. For instance, it does not work on trees or cars.

Instructor Notes

Additional Instructor Notes

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DISCLAIMER

The Center for Society, Law and Justice makes no warranty, expressed or implied, with respect to the continuing quality, correctness, accuracy or freedom from error of this document or the product it describes. Every effort has been made within this quick reference manual, in close association with PSI, to translate existing Austin Police Department Standard Operating Procedures (SOP's) into understandable, practical field dispatch and response activities. However, software is subject to update/modification and SOP's are subject to ongoing departmental interpretation/ modification. Such changes or interpretations will not necessarily be reflected in this document. If you have specific questions about the correct procedures related to using the SECURES® system, please consult directly with your supervisor(s).

Instructor Notes

- This is the disclaimer page.
- The requirement of supervisors to advise personnel of procedural changes is inherent in this disclaimer.

Additional Instructor Notes