

# CITY OF HOUSTON

Annise D. Parker  
City Controller

Steve Schoonover  
City Auditor



## CONDUCTED ENERGY DEVICE PROGRAM PERFORMANCE AUDIT

Report No. 2009-09

Mir & Fox  
Rodriguez, P.C.  
Certified Public Accountants



OFFICE OF THE CITY CONTROLLER  
CITY OF HOUSTON  
TEXAS

ANNISE D. PARKER

September 8, 2008

The Honorable Bill White, Mayor  
City of Houston, Texas

SUBJECT: Houston Police Department – Conducted Energy Device Program  
Performance Audit (Report No. 2009-09)

Dear Mayor White:

I am pleased to submit to you this independent Performance Audit Report of the Houston Police Department's (HPD) Conducted Energy Device (CED) Program overseen by Mir Fox & Rodriguez, P.C. (MFR). MFR assembled a multi-disciplinary audit team consisting of statistical; mathematical; information system; and criminology experts from the University of Houston, Center for Public Policy; Rice University; University of San Francisco; Sam Houston State University, College of Criminal Justice; and Prototype, Fusion, & Modeling, LLC.

The primary objectives of the engagement included determining: (1) compliance with procurement laws, ordinances, City Policies and Procedures, HPD Standard Operating Procedures, and HPD General Orders; (2) to what extent the HPD CED Program objectives were being met; (3) whether HPD was effectively managing the CED Program; (4) compliance with CED Program Policies and Procedures; and (5) HPD CED practices and comparing them to the Police Executive Research Forum's National Guidelines for CEDs.

The audit team performed a statistical analysis to analyze the frequency and variables of HPD CED calls for service/incidents for any notable patterns, aberrations, and/or adverse trends which may warrant further study. MFR also held six focus group sessions with HPD officers to discuss CED related performance and HPD policies.

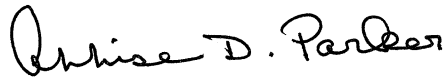
The report concluded that the CED has been a very effective intermediate weapon and HPD has been effectively managing the CED Program overall. Over the course of conducting the statistical analysis, however, the audit team found that the available data contained some patterns and/or aberrations related to gender, race, and geography. Additionally, the report identified approximately thirty recommendations for improvement in significant areas such as Policy, Training, Reports, Data Management Processes, Diverse Patrol Experiment, and CED equipment.

Draft copies of the matters contained in the report were provided to the Chief of Police and HPD Management. The Views of Responsible Officials as to actions being taken are appended to the report (Part VI).

Page 2

We enjoyed working with the HPD employees and appreciate their excellent cooperation with MFR during this audit.

Respectfully Submitted,

A handwritten signature in black ink that reads "Annise D. Parker". The signature is written in a cursive style with a large initial 'A'.

Annise D. Parker  
City Controller

xc: City Council Members  
Anthony Hall, Chief Administrative Officer  
Michael Moore, Chief of Staff, Mayor's Office  
Harold L. Hurtt, Chief of Police  
Charles A. McClelland, Executive Assistant Police Chief  
Michelle Mitchell, Finance Department  
Alfred Moran, Jr., Director, Administration and Regulatory Affairs Department

September 3, 2008

Controller Annise D. Parker  
Office of the City Controller  
City of Houston  
901 Bagby, 8<sup>th</sup> Floor  
Houston, Texas 77002

Re: Houston Police Department - Conducted Energy Device Program - Performance Audit

Dear Controller Parker:

Mir•Fox & Rodriguez, P.C. (MFR) has completed the performance audit of the City of Houston's (the City's) Police Department (HPD) Conducted Energy Device (CED or commonly known as Taser) Program as outlined in our engagement letter dated March 30, 2007 under Contract No. 56546.

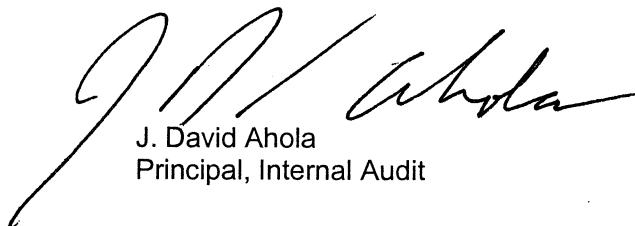
The purpose of the performance audit was to include determining to what extent HPD was achieving its CED program goals and objectives; complying with General Orders (GOs), City Policies and Procedures; and its Standard Operating Procedures. In addition, the audit was to determine whether the CED Program was being effectively managed. The audit did not address any potential medical implications as a result of receiving a CED electrical discharge. MFR formed a multidisciplinary performance audit team (Audit Team) consisting of experts from the University of Houston Center for Public Policy; Rice University; University of San Francisco; Sam Houston State University College of Criminal Justice; and Prototype, Fusion & Modeling, LLC.

Our overall conclusion, assessment, observations, and recommendations noted during our performance audit of the CED Program are presented in the attached report. Our procedures were performed through March 31, 2008 and have not been updated since that date. Our observations included in this report are the only matters that came to our attention based on the procedures performed.

This report is intended solely for the information and use of the City Officials, the Office of the City Controller, and is not intended to be used for any other purpose. The Audit Team is pleased to have been given the opportunity to work on this engagement and MFR greatly appreciated the cooperation received from your office and HPD.

Very truly yours,

Mir•Fox & Rodriguez, P.C.



J. David Ahola  
Principal, Internal Audit

JDA/ea

# CED PROGRAM – PERFORMANCE AUDIT

## TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	
Background	1
Objectives and Scope	1
Overall Conclusion	2
Assessment	3
Recommendations	15
Acknowledgements	19
Audit Team Contact Information	20
 PART I	
Mir•Fox & Rodriguez, P.C. Detailed Background and Audit Methodology	
Detailed Background	21
Audit Methodology	27
 PART II	
Mir•Fox & Rodriguez, P.C. Observations, Recommendations, and Corrective Actions	
HPD CED Focus Groups	29
CED Inventory Count	50
Digital Power Magazine	52
Training Cartridges	52
Unrecorded Inventory	53
Scanner	53
Spark Test	54
 PART III	
University of Houston Center for Public Policy A Statistical Analysis of the Use of Conducted Energy Devices by the Houston Police Department	
Summary	55
Background	59
Study Components	63
Data	67
Methods of Analysis	77
Results	79
Data Management	107
Conclusion	109
References	110

# CED PROGRAM – PERFORMANCE AUDIT

## TABLE OF CONTENTS

	<u>Page</u>
PART IV	
Sam Houston State University College of Criminal Justice A Qualitative Analysis of the Use of Conducted Energy Devices by the Houston Police Department	
Summary	111
Background	114
Study Components and Method of Analysis	118
Results of Compliance Review of Houston Police Department Incident Reports	120
Houston Police Department Incident Report Review	132
Houston Police Department Training Academy - CED Training	139
Comments on UH CCP Team Statistical Analysis of the Use of CEDS	143
Recommendations	147
PART V	
Prototype, Fusion & Modeling, LLC Graphical Deployment Analysis	
Introduction	150
Background	150
Recommendation	156
CEDView Operating Manual	
Main Window	158
Menus	161
Panel Menu	163
GIS Panel	164
Query Panel	165
Timeline Panel	169
Info Panel	171
Example	172
PART VI	
Views of Responsible Officials	174

# CED PROGRAM – PERFORMANCE AUDIT

## EXECUTIVE SUMMARY

### BACKGROUND

On November 3, 2004, the City of Houston (City) contracted to purchase 4,227 Conducted Energy Devices (CEDs) with the related consumables, including CED cartridges and other supplies for \$4.68 million. The City's contract for the Taser X-26 model CEDs has a five-year "no questions asked" replacement warranty.

A CED is the technically correct name for the device commonly referred to by the brand name Taser. In the *probe mode* this device propels probes that are attached to wires with a 21 foot range that conducts sufficient energy to cause neuromuscular incapacitation (i.e. uncontrolled muscle contractions that override an individual's voluntary motor response). In the *drive stun mode* a CED with no cartridge or a spent cartridge is placed in direct contact with the body and is discharged. The *drive stun mode* is generally the secondary option used by the officer. A cycle is defined as each time the officer pulls the trigger on the CED. The duration of a CED electrical discharge is a minimum of five seconds per cycle. CEDs have a computerized memory that tracks deployment data which can be downloaded for later review.

In conjunction with the purchase of the CEDs, HPD developed a CED Program that included CED policies, procedures, and related training for the patrol officers. HPD's policies state that CEDs are classified as **intermediate weapons**<sup>1</sup> and are **not a substitute for lethal force**. HPD's CED Program has the following objectives:

- Assist officers in securing and controlling combative individuals,
- Reduce injuries to officers and suspects,
- Reduce financial impact of civil liability in use-of-force calls for service/incidents, and
- In limited situations, provide an alternative to deadly force.

### OBJECTIVES AND SCOPE

Objectives of our HPD CED Program Performance Audit were as follows:

- Determine compliance with procurement laws, ordinances, the City's Policies and Procedures, HPD Standard Operating Procedures, and General Orders (GOs).
- Determine to what extent the HPD CED Program objectives were being met.
- Determine if HPD was effectively managing the CED Program.
- Determine compliance with CED Program Policies and Procedures.
- Determine the HPD CED practices and compare them to the Police Executive Research Forum's (PERF) National Guidelines for CEDs.
- Perform a statistical analysis to analyze the frequency and variables of HPD CED calls for service/incidents for any notable patterns, aberrations, and/or adverse trends which may warrant further study.

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<sup>1</sup> Intermediate weapons are defined by HPD as:

- Baton
- Oleoresin Capsicum (OC) spray (commonly known as pepper spray)
- Soft impact weapon (i.e. Beanbag Shotgun)
- CED (i.e. stun gun or Taser)

The scope of the engagement was the period beginning January 1, 2000 through June 30, 2007 (the Scope period) with the CED Program being initiated in December 2004. The audit did not examine the issue of whether exposure to a CED deployment (or multiple deployments) has medical implications.

## OVERALL CONCLUSION

The CED has been a **very effective intermediate weapon** and has been widely accepted by most of the HPD patrol officers who were issued a CED. Additionally, HPD met its CED program objectives related to assisting officers in securing and controlling combative individuals. The chances of being subjected to a CED deployment are negligible. The CED is **not** deployed in over 99% of the calls for service/incidents. On 53 of 1,284 occasions the officers used the CED as an alternative to deadly force even though they were not required to do so by HPD policies and State law.

**HPD has been effectively managing the CED Program** and was generally in compliance with HPD and the City's Policies and Procedures, as well as the related procurement laws. HPD's CED practices were used to develop the PERF National Guidelines. However, HPD plans to revise its CED training to reflect certain CED situations encountered in the field. Also, HPD needs to provide additional training to officers who were reluctant to deploy their CEDs because of the related reporting requirements.

Over the course of conducting the statistical analysis, **the statistical team found that the available data contained some patterns and/or aberrations related to gender, race, and geography**. The lack of adequate data on suspect and officer characteristics (e.g., officer and suspect physical size, suspect criminal history) resulted in crucial potential explanatory factors being absent from the statistical analysis. Consequently, it is important to exercise considerable caution when making any inferences from the CED statistical analysis. With this caveat in mind, the results from the CED analysis suggest that certain combinations of officer and suspect characteristics resulted in an increased probability of CED deployment. Depending on the race of the officer and of the suspect, it was possible to see significant increases and/or decreases in the rate of CED deployment.<sup>2</sup> However, some of these differences disappeared or changed when looking at certain results at the City Council District level because there are more data items at the City Council District Level. Rather than making inaccurate inferences by using smaller subsets such as HPD Divisions, City Council Districts have the advantage of representing distinct regions of the City that are drawn with the approval of the U.S. Department of Justice (due to aspects of the Voting Rights Act); being mutually exclusive (for example, events can occur in one, and only one Council District); and being independent of any HPD or researcher decisions (Council Districts cannot be altered to affect the outcome of the analysis). In short, the use of City Council Districts as a control allowed the results to be analyzed more objectively.

Furthermore, HPD Management indicated that the City Legal Department would not provide the necessary data to assess HPD's objective related to reducing the financial impact of civil liabilities in use-of-force calls for service/incidents.

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<sup>2</sup> See PART III - TABLE 7a THROUGH 7c CED DEPLOYMENTS BY CITY COUNCIL DISTRICT for details.



The ambiguity in the statistical findings extended to the injuries analysis as well. For example, during the Scope period, there was inadequate data available to make a determination related to suspects' injuries to compare with the CED cases. On the other hand, for officer injuries, where data existed, we found that the reduction in injuries to officers began prior to the introduction of the CED and related CED policies. **This downward trend of the reduction in injuries to officers continued throughout the Scope period.** With the passage of time (and more data) it will be possible to make a determination as to whether there are further reductions in officer injuries consistent with the timing of the CED policy.

Despite cooperation from HPD in providing the data, antiquated data systems, and a general lack of administrative staffing complicated the completion of the overall analysis. It should be noted that HPD is in the process of addressing these data management and processing issues by transitioning to a new database system, which should make data retrieval much easier. However for this particular study, data acquisition and processing problems associated with some data made it impossible to adequately control for important contextual variables in the statistical analysis.

## ASSESSMENT

The assessment was performed by the Audit Team that consisted of experts from Mir•Fox & Rodriguez, P.C. (MFR); the University of Houston, Center for Public Policy (UH CPP); Rice University; University of San Francisco; Sam Houston State University, College of Criminal Justice (SHSU CCJ); and Prototype, Fusion & Modeling, LLC (PFM). MFR led the Audit Team and provided the performance audit, accounting, information system (IS), and internal control expertise. UH CPP provided statistical expertise and coordinated with mathematical experts from Rice University and the University of San Francisco. UH CCP also coordinated with Geospatial and IS experts from PFM. SHSU CCJ provided criminology and mathematical expertise.

The Audit Team performed various tasks including:

- Analyzed HPD CED GOs and related Policies and Procedures,
- Reviewed data management processes,
- Analyzed CED deployments,
- Reviewed Geo-Coordinates,
- Reviewed CED related inventory,
- Determined the effectiveness of a CED in controlling a suspect,
- Analyzed the number of CED cycles used when deployed,
- Analyzed the impact of alcohol and/or drugs consumed by suspects who were subsequently subjected to a CED deployment,
- Reviewed injuries to officers,
- Reviewed HPD Training Academy (Academy) CED related training,
- Analyzed suspect complaints related to CED deployment,
- Determined who initiated the call for service as well as the nature of the call related to CED deployment,
- Analyzed the use of a CED instead of deadly force,
- Performed statistical analysis of call for service/incident reports for the Scope period, and
- Conducted HPD Officer Focus Group Sessions.

Based upon the results of performing these tasks, the Audit Team's assessment is summarized as follows:

### **HPD CED GOs and Policies and Procedures**

HPD's CED policies were effective in accomplishing the CED program objectives. The majority of the calls for service/incident reports reviewed<sup>3</sup> indicated that the officer used the CED in compliance with HPD policies.

The Audit Team was able to review all 1,284 of the hard copy CED incident reports that were recorded. During the audit we noted that an Executive Assistant Police Chief was assigned to oversee the CED Program and he was reviewing each CED incident report. However, documented evidence of his review was not present in the early stages of the CED program. According to HPD Management, other incident reports are not subjected to the same review and signature process.

### **Data Management Processes**

The process for collecting the data raised some important issues that affected the statistical analysis for this audit. The Audit Team found HPD personnel to be fully cooperative in all requests for information. However, there were complications in acquiring and assembling the data as the data collection process was underway.

For example, HPD fielded approximately 2.8 million calls for service that resulted in approximately 1.4 million service/incident reports which were recorded in multiple databases during the Scope period. Approximately 48% of the 1.4 million electronic police calls for service/incident reports did not contain suspect information (e.g., the incident was reported after the suspects had long left the scene of the incident, no suspect was involved in the incident, and/or no information on the suspect was collected). The addition of key explanatory variables (suspect race/ethnicity, Uniform Crime Report (UCR) code, zip code of incident location, City Council District of incident location) resulted in the exclusion of approximately 110,000 cases while the lack of officer data for an incident led to the exclusion of approximately 50,000 additional cases. This left the Audit Team with a final analysis population of approximately 570,000 merged records (the Analysis Population).

The original electronic data was of poor quality, incomplete, inconsistent, and retrieval was difficult. The physical size (weight, height) of the suspect was often not recorded in either the electronic or hardcopy reports and, if it was, we noted that the majority of the suspects were 175 pounds. Included in the approximately 730,000 calls for service/incident reports were 1,284 incidents where a CED was deployed. Only 951 (75%) of the 1,284 CED deployments could be statistically analyzed primarily because of the data merging challenges. In summary, the Audit Team reviewed all 1,284 of the hardcopy CED calls for service/incident reports. They did not include all of the 1,284 reports in the statistical analysis because CED incidents that were lost during the electronic data merges would have biased the results of the analysis.

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<sup>3</sup> One of the difficulties in conducting any research and/or analysis based on incident reports is that the researcher does not have the capability of independently assessing the accuracy of what is reflected in the reports.

The current structure for data management is organizationally deficient and under-staffed. This combination of factors may produce inefficiencies in data transmission, increases in measurement and coding errors, and an overall inability to create a template for connecting disparate pieces of information to support overall HPD Management processes. The implications are even more severe, however, if there are efforts to increase situational awareness for HPD officers that require data in real time.

HPD was fully aware of these data management challenges, but had insufficient resources to resolve this issue. We understand that HPD is firmly committed and is actively engaged in identifying a vendor to replace its present online offense report writing system with a more efficient and effective version or model than what is currently in place.

### **CED Deployments**

As of 2006, the City's population had the following racial/ethnic distribution: Latino (41.9%), Anglo (27.6%), African American (24.7%), and Other Groups (5.8%).

The Audit Team compared the **race/ethnicity of suspects** in the **Total Service/Incident Reports Analysis Population** to the race/ethnicity of the suspects noted by HPD in the **CED Service/Incident Reports**. The results of our comparison are as follows:

<b>Suspect's Race/Ethnicity</b>	<b>Total Service/Incident Reports Analysis Population</b>	<b>CED Service/Incident Reports</b>	<b>Difference</b>
<b>African American</b>	46.0 %	66.9 %	20.9 %
<b>Latino</b>	28.2 %	23.5 %	-4.7 %
<b>Anglo</b>	24.4 %	9.0 %	-15.4 %
<b>Other Groups</b>	1.4 %	0.6%	-0.8 %

Based on the above analysis, African American suspects were involved in a proportionally greater number of total Service/Incident Reports analyzed as well as CED service/incident reports. In addition, the proportion of CED Service/Incident Reports was 20.9% more than the total service/incident reports. The Latino, Anglo, and Other Group suspects were involved in proportionally less service/incident reports.

According to HPD, the Department-wide officer demographics during the scope period were as follows:

<b>Officer's Race/Ethnicity</b>	<b>Average for the Period January 1, 2005 through June 30, 2007</b>			
	<b>Male Classified</b>	<b>Female Classified</b>	<b>Total Classified</b>	<b>% of Total</b>
<b>Anglo</b>	1,268	126	1,394	53.2 %
<b>Latino</b>	529	49	578	22.0 %
<b>African American</b>	451	98	549	21.0 %
<b>Other Groups</b>	95	4	99	3.8 %
<b>Total</b>	<b>2,343</b>	<b>277</b>	<b>2,620</b>	<b>100.0 %</b>

The Audit Team compared the **race/ethnicity of officers** in the **Total Service/Incident Reports Analysis Population** to the **race/ethnicity of the officers** noted by HPD in the **CED Service/Incident Reports**. The results of our comparison are as follows:

<b>Officer's Race/Ethnicity</b>	<b>Total Service/Incident Reports Analysis Population</b>	<b>CED Service/Incident Reports</b>	<b>Difference</b>
<b>African American</b>	25.1 %	17.3 %	-7.8 %
<b>Latino</b>	24.3 %	27.9 %	3.6 %
<b>Anglo</b>	46.2 %	52.3 %	6.1 %
<b>Other Groups</b>	4.4 %	2.5 %	-1.9 %

Based on the above analysis, the positive values in the Difference column indicate the officer racial/ethnic group was involved in a proportion of CED events that was larger than the proportion represented by it for all HPD incidents in the Analysis Population. Negative values indicate the officer racial/ethnic group was involved in a proportion of CED events that was smaller than the proportion represented by it for all HPD incidents in the Analysis Population.

Our analysis further indicated that 803 officers deployed their CED for a total of 1,417 deployments during the Scope period that resulted in 1,284 service/incident reports summarized as follows:

<b>Number of Times an Officer Deployed a CED</b>	<b>Total Number of Officers</b>	<b>Total Number of Deployments</b>
1	492	492
2	156	312
3	90	270
4	26	104
5	23	115
6	7	42
7	1	7
8	4	32
9	2	18
10	0	0
11	0	0
12	1	12
13	1	13
<b>Total</b>	<b>803</b>	<b>1,417</b>

In the table above it should be noted that more than one officer may have deployed their CED related to an individual service/incident report.

## Geo-Coordinates

Within the Analysis Population, only 1,020 (79%) of the 1,284 CED incident reports could be analyzed primarily because of incomplete electronic data. Furthermore, the geographic information was missing from 30 of the 1,020 electronic CED call for service/incident reports. In addition, there was contradictory geographic information appearing in about 1,000 of the valid electronic call for service/incident reports in the Analysis Population. Among the errors that we noted, the key map address and zip code listed for a single call for service/incident did not coincide geographically. In some cases, the locations were up to 20 miles apart. According to HPD Management, the reporting address and the incident address may not be the same.

## CED Inventory

HPD requires each patrol officer to carry a CED with two cartridges on their Sam Browne (tool belt). The CED and related cartridges each have a unique bar code serial number that HPD maintains in a database at the Academy. MFR randomly selected 100 officers and recorded the serial numbers on their CED and cartridges. MFR traced all 100 of the CED serial numbers to the database records without exception. The database containing the inventory of cartridge serial numbers was not current. However, MFR traced the serial numbers for 110 of the 173 cartridges to the inventory records. We understand that the officer in charge of CEDs at the Academy plans to trace the remaining serial numbers to the inventory records once the records have been updated.

MFR noted that 26 of the 100 officers selected were not carrying their second CED cartridges on their tool belts as required by GO # 400-26. In addition, one of the 26 officers did not have either cartridge, meaning that their CED could not be deployed in the probe mode.

MFR further noted that the Digital Power Magazines (DPMs), commonly known as batteries, were being replaced on the CED devices at a high frequency. The lithium battery in the DPM does not appear to have the 10 year shelf life as claimed by the manufacturer.

As a partial test of the DPM, officers were required to spark test their CED at roll call. We noted that neither the roll call supervisors nor the officers attending roll call were in compliance with HPD spark test procedures. To obtain a replacement DPM, HPD requires the officers to go through a process that takes the officer away from his/her duties.

## Effectiveness of CED in Controlling a Suspect

During our audit of the call for service/incident reports that resulted in CED deployments, the device was reported as being effective in controlling the subject in 77% of the calls. **It should be noted that this does not mean that the device was effective in controlling the suspect's behavior with initial deployment or only one trigger pull or cycle of the CED.** In some cases, the officer deployed the device in probe mode and then resorted to using the CED in the drive stun mode. In other cases, the officer used multiple cycles in the probe mode to gain control of the suspect.

The reasons given in the call for service/incident reports that the CED was not effective in securing and controlling the suspect are summarized as follows:

<b>Reason for CED being ineffective</b>	<b>Percent of total number of calls for service/incidents</b>
The suspect appeared to be either under the influence of alcohol and/or drugs or experiencing some form of mental health crisis	11 %
Suspect's clothing (i.e. was too loose and/or too thick for the probes to penetrate)	4 %
One or both of the probes missed the suspect	4 %
Probes hit the subject who subsequently pulled them out	2 %
CED was defective and did not fire the probes	2 %
<b>Total Percentage</b>	<b>23 %</b>

### **Number of CED Cycles Used When Deployed**

When the trigger is initially pulled to deploy the probes which attach to a suspect, a five second pulse of electrical energy is transmitted into the suspect. This is known as the initial or first cycle. Should the suspect not comply with the officer's directions when the initial cycle is administered, the officer can continue to pull the trigger and administer additional pulses provided the probes are still attached to the suspect. The second and all subsequent trigger pulls transmit a minimum five second electrical pulse each time.

During our audit of the call for service/incident reports related to the deployment of the CEDs, we noted the following number of cycles being used:

<b>Number of Cycles</b>	<b>Percent of the total reports reviewed</b>
One cycle (the initial cycle)	38 %
Two cycles	31 %
Three cycles	15 %
Four cycles	5 %
Five cycles	3 %
Six through ten cycles	5 %
Greater than ten cycles	3 %
<b>Total Percentage</b>	<b>100%</b>

HPD has a policy that requires the officer to reevaluate after each cycle; however, the policy does not limit the number of cycles that should be deployed. While there are legitimate reasons for not limiting an officer's discretion to use multiple cycles, it is suggested that incidents in which the CED is cycled more than five times be closely reviewed for compliance with applicable GOs.

**Impact of Alcohol and/or Drugs Consumed by Suspects**

In 15% of the calls for service/incidents, the call for service/incident reports indicated that the subject appeared to be under the influence of alcohol. In 27% of the calls for service/incidents, the reports stated that the subject appeared to be under the influence of drugs and/or possessing drugs.

Officers did not note in their written call for service/incident reports whether the subjects appeared to be under the influence of drugs and/or alcohol in 58% of the calls. The Audit Team did not attempt to determine whether the officer, if asked, would have said that drugs and/or alcohol might have been a contributing factor to the behavior which resulted in the need for the deployment of the CED. However, it is highly likely that a significant percentage of these subjects were under the influence of drugs and/or alcohol given the behavior that was described by the officer in the call for service/incident report.

**Injuries to Officers**

Since June 2004, the estimated total number of Workers' Compensation claims by the officers decreased by an accumulated approximate 20%. This began in May 2003. Both the decreases in claims and claim amounts began prior to the incorporation of the CED program at HPD. This downward trend continued through the Scope period. With the passage of time it may be possible to determine if there was yet further reduction in the number of Workers' Compensation claims consistent with the CED policy.

Year	Number of Claims	Total Claim Amount
2000	255	\$ 1,494,341
2001	278	1,668,954
2002	276	1,095,361
2003	283	2,233,479
2004	271	1,563,661
2005	258	1,152,195
2006	233	738,028
January through June 2007	117	\$ 105,900

## HPD Training Academy-CED Training

A SHSU CCJ member of the Audit Team attended the actual training received by cadets at the Academy. The students and instructors were observed during the classroom and hands-on portions of the training by the same SHSU CCJ team member who had read and analyzed the CED service/incident reports. During the observation, the team member paid particular attention to compliance with CED policy and whether any concerns noted during the analysis of the reports might be attributable to or influenced by the training provided.

There were numerous issues involved in the training of cadets on the use of the CED. There was a lack of emphasis placed on the potential danger to a suspect when numerous cycles are used after a CED was deployed, particularly on a suspect who might be at risk for excited delirium. According to the HPD GOs, excited delirium is a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, hostility, exceptional strength, or endurance without fatigue. Additional concerns center around the lack of training which more closely resembles actual situations such as a moving target, heavy clothing, cuffing a suspect who has been subjected to a CED deployment, and transitioning to another type of use-of-force if multiple cycles prove ineffective. Also, while each cadet deployed the CED, a demonstration of true proficiency under field conditions was not observed. **There was no requirement for every cadet to experience a CED deployment on themselves; however, the CED was deployed on volunteers from the cadet class.**

## Suspect Complaints Related to CED Deployments

There were 55 complaints filed pertaining to 59 officers. The disposition of complaints is summarized as follows:

<b>CED Complaints<sup>4</sup></b>	<b>Total</b>
No Disposition	12
Exonerated	13
Information	1
Never Formalized	2
Not Sustained	9
Open Case	4
Sustained	3
Unfounded	11
<b>Total CED Complaints</b>	<b>55</b>

<sup>4</sup> **No Disposition** – CED activity was not the focus of the complaint and the investigation found CED usage to be proper and appropriate.

**Exonerated:** Incident occurred, but was lawful and proper.

**Information:** No evidence to prove that an incident even occurred.

**Never Formalized:** Complainant refused to make a formal written statement or if a written statement was made, refused to swear or affirm that the statement was true (notarized).

**Not Sustained:** insufficient evidence to either prove or disprove justification for the incident.

**Open Case:** Investigation is on-going.

**Sustained:** Evidence is sufficient to prove the allegation.

**Unfounded:** Allegation is false or not factual.



The complaint analysis indicates that complaints in which a CED is mentioned have a distinctive racial propensity as follows:

<b>Officer's Race/Ethnicity</b>	<b>Total Classified Officers</b>	<b>Percentage of Total</b>	<b>Total Complaints by Race/Ethnicity</b>	<b>Percent By Complaints</b>	<b>Difference</b>
<b>Anglo</b>	1,394	53.2 %	27	45.8 %	7.4 %
<b>Latino</b>	578	22.0 %	9	15.2 %	6.9 %
<b>African American</b>	549	21.0 %	20	33.9 %	-12.9 %
<b>Other</b>	99	3.8 %	3	5.1 %	-1.3 %
<b>Total</b>	<b>2,620</b>	<b>100.0 %</b>	<b>59</b>	<b>100.0 %</b>	

Based on the above analysis, the positive values in the Difference column indicate the officer racial/ethnic group was involved in a proportion of CED complaints that was less than the percentage of Total Classified Officers. Negative values indicate the officer racial/ethnic group was involved in a proportion of CED complaints that was larger than the corresponding percentage of the Total Classified Officers.

### Initiation and Nature of Calls for Service

Based on our review of the call for service/incident reports, the source of the calls related to CED deployments was as follows:

<b>Source of Call</b>	<b>Percentage of Total Calls</b>
Officer dispatched	55 %
Officer initiated contact with suspect	33 %
Traffic related contact	12 %
<b>Total</b>	<b>100 %</b>

During our audit of the call for service/incident reports related to CED deployment we noted that the nature of the original calls for service could be summarized as follows:

<b>Nature of Call</b>	<b>Percentage of Total Calls</b>
Drug related (most calls were initiated by the officer)	15 %
Disturbance	15 %
Assault	13 %
Misdemeanors (e.g. driving while intoxicated, criminal mischief, and theft)	13 %
Traffic offense	11 %
Crisis intervention for suspects having a mental health issue	11 %
Family violence	7 %
Criminal trespass	6 %
Other felonies	6 %
Automobile theft	3 %
<b>Total Calls for Service</b>	<b>100 %</b>

The total CED deployments during the Scope period represent 0.47% of the approximately 273,000 individuals who were incarcerated in the City's Jail system.

## **Use of a CED Instead of Deadly Force**

The Audit Team identified the following inconsistencies related to the CED being an alternative to deadly force such as:

- According to the October 20, 2004 Request for Council Action (RCA), the CEDs were “to be used as an alternative to deadly force”.
- One of the objectives of the HPD CED Program was “in limited situations, provide an alternative to deadly force”.
- As part of CED training cadets were shown a videotape. In the video tape the Police Chief stated, in essence, that after introduction of CEDs in Phoenix that officer involved shootings went down by one-half and that it (CED use) was an alternative to deadly force.
- However, according to HPD GOs, CEDs are classified as intermediate weapons and are not a substitute for lethal force.

HPD Management did not believe there were any apparent inconsistencies.

There was no statistical evidence that the introduction of CEDs served as a substitute for the use of firearms by an officer. The results of the audit do not indicate a reduction in the number of officer involved shootings since the introduction of the CED. This is not surprising as the opportunities to use a CED instead of a firearm are very limited. For example, it would be highly unusual for an officer to rely on a CED if the suspect was armed with a firearm. With the passage of time, as well as the introduction of the collection of data for intermediate weapons, it may be possible to determine additional consequences, if any, of the CED policy.

On 53 of 1,284 occasions the officers used the CED as an alternative to deadly force even though they were not required to do so by HPD policies and State law. It should be noted that just because the officer would have been legally justified in using deadly force, it does not mean that the officer would definitely have chosen this option if not for being equipped with the CED. However, a review of the reports indicated situations in which other intermediate weapons were unlikely to have been used due to officer safety concerns: thus, if the CED had not been available, the use of deadly force would have been more likely.

## **Statistical Analysis of Call for Service/Incident Reports**

With regard to the call for service/incident reports, the results from the CED statistical analysis suggests that certain combinations of officer and suspect characteristics result in an increased probability of CED utilization. For example, depending on how the race of the officer and suspect were paired, it was possible to see either significant increases or decreases in the rate of CED utilization. The Audit Team noted deviations from these general demographic patterns when the analysis was performed at the City Council District level.

Numerous statistical and research design challenges had to be overcome. As previously mentioned, only 52% of the electronic call for service/incident reports for the Scope period could be statistically analyzed. In addition, only 75% of the CED call for service/incident reports could be statistically analyzed without compromising the validity of the overall analysis.

Due to data limitations, only a limited amount of statistical controls were used. However, the importance of statistical controls cannot be overstated since they affect the strength of the General Observations noted below. For example, when the Audit Team controlled for City Council Districts the relationships between officers and suspects disappear or change.

- The likelihood of having a CED involved in a call for service/incident is approximately 0.08%. In other words, for every 10,000 calls for service/incidents 8 involved the use of a CED.
- Among officers, there are no gender differences in the overall likelihood of using a CED.
- African American officers were much less likely to use a CED than Anglo or Latino officers. Yet when controlling CED incidents by City Council Districts, African American officers may use a CED at the same rate as their Anglo counterpart.
- Latino and Anglo officers were equally likely to use a CED.
- African American suspects were much more likely to be involved in a CED incident than Anglo or Latino suspects. Latino suspects were somewhat more likely to be involved in a CED incident than Anglo suspects.
- Male suspects were much more likely to be involved in a CED incident than female suspects.
- African American officers were much less likely to deploy a CED than Anglo and Latino officers when a suspect was an African American. African American officers were equally likely to deploy a CED as Anglo and Latino officers when the suspect was an Anglo. When the suspect was a Latino, African American officers were equally likely to deploy a CED as Anglo officers and somewhat less likely to deploy a CED than Latino officers.
- CED incidents were much more common in Council Districts D and H than in all other Districts.

## HPD Officer Focus Group Sessions

Six Focus Groups were formed with approximately 25 officers each to discuss CED related performance and HPD policies. The significant observations made by the officers were as follows:

- The majority of the officers claimed that the CED was an effective weapon and that they wanted HPD to continue using it.
- Several officers claimed that the CED is becoming well known because once the suspect sees the laser dot from the CED on his/her body, the suspect pleads with the officer not to deploy the CED.
- Most officers wanted to retain the CED as an intermediate weapon; however, HPD needs to reduce the paperwork requirements related to call for service/incident reporting, cartridge, and DPM replacements to be similar to that of other intermediate weapons.
- Officers stated the need for more training in writing reports related to CED calls for service/incidents.
- Numerous officers appeared to need clarification on the applicable GOs for CEDs.
- Several officers want the CED to be optional for carrying, like the other intermediate weapons. Many of the officers commented on the weight of their tool belt, how it affected their ability to enter and exit their patrol cars, as well as how the tool belt weighed them down during a foot pursuit.
- Officers wanted the HPD CED policies to be changed so that they could use their CED on a suspect who was fleeing, as many of the officer were unsure how to apply the applicable GOs.

The following comments came to the Audit Team's attention and are not directly attributable to CEDs:

- Certain officers appeared to have a lack of trust for HPD executive management.
- Officers believed that executive management did not adequately support them.
- Officers really appreciated the opportunity to be heard. According to certain officers, until this session no one had asked them for their opinion on work related matters.

For more details of the issues summarized in this assessment please review the attached detailed report.

## RECOMMENDATIONS

The following recommendations are noted in the attached detail report.

### POLICY

HPD's policy on the use of CEDs is well written and in line with the best practices of the law enforcement profession. The problems with its implementation may be the result of training and supervision issues as opposed to the wording of the policy. However, we recommend that HPD consider altering the policy so as to:

- Require the CED download information to be incorporated into the initial report so that it can easily be obtained and reviewed. This should be in an electronic format. The current system does not allow for this recommendation to be implemented; it is suggested that this option be explored when designing the new system.
- Place additional training emphasis on the officer's evaluation of the situation after each CED deployment and before subsequent deployments.
- Perform a detailed assessment of all incidents in which the CED is used in excess of five cycles to determine compliance with HPD GOs.
- Require medical screening at the jail of any subject against whom a CED is deployed.
- Require immediate medical screening and transportation to a medical facility if a CED is deployed and the subject appears to be experiencing excited delirium. While the research that has been done on the physical effects of being shocked by a CED has not definitely concluded that deploying a CED on a person suffering excited delirium has an adverse effect, a majority of the studies strongly suggest that this particular group is the one most likely to be adversely affected. Given the sudden onset of the effects of excited delirium, it is suggested that a subject should be transported to the hospital immediately for medical care.
- Clarify when it is appropriate to use a CED on a subject who is fleeing from an officer. The HPD GOs set out the policy clearly, but the focus groups indicated there may be a lack of understanding in the implementation on the part of some officers.
- Provide for tracking of CED deployment and the number of cycles used in the HPD Early Intervention System (EIS).
- Continue to prohibit use of the CED by multiple officers at the same time. The HPD GOs set out the policy clearly; however, it should be emphasized in roll call training.
- Review and revise GO # 400-26 to have an internal review process to ensure that roll call supervisors are adhering to GO # 400-26. The review should be documented to evidence that the work had been performed.
- Review the policy related to the replacement of CED cartridges as the officers have such a reluctance in carrying their extra cartridge primarily because of their fear of losing and/or damaging it as well as the related paperwork.

## TRAINING

We recognize that the Academy has been called upon to train a large number of new cadets and to provide in-services training to the entire force. We recommend that the CED training continue to be reviewed. One of the tools that HPD has used that appeared to be particularly effective was the use of training bulletins and roll call training to emphasize certain aspects of the GOs. We recommend that the training be reviewed to:

- Determine whether additional scenarios should be included in the Field Problems Program or Simulations which specifically involve the use of CEDs in situations where the CED appears to be less effective.
- Continue to emphasize when a suspect's behavior is actively aggressive so as to warrant CED use. The call for service/incident reports reflect a lack of understanding by a small number of officers of the difference between passively resisting and aggressively resisting and the alternatives available to overcome the resistance.
- Continue to emphasize when it is appropriate to use a CED on a fleeing subject. Part of the training should be to demonstrate, or, at least, explain the risk to the subject of sustaining injury due to falling after being suddenly incapacitated. Also, training should emphasize the difficulty of actually hitting a fleeing subject with both darts.
- Demonstrate how a subject has difficulty in complying with orders given by an officer while being subjected to a CED deployment. For instance, have the volunteers who are subjected to a CED deployment, attempt to comply with common orders such as placing their hands behind their backs.
- Emphasize how to use the initial incapacitation period as an opportunity to gain control of the subject. For instance, demonstrate how to assume the proper position for handcuffing the subject.
- Continue to emphasize the risk to subjects of being placed in a position which impairs respiration after deployment of the CED. During the initial CED training, instructors should demonstrate handcuffing the subject in a manner which does not impair respiration and have cadets demonstrate proficiency. While it is understood that this is emphasized later in the cadet training, consideration should be given to demonstrating it during the initial training.
- Continue to emphasize how to accurately report the circumstances that warrant CED use including describing the actions of the suspect and any warnings given to the suspect.
- Emphasize actual situations faced by officers in the use of CEDs and incorporate different levels of use-of-force and how to transition from one type of use-of-force to another. For instance, add specific scenarios in which the excited delirium may be present and/or the CED is ineffective in controlling the suspect's behavior. It is recommended that the actual calls for service/incident reports and/or complaints be used as the basis for designing the scenarios.

- Continue to emphasize the signs of excited delirium and the proper steps to be taken to lessen the likelihood of serious injury if a CED is used. The training should continue to emphasize the potential danger to a suspect if the suspect is experiencing excited delirium and the need for immediate medical treatment.
- Continue to train on the various roles of officers during a call for service/incident where the CED is deployed. It is suggested that this be part of the scenario based training and that the various roles be given a designation so that officers are able to interchange the roles in the field. The current training films should be reviewed with an emphasis towards moving towards consistency in the message being delivered by HPD policy and training. It is recommended that the time currently being used to explain the workings and history of the CED would better be utilized to address some of the concerns noted in this report.

## **REPORTS**

The reports are generally well written, but there are areas of deficiency. There were concerns expressed during the Focus Groups related to reporting requirements surrounding CED use. We recommend that the report form and process be revised so as to:

- Continue to emphasize that the report should reflect the behavior that warranted the deployment of the CED.
- Provide a drop down menu where appropriate. For example, the menu could include a place to indicate whether a verbal warning was given before the initial and subsequent CED use and whether the subject voluntarily complied.
- Require the CED download information (a history of spark testing and deployments since the last download) be incorporated into the initial call for service/incident report when the new system allows.
- Require the new system to have the capability of generating geo-coordinates from addresses. Not only could geo-coordinates more accurately pin-point the location of an important scene, the geo-coordinates would also fit into the current scheme HPD uses for locating an incident. A geo-coordinate pair uniquely maps to one key map address, one zip code and one City Council District.

## **DATA MANAGEMENT PROCESSES**

Develop a process to enhance the forthcoming modernization in data management by means of a process audit. The current structure of data management seriously impairs efficient data processing and data acquisition. The audit would seek to identify, document, and merge efficient processes, remove impediments to efficient processing, and combine these methods with the new data processing capabilities now being acquired.

## **DIVERSE PATROL EXPERIMENT**

It is clear that a complex set of factors have yet to be investigated. Among these variables are measures (to be developed) that capture the threat that officers face, the general context in which the CED incident occurs, as well as the relation between an officer's productivity, arrest history, and his/her use of CEDs. In order to obtain a more thorough and complete understanding of the dynamics of these new variables we recommend that it would be advisable to conduct a series of natural experiments. These natural experiments would be designed to evaluate, for example, the role of officer and suspect race and ethnicity in the probability that a CED incident occurs.

## **CED EQUIPMENT**

The CED Equipment was adequately secured and generally accounted for by the Academy. The Audit Team identified and recommends that HPD consider the following areas for potential improvement:

- Consider installing bar code scanners in all police stations to facilitate the recording and issuance of the CEDs, cartridges, and DPMs. Furthermore, the scanners would be part of a centralized HPD CED tracking system that would contain the serial numbers of the CEDs and cartridges issued to each officer. To the extent possible and practical, the HPD CED tracking system should be incorporated into the new system being acquired.
- Review and assess the DPM failures and the amount of time officers are expending to get them replaced. Consider a more cost effective and efficient replacement process.
- Record the serial numbers of all CEDs and cartridges upon receipt from the manufacturer, and subsequent issuance to the officer.
- Implement a process to improve the controls over training cartridge inventory.<sup>5</sup>

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<sup>5</sup> Corrective Action: HPD has revised the training cartridge process. Process improvements include, the CED training cartridges are now a blue color and can be easily identified by HPD.



## ACKNOWLEDGEMENTS

The HPD executive team was very cooperative during the audit and facilitated our numerous and often very challenging information requests throughout the engagement. They made their best efforts to provide complete and accurate data to the extent that it was feasible and practical. In certain instances, extra hours had to be worked by HPD management and staff to obtain the available data for the Audit Team. The Audit Team would like to thank HPD for the opportunity to attend the CED training and to have the experience of deploying a CED. Certain members of the Audit Team also appreciated the opportunity to participate in HPD's Ride Along Program to gain an understanding of a patrol officer's normal work day.

The Audit Team would like to especially thank those officers who were randomly selected for the Focus Groups, for being very forthright with their observations and comments. Many of the officers had to extend their work day or attend on their day-off on short notice to be able to participate in these very productive sessions.

A special acknowledgement should be given to Executive Assistant Police Chief Charles A. McClelland and Sergeant George Alderete for the amount of extraordinary effort and patience they had with the Audit Team combined with their time for facilitating our meetings and information requests. Furthermore, they should be commended for their responsiveness to accept and implement certain recommendations during fieldwork. Last but not least we would like to thank Chief Harold H. Hurtt for his cooperation and support throughout the entire audit.

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Details of the assessment are contained in PART I through PART V of this report.

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**PART I**

**DETAILED BACKGROUND AND AUDIT METHODOLOGY**

## DETAILED BACKGROUND AND AUDIT METHODOLOGY

### DETAILED BACKGROUND

The CED is a relatively new electronic intermediate weapon where technology is often misunderstood. The purpose of this background section is to clarify certain common misunderstandings and to provide a basis for the detailed observations and comments in this report. This background section will describe:

- CED procurement
- CED program objectives and select policies
- The manufacturer's comments on:
  1. Who has purchased CEDs?
  2. Legal Liabilities and Risks
  3. CED Technology

#### CED Procurement

On November 3, 2004, the City Council awarded a \$4.68 million, five year contract (Number 56426) (the Contract) for the purchase of Taser X26 model CEDs, related consumables, and supplies to G.T. Distributors, Inc. (Contractor) and Taser International, Inc. (Manufacturer).

HPD issued CED policies subsequent to the purchase of the CEDs that classified CEDs as **intermediate** weapons.

Intermediate weapons are defined by HPD in GO# 600-17 as:

- Baton
- Oleoresin Capsicum (OC) spray
- Soft impact weapon (i.e. Beanbag Shotgun)
- CED (i.e. stun gun or Taser)

The HPD CED policy further states that CEDs are not a substitute for lethal force.

The following purchases for CEDs were made under the Contract:

Date	P.O. No.	No. of CEDs	Total Amount
11/15/2004	PG00010006809	3,700	\$3,408,388
3/31/2006	PG00010017886	395	437,380
6/5/2006	PG00010008078	132	125,832
<b>Totals</b>		<b>4,227</b>	<b>\$3,971,600</b>

According to the Contract, the CEDs shall be free from defects in workmanship and materials for a period of one year from the date of the Director's letter accepting the Taser Devices supplied to the City. Additionally, the Contractor and Manufacturer shall provide a "No Questions Asked" Extended Warranty on each Taser Device purchased by the City which shall begin the day following the expiration of the one year free warranty. The Contractor and Manufacturer shall provide each Taser Device purchased by the City, with the Warranty XDPM module programmed to reflect the five year warranty.

### **CED Program Objectives and Select Policies**

In conjunction with the purchase of the CEDs, HPD developed a CED Program that included CED policies, procedures, and related training for the patrol officers. The CED Program has the following objectives:

- Assist officers in securing and controlling combative individuals.
- Reduce injuries to officers and suspects.
- Reduce financial impact of civil liability in use-of-force calls for service/incidents.
- In limited situations, provide an alternative to deadly force.

HPD used a series of circulars and directives to provide the officers with HPD Policies and Procedures to meet the CED program objectives.

During the Scope period HPD amended existing and/or issued various circulars and directives to include the policies and procedures related to the CEDs. To reduce the confusion to the officers and based on the results of a CED conference hosted by HPD, the CED circulars and directives were consolidated by HPD into GO # 400-26 that was issued on March 26, 2007. The GO clearly states when an officer is to use a CED as follows:

"CEDs are authorized for use against suspects who are actively resisting or exhibiting active aggression, or to prevent individuals from harming themselves or others."

GO # 400-26 also requires that officers keep CED cycling to a minimum, especially against persons in an excited delirium, and use only the force necessary to apply traditional restraint devices and affect an arrest. Furthermore the GO defines excited delirium as a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, hostility, exceptional strength, or endurance without fatigue.

The officers are more accountable for the CED than any other intermediate weapon. The officers are required to complete documentation related to any use of the CED for example.

GO # 600-17 requires that:

"In every situation in which a CED is discharged (cartridge firing or drive stun), even if the suspect was not struck, officers will notify the Command Center and write a detailed incident report, and the on-scene supervisor will make a supplement."

Furthermore, officers are required to complete reports related to the replacement of CED cartridges and DPMs. Roll call sergeants are required to document their witnessing of each officer's CED spark test at the beginning of each shift.

## Manufacturer's Comments

To better understand (1) who has been purchasing CEDs, (2) certain legal liabilities and (3) risk as well as the technology related to the CED, MFR requested certain CED background information from the manufacturer of the TASER X26.

### 1. Who has Purchased CEDs?

TASER® is a registered trademark. The information provided by the Manufacturer is summarized below. MFR did not perform an audit on the data provided by the Manufacturer. The Manufacturer refers to the CED throughout their literature as an electronic control device (ECD).

The Manufacturer claims to have sold 327,000 units to over 12,500 law enforcement and U.S. military agencies, as well as law enforcement agencies in 44 countries overseas. Over 4,300 agencies provide CEDs specifically to all their patrol officers. According to the Manufacturer, their CEDs have been deployed approximately 470,000 times on suspects and 610,000 times on volunteers.

Largest Texas TASER X26 CED sales were as follows:

1. Houston Police Department
2. Fort Worth Police Department
3. El Paso Police Department
4. Harris County Sheriff's Department
5. Dallas Police Department
6. Lubbock Police Department
7. Austin Police Department
8. Pasadena Police Department
9. Montgomery County Sheriff's Department
10. Fort Bend County Sheriff's Department
11. San Antonio Police Department
12. Galveston Police Department

## 2. Legal Liabilities<sup>1</sup> and Risk

According to the Vice President and General Counsel of the Manufacturer:

*“Every law enforcement use-of-force creates some risk of civil and criminal liability and litigation. For force equipment manufacturers and distributors, there is civil product liability litigation risk. For law enforcement agencies there is civil risk and for individual officers there are civil and criminal excessive use-of-force liability and litigation risks under 42 U.S.C. § 1983 and state specific causes of action.*

*Law enforcement use-of-force risks and device manufacturer risks are separate and distinct liability and litigation risks. Manufacturers and distributors are not liable for excessive force claims and law enforcement agencies and individual officers are not liable for product liability claims.*

*The liability and litigation risk profile varies among the different use-of-force tools and techniques used by law enforcement. As a general rule, the greater the risk of injury to suspects caused by the use-of-force tool, the greater the risk of liability and litigation. Since the TASER® brand Electronic Control Device (ECD) has proven to significantly reduce injuries to suspects by up to 79%, and an estimated 9,000 lives have been saved by use of the TASER ECD, it has one of the lowest liability and litigation risk profiles of any use-of-force tool or technique. Courts have generally held that proper use of the TASER ECD is not excessive use-of-force and the reduction in use-of-force claims against law enforcement resulting from use of the TASER ECD is well documented and is one of the economic benefits of deploying TASER ECDs.*

*While TASER International, Inc. has been named in a number of product liability lawsuits arising from law enforcement use of the TASER ECD, TASER International has been successful in getting dismissals, summary judgments, or favorable jury verdicts in 51 lawsuits to date with more expected. The suspect injury or death lawsuits are frivolous and the plaintiffs have been unable to prove that the TASER ECD is defective or was an unjustified cause of any injury or death, both of which are essential elements to establish product liability. Autopsy reports and medical experts have determined that the cause of in-custody deaths have been due to complications from drug intoxication or pre-existing medical conditions and not from the TASER ECD.”*

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<sup>1</sup> According to HPD management, the City has been served with only one lawsuit related to a CED incident during the Scope period.

### 3. CED Technology

To better understand the underlying basics about electricity here are certain relevant facts:

- High voltage cannot cause injury if the current is very low.
- Low voltage CAN injure you if the current is high enough.
- CED devices operate at low average currents (0.0021 - 0.0036 Amperes).

A CED device produces 17-19 electrical pulses per second. Each electrical pulse mimics the electrical signal which is sent from the brain to the skeleton muscles causing the muscles to contract and release. One pulse causes a twitch; 17-19 pulses per second causes the appearance of a smooth contraction and the incapacitating effect.

While the CED device produces an initial 50,000 volts to create a spark that will transmit electricity through 2 inches of clothing, each short pulse of 400 volts actually enters the body. When compared to a static shock from a doorknob (35,000 to 100,000 volts) or a Van de Graff Generator (1,000,000 to 20,000,000 volts), a common display in science museums which makes your hair stand on end, each pulse from a CED with 400 volts and extremely low current is equally harmless.

When discussing how electricity will affect the human body, voltage becomes irrelevant without a discussion of the corresponding amount of electric current (measured in amperes). To say 400 volts is dangerous is inaccurate without also talking about the current associated with that charge. Voltage, even high voltage, alone does not harm or kill.

The average current delivered by a TASER X26 device is 0.0021 amperes or 2.1 mill amperes. Compare this with the average Christmas tree light bulb which has approximately 1 ampere of current, or the 16 amps from a typical 110-volt wall socket; it should be readily apparent that the extremely low current of a CED is safe.

To further put this into perspective, the “power plant” of a CED is two lithium batteries, similar to those placed in most digital cameras, which can produce approximately 100,000 CED electrical pulses.

The TASER X26 outputs 0.07 joules of energy per pulse compared to a cardiac defibrillator that operates at 360 joules per pulse.

The following is a schematic diagram of the technical components of a TASER X26:



**1. PROBES**  
Barbed probes hook into skin or clothing (No penetrator or not required)

**2. AFID TAGS (Anti-Felon Identification)**  
Serialized Identifi cation tracking device

**3. HIGH VOLTAGE INSULATED TASER WIRE**  
Up to 2' feet or 8.4 meters maximum range

**4. AIR CARTRIDGE**  
Reversed design allows for quick reloading over addresses

**5. NITROGEN PROPULSION SYSTEM**  
Clean inert nitrogen gas 1000 PSI launches probes at over 1100 feet per second

**6. MECHANICAL SIGHTS**  
In stainless steel

**7. SERIAL NUMBER PLATES**  
In stainless steel

**8. ILLUMINATION SELECTOR**  
Chooses between four modes: laser and light illumination, laser only, light only or a wall

**9. SAFETY (Ambidextrous)**  
AT&T ASLK X26 active holster and lights

**10. TRIGGER**  
Activates custom radio shaped pulse burst

**11. DPC (Digital Power Controller)**  
Microprocessor monitors the time between each shaped pulse to maintain a constant pulse rate across temperatures and battery variations

**12. DPM RELEASE BUTTON**

**13. ENHANCED GRIP ZONES**

**14. SHOCK PLATE**  
In stainless steel

**15. DPM (Digital Power Magazine)**  
All weather lithium power pack with integrated digital battery status (100 to 120% rated up to over 20 hours at 20°C with a 10-year shelf life)

**16. SHAPED PULSE GENERATOR**

**17. LASER SIGHT**  
High visibility deterrent optic targeting aid. Allows for easy, instant aiming.

**18. LOW ILLUMINATION LIGHTS**  
LED lights provide extra illumination of sight while holding the target visua lly.

**19. BLAST DOORS**

**20. CENTRAL INFORMATION DISPLAY (CID)**  
• 0-99% battery life when armed  
• Counts down seconds remaining during firing cycle  
• System diagnostics  
• Warning signals  
• Current system time and temperature  
• Alarm occur mode  
• 100 user only  
• On only flashlight  
• Laser & flashlight  
• CID off/hold every 100 minutes

**The Shaped Pulse Generator** is the technology revolution that made the X26 possible. Like the M26 before it, the X26 fires two probes up to a distance of 21 feet (6.4 meters), transmitting pulsed energy into the central nervous system of the target causing immediate incapacitation.

**INTRODUCING SHAPED PULSE™ TECHNOLOGY**

**BLUNT PULSE** → **90% ENERGY LOSS** → **NEW SHAPED™ PULSE** → **FULL ENERGY PENETRATION**

Previous generation conducted energy weapons use a single high-energy, "blunt" pulse to penetrate through the skin and clothing barriers that serve as protective armor around the body. Over 90% of the energy is lost in the process of barrier penetration.

The patent pending Shaped Pulse technology in the X26 uses a highly refined energy pulse that concentrates a small portion of energy to first penetrate the barrier, while the majority of electrical charge is held in reserve, flowing freely through the barrier once the leading edge has penetrated.

The dimensions of the X26 Taser (without cartridge) are as follows:

Length	6.00"
Height	3.20"
Width	1.30"
Weight	7.20 oz.

The length of the X26 Taser with cartridge is 7.25".

## DETAILED BACKGROUND AND AUDIT METHODOLOGY

### AUDIT METHODOLOGY

To accomplish the objectives and scope of this HPD CED Program Performance Audit, MFR formed a multidisciplinary team consisting of experts from the UH CPP, Rice University, SHSU CCJ, University of San Francisco, and PFM.

The Audit Team composition and audit methodology for each team was as follows:

#### **MFR Team**

The MFR Audit Team consisted of MFR professional internal auditors and information technology professionals. MFR focused on obtaining certain data that would be beneficial to all of the groups such as policies and procedures, background data, HPD GOs, and then facilitating data requests for the Audit Team.

MFR reviewed the internal controls related to the procurement and maintenance of HPD's CED inventory and related CED cartridges located at both the Academy and certain police stations. As part of the review, MFR conducted test counts and recorded the serial numbers of the actual CED and cartridges carried by a sample of 100 HPD officers. The test counts and related serial numbers were compared to the records maintained at the Academy.

MFR conducted six Focus Groups with approximately 25 officers in each group who had been issued a CED. The purpose of the Focus Groups was to obtain input directly from the officers related to their experience(s) with CED operations and related administrative matters.

#### **UH CPP Team**

The UH CPP Audit Team was comprised of experts from the University of Houston Center for Public Policy, Rice University, University of San Francisco, and PFM. UH CPP coordinated and led this group of experts in their quantitative analysis of the use of CEDs by HPD. The UH CPP and Rice experts statistically analyzed the HPD data in the categories of call for service/incident reports, injuries, complaints, and substitution of alternative intermediate weapons for more lethal weapons. Data sources for the Scope period came from the City Health and Safety Unit and HPD including the Crime Analysis Division, Technology Services, Training Division, Payroll Office, and the Internal Affairs Division.

PFM created a user friendly graphical database that interfaces with the statistical data analysis. The general public will be able to use the graphical database and perform their own analysis.

## DETAILED BACKGROUND AND AUDIT METHODOLOGY

### SHSU CCJ Team

The SHSU CCJ Team consisted of the criminology and certain mathematical research experts from SHSU and the College of Criminal Justice. They used qualitative analysis and observation to study several issues relating to the use of CEDs by HPD. SHSU CCJ reviewed all of the call for service/incident and on-site supervisor reports for each deployment of a CED for the period December 4, 2004 through June 30, 2007. The following issues were reviewed:

- When officers deployed a CED, were they responding to a call for service for which they were dispatched or did the officer self-initiate the call by making a traffic stop or otherwise encountering the subject?
- What was the nature of the original call for service?
- When an officer deployed the CED, how many cycles were used?
- In what percentage of the cases was the subject under the influence of alcohol and/or drugs when the officer deployed the CED?
- What appeared to be the effectiveness of the deployment of the CED?
- Were officers in compliance with HPD policy in the deployment of the CED and the reporting of the call for service/incident? If not, were factors present which made the deployment appropriate?
- Were there cases in which the CED was deployed where the officer would have been justified in using deadly force?
- During the training of cadets on the use of the CED, what was observed that might be affecting the manner in which officers will deploy the CED?

The SHSU CCJ Team also observed certain CED training classes at the Academy as well as reviewed certain HPD lesson plans that pertained to CEDs.

The results and observations from the three audit teams are consolidated into this report.



**PART II**

**OBSERVATIONS, RECOMMENDATIONS,  
AND CORRECTIVE ACTIONS**

**MIR•FOX & RODRIGUEZ, P.C.  
OBSERVATIONS, RECOMMENDATIONS,  
AND CORRECTIVE ACTIONS**

**TABLE OF CONTENTS**

	<u>Page</u>
HPD CED Focus Groups	29
CED Inventory Count	50
Digital Power Magazine	52
Training Cartridges	52
Unrecorded Inventory	53
Scanner	53
Spark Test	54

## OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

### HPD CED FOCUS GROUPS

#### Background

MFR analyzed the CED deployments by officer, and noted that 803 officers have deployed their CEDs during the Scope period as summarized below. Our analysis further indicated that 803 officers deployed their CED for a total of 1,417 deployments during the Scope period that resulted in 1,284 service/incident reports summarized as follows:

Number of Times an Officer Deployed a CED	Total Number of Officers	Total Number of Deployments
1	492	492
2	156	312
3	90	270
4	26	104
5	23	115
6	7	42
7	1	7
8	4	32
9	2	18
10	0	0
11	0	0
12	1	12
13	1	13
<b>Total</b>	<b>803</b>	<b>1,417</b>

In the table above it should be noted that more than one officer may have deployed their CED related to an individual service/incident report.

MFR formulated six groups of officers who had been issued Conducted Energy Devices (CEDs) to discuss their CED related issues. Officer in this context is defined as a classified employee of the following ranks: Officer, Senior Police Officer, Sergeant, and/or Lieutenant. Each group had approximately 25 participants. Each Focus Group session lasted approximately two hours.

### ***Focus Group Composition***

The preliminary results of the statistical analysis performed by the University of Houston Center for Public Policy (UH CCP) Team indicated that the deployment of CEDs varied between certain racial groups of officers. To gain a better understanding of the preliminary statistical results, six groups were formulated as follows:

#### *Focus Group One*

Officers were judgmentally selected from a list of all officers who were issued a CED and had never deployed their CED in the line of duty.

#### *Focus Group Two*

Officers were judgmentally selected from a list of African American officers who had either deployed or not deployed their CED in the line of duty.

#### *Focus Group Three*

Officers were judgmentally selected from a list of Latino officers who had either deployed or not deployed their CED in the line of duty.

#### *Focus Group Four*

Officers were judgmentally selected from a list of Anglo and Asian officers who had either deployed or not deployed their CED in the line of duty.

#### *Focus Group Five*

Officers were judgmentally selected from a list of officers (all races) who had deployed their CED less than five times in the line of duty.

#### *Focus Group Six*

Officers were judgmentally selected from a list of officers (all races) who had deployed their CED more than five times in the line of duty.

The officers that MFR selected for each group were required by HPD to attend their assigned focus group. MFR checked off their names on the selection list to ensure that the officers who were present were the ones asked to attend the focus group. Several of the officers expressed their appreciation for the opportunity to give their comments related to the CED and did so freely as there were no representatives from HPD executive level management attending the Focus Group sessions.

## OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

### ***Discussion Outline***

The discussion format for each of the six Focus Groups was the same and the MFR discussion leader used the following outline:

- Introduction - The discussion leader assured the officers that their identity would not be associated with their comments. The MFR auditors who served as note takers during each session were instructed not to record either the officer's name or badge number.
- Objectives and Scope of the Conducted Energy Device Program Performance Audit were presented to the officers.
- Officers were told that the purpose of the Focus Group meeting was to have an open discussion about CEDs to identify potential areas of improvement by HPD and/or the City.
- General discussion questions were as follows:
  1. Do you see the CED as an effective tool in securing compliance?
  2. Do you use the CED as a substitute for other intermediate devices (e.g. baton)?
  3. Do you feel that the CED is a safe tool to use?
  4. Would you like to see CEDs discontinued?
  5. Have you used your CED and then followed the use of the CED by another intermediate device(s) or your revolver?
  6. CED Training:
    - a. Do you feel that you have had adequate training related to the CED?
    - b. Do you feel other officers have had adequate training related to the devices?
    - c. What additional training do you feel is needed?
  7. Would you recommend that HDP/the City purchase the camera attachment for your CED? If so, why? If not, why not?
  8. Our preliminary statistical results indicated that African American officers use CEDs less than Latino and Anglo officers, both in general and for suspects of different races/ethnicities including African American, Anglo, and Latino. In your opinion and given your experiences, "What are the possible reasons for this difference?"
  9. Based on our preliminary results we found that African American suspects are more likely to be shocked by a CED than Latino, Anglo, and Asian suspects. In your opinion and given your experiences, "What are the possible reasons for this difference?"
  10. In light of the comments made here today, are there any HPD policies related to CEDs that HPD should consider for issuance and/or revision?
  11. Any other comment and/or recommendation related to CEDs that you would like us to consider?



## OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

The discussion leader asked the eleven questions in order to generate discussion within the group. MFR is pleased to report that each officer in each group made a contribution. Some officers contributed more than others.

### Observation

#### **Summary – Focus Group Comments**

There were numerous comments made by the officers to each of the discussion questions that are detailed later in this section of the report. The general overall responses made by each of the Focus Groups to each of the questions are summarized in the following table:

Discussion* Question	Group** One	Group** Two	Group** Three	Group** Four	Group** Five	Group** Six
1. Do you see the CED as an effective tool in securing compliance?	Yes (83%)	Yes (60%)	Yes (75%)	Yes (100%)	Yes (71%)	Yes (100%)
2. Do you use the CED as a substitute for other intermediate devices (e.g. baton)?	No (100%)	Yes (71%)	Yes (50%)	Yes (75%)	Yes (100%)	Yes (100%)
3. Do you feel that the CED is a safe tool to use?	Yes (100%)	Yes (70%)	Yes (75%)	Yes (100%)	Yes (100%)	Yes (100%)
4. Would you like to see CEDs discontinued?	No (100%)	No (100%)	No (100%)	No (100%)	No (80%)	No (100%)
5. Have you used your CED and then followed the use of the CED by other intermediate devices or your revolver?	No (100%)	No (100%)	No (100%)	No (100%)	No (90%)	No (90%)
6. Do you feel that you have had adequate training related to the CED?	No (90%)	No (90%)	No (100%)	No (70%)	Yes (75%)	Yes (100%)
7. Would you recommend that HDP/the City purchase the camera attachment for your CED?	No (100%)	No (100%)	No (100%)	No (100%)	No (100%)	No (100%)

\* Discussion questions are described in detail in the previous section *Discussion Outline*

\*\* As described in the *Background Section* of HPD CED Focus Groups.

- Group One - Officers who have not deployed a CED
- Group Two - African American Officers who may or may not have deployed their CEDs in the line of duty
- Group Three - Latino Officers who may or may not have deployed their CEDs in the line of duty
- Group Four - Anglo and/or Asian Officers who may or may not have deployed their CEDs in the Line of duty
- Group Five - Officers (all races) who deployed a CED less than five times
- Group Six - Officers (all races) who have deployed a CED more than five times

## Focus Groups General Responses, Continued

Discussion* Question	Group** One	Group** Two	Group** Three	Group** Four	Group** Five	Group** Six
8. Our preliminary statistical results indicate that African American officers use CEDs less than Latino and Anglo officers, both in general and for suspects of different races/ethnicities including African American, Anglo, and Latino. In your opinion and given your experiences what are the possible reasons for this difference?	African American officers may diffuse the situation verbally.	African American suspects have more respect for African American Officers, hence the CED is not required as often.	African American officers may diffuse the situation verbally.	African Americans do not think situations are out of control.	African American officers may diffuse the situation verbally.	African American officers may not have many violent suspects.
9. Based on our preliminary results we find that African American suspects are more likely to be shocked by a CED than Latino, Anglo, and Asian suspects. In your opinion and given your experiences what are the possible reasons for this difference?	African Americans tend to make more calls for services.	African American officers are familiar with dealing with diverse ethnic groups.	Calls for services tend to be higher in the African American communities.	African Americans are shocked more because they commit most of the crimes.	More African American suspects in high crime areas.	African American suspects will fight police before Anglo or Latino suspects will.

\* Discussion questions are described in detail in the previous section *Discussion Outline*

\*\* As described in the *Background* Section of HPD CED Focus Groups.

## Focus Groups General Responses, Continued

Discussion* Question	Group** One	Group** Two	Group** Three	Group** Four	Group** Five	Group** Six
10. In light of the comments made here today, are there any HPD policies related to CEDs that HPD should consider for issuance and/or revision.	Reduce the amount of internal paperwork related to CEDs.	Reduce the amount of internal paperwork related to CEDs.	Reduce the amount of internal paperwork related to CEDs.	Reduce the amount of internal paperwork related to CEDs.	Reduce the amount of internal paperwork related to CEDs.	Reduce the amount of internal paperwork related to CEDs.
11. Any other comment and/or recommendation related to CEDs that you would like us to consider?	Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.	Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.	Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.	Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.	Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.	Officers felt that they use the CED less in relation to other officers as they arrest more suspects.  Officers would like to have the option of what they can wear on their tool belt as many of them are running out of room for the CED and cartridges.

\* Discussion questions are described in detail in the previous section *Discussion Outline*

\*\* As described in the *Background* Section of HPD CED Focus Groups.

## **Detailed Focus Group Comments**

Specific noteworthy comments made by the officers during the Focus Group sessions in relation to the discussion question are as follows:

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

### **1. “Do you see the CED as an effective tool in securing compliance?”**

- “Absolutely, it saves lives.
- It depends on the situation.
- It’s just another tool to have.
- It’s simply an option.
- Good deterrent. It makes people think twice.
- It depends on the individual officer.
- The taser puts the suspects on the ground.
- Yes, the suspect is not going to fight with you when you ask them to get on the ground.
- It looks worse when someone is beaten with a baton or flashlight than when a suspect is tased.
- Presentation of the taser often secures compliance.
- Psychologically, it’s a threat when presented to the suspect.
- There is a lot more compliance when the suspect sees the device.
- Yes, if the person is on drugs and has beaten his wife.
- It’s a great tool when you are using it to protect yourself.
- It depends on the circumstances.
- Sometimes it works on a person and sometimes it doesn’t. It depends on the clothing and level of intoxication.
- Generally, an effective tool.
- It does nothing to help suspects on PCP (Phencyclidine is a hallucinogen similar to LSD but can be much more dangerous).
- It doesn’t work on drug abuse suspects.
- It doesn’t work on subjects with mental disabilities.
- It’s not the first step in securing control.
- It’s ineffective when suspects are so intoxicated that it seems like they are on drugs.
- Sometimes, the device has been known to fail to deploy.
- It depends on what you are dealing with at the scene.
- All the policies make the tool ineffective.
- The paperwork makes you think twice about using it.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**2. “Do you use the CED as a substitute for other intermediate devices (e.g. baton)?”**

- “Yes.
- The consequences are different for using it.
- Training and policies are different.
- Tenure plays a big part.
- It depends on situation.
- It depends on different factors (station you train with, shift, etc.)
- There is confidence that the taser will work.
- Demographical tenure determines the use of the taser.
- Once I give you my command and you don’t comply, I’m gonna help you. I have never discharged my weapon.
- It’s a good tool.
- It is a more advanced weapon and it is effective.
- It’s better than anything else we have.
- We use it when we’re in fear of getting hurt. When we’re being attacked by a heavy-set person.
- Absolutely. Before the taser, we used the baton or mace. These tools were ineffective because you had to get close. If you weren’t close, you would end up spraying other people with mace.
- It’s better than shooting someone and is less harmful.
- Yes, we are using it more because we are being trained more.
- It’s more effective than the pistol.
- The CED is more effective because pepper-spray gets into officers’ eyes even after getting in the patrol car.
- It’s a great tool. It should not be discontinued.
- If he (the suspect) has something in his hand, I am going to pull my gun.
- Forty years ago, we fought because we weren’t trained with tasers. There are so many elements that you have to decide before you use it.
- That’s how we react because of what could happen. We don’t think about policies.
- If a person is aggressive, we’re going to stop him. No, no, we gave you a command. We don’t worry about the consequences.
- In the old days, we would apprehend a person and write the letter tomorrow.
- We already know what we need to do before we get out of the car. It’s going to be my way.”
- An additional comment by most officers that had not deployed a CED, was that, “They would use it.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

## **2. Officer's responses continued:**

- “The department gave us this BS training. We go for what we know. If that's what you know, then you do what you know. I fight with these (puts up fists). If I happen to look at my belt, I realize, Oh, I got this thing right here. Let me use this taser. For years, we've done it this way (puts up fists)
- Hesitant to use CED because of the way the policies are written.
- Every time I come within pistol range (i.e. of the suspect) everything is fine. We played with it in roll call, but we found out it didn't click like it was supposed to sometimes.
- There's not enough time to figure out which one to use.
- The younger guys are more apt to use it.
- The taser is not reliable.
- It's not always the safest tool. Sometimes when suspects are tased, they pull darts out and officer has to threaten to shoot him/her.
- No, because face plates (i.e. blast doors) fall off.
- Reports that have to be written after deploying tasers are time-consuming so, I would rather not use it.
- I have used it and it didn't work. So, I ended up shooting the suspect. I do not trust the taser because it is not dependable.
- Does not work when suspect is under the influence of drugs. For example, a guy that was on drugs was tased 14 times until he went down. The next day he was sent to jail and he was rejected back to the hospital.
- I have not used it. The pepper spray works fine.
- I would prefer hands on first rather than use CED.
- I've seen it work and not work.
- Sometimes you don't have time to pull out the taser. The other weapons are faster to use.
- I have to reconsider using the CED because policies continue to change. There are too many to keep up with and there is too much red tape involved with it.
- It's not a replacement for the baton.
- I can't carry other intermediate devices (i.e. baton).
- The situation must be almost perfect to use it. Now, we can't use it on the people that run.
- In the drop program, we don't care about the policies and procedures. It's a scare tactic with the younger people, We're going to fire you, if you screw up.
- We have not gotten anymore training than, unsnap, here it is, and that's it.
- It is the last weapon I would use because of the way they make us carry it. It's not accessible.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**3. “Do you feel that the CED is a safe tool to use?”**

- “Yes, it’s the safest tool we could have gotten if it works.
- It’s not a fix all, but a great tool.
- There are no lasting health repercussions.
- It’s safe if it works on the individual that it’s used on.
- Yes, if you already have it in your hand and it works. It is what it is. It’s a safe tool sometimes if it works.
- It’s safe based on the info you get from the department and the media.
- Death is usually a result of a pre-existing condition.
- It’s safer than the baton and the pepper spray.
- The paperwork can take you up to 3 hours. It’s a safe tool ultimately, but the public is not as aware as they should be.
- There should be continued training and open dialogue on this device.
- The protocol for having the taser on the belt is a bad decision and makes it unsafe for officers.
- There are some problems with the CED.
- A gun is a safe tool; it depends on who uses it. There are a lot of problems with the taser, especially, the cartridge.
- The perception the public gets is not clear when the press gets, ‘No comment’ responses from the department.
- Has it been proven to cause death?
- The public’s ignorance makes it seem like an unsafe tool.
- The department doesn’t back up the officers in the media.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**4. “Would you like to see CEDs discontinued?”**

- “No.
- No, they should not get rid of it. We just weren’t adequately trained for this tool.
- I am 185 lbs and I don’t wanna have to fight him (as he points to a very large officer). He can call me old, but I’m using the taser.
- I think about the taser after the arrest. I should have tased that suspect. I should have put that heat on his behind.
- I would not like to see them discontinue the CED. However, I would like to have a choice to carry it or not.
- I would rather carry the taser. If other officers prefer other tools, they should be able to carry what ever they feel comfortable with.
- Keep them if officer is able to use it at their discretion/judgment. They don’t have to watch us like children and tell us when to use the CED.
- No, it’s a great tool. However it has administrative problems. It has saved suspects’ lives.
- Yes, take them away because there are too many restrictions for using it.
- Are they going to take our guns away?
- It’s not going to happen (i.e. take away the taser) no matter what we say.
- I would like an option to carry it or not.
- The department is putting too much into figuring out which tool to use.
- The decision to use the CED has to be made in less than one second. There are so many restrictions for using them that you need too much time to think about whether to use it or not. There are too many rules. The policies make it difficult to use.
- Too much red tape makes it hard to use the CED.
- It has too many connotations. A political game is played when the taser is used.
- It breaks more than it works.
- Instructions in the beginning were to shoot suspects on passive resistance.
- The department does not trust us enough to decide when to use the tool.
- I would rather use the baton.
- The department doesn’t trust the officers to use it wisely.
- The tasers draw media.
- The department needs to stand by what they told the officers in the beginning.
- It requires more paperwork for the supervisors.”



*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**5. “Have you used your CED and then followed the use of the CED by other intermediate devices or your revolver?”**

**Officers’ responses were as follows:**

- “Yes, because the CED did not work as intended. A homeless individual had a heavy jacket and darts did not penetrate skin. Therefore, it did not work.
- During a struggle an officer stunned himself and had to revert to hands-on approach.
- I had to use my hands after using the taser.
- I never witnessed a CED that did not work.
- Tenure makes a difference.
- We use other tools because of habit or initial training.
- People don’t want to deal with the effects of the taser. The suspects see it as a threatening tool. Especially, when they see the laser dot on them.
- If someone came up to another officer and pulled a trigger on him, you don’t have that kind of time to think and respond.”

**6. a. “Do you feel that you have had adequate training related to the CED?”**

**Officers’ responses were as follows:**

- “Are they training cadets to use the tool in mock crime scenes?”
- You have to be tased to carry the taser in smaller departments.
- The new officers have had more training.
- Annual training is not enough. However, I understand it is costly.
- More training will make me more comfortable with working with the CED.
- You can’t adequately train someone with the CED until you are in the actual situation.
- The officers are reluctant to use the CED when it doesn’t work. Hence, more training is needed.
- Not enough training may cause uncertainty on when and how to use the CED.
- Not enough training because we have too many accidental uses.
- You need to have a heart and no fear.
- You need to understand what causes a suspect to act a certain way.
- Judgment is important.
- How about consistent training?”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**b. “Do you feel other officers have had adequate training related to the device?”**

Many of the officers responded to this question by saying that “The training had not been consistent.”

**c. “What additional training do you feel is needed?”**

**Officers’ responses were as follows:**

- “Consistent training is needed (instructions are not clear - they change on a continuous basis).
- There are inconsistent policies about removing darts. Judgment calls have to be made continuously.
- May need training to recognize signs of PCP.
- CIT-Crisis Intervention Training. Forty hours are required.
- Encourage media to go through training and get tased.
- The younger officers are relying too much on the tasers. If it doesn’t work they’re not sure what to do next.
- Most female officers can talk a suspect down more often than male officers.
- What more can be taught?
- The taser can kill you too if you leave it on them for 45 seconds.
- There is nothing in place and no adequate training.
- What scares me about the training is that we may have to be shocked as part of the training. Some departments have to do that and I don’t want to have to do that.
- The Fondren location structure was suggested for all stations. It has an officer on each shift trained to use a CED.
- During roll call it takes 10 minutes to update and review the CED.
- We need more training on how to write more articulate reports.
- The people at the top need to sit through some training or ride on a patrol.
- In policy, it is stated that medical condition of suspect should be known.
- The Sgt. or EMT can remove darts if it’s above the neck or in the groin.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**7. “Would you recommend that HDP/the City purchase the camera attachment for your CED? If so, why? If not, why not?”**

**Officers’ responses were as follows:**

- “I don’t like it. The camera on the CED will not capture everything.
- The camera only catches a portion of situation.
- It will be another item that can be broken. It’s too costly.
- It will be extra weight on our belts.
- It would increase second guessing for using the CED.
- No, in that case put a camera on our shoulder to see everything that happens and not just what happens after the darts are deployed.
- I would see this as a problem because it would only record when taser is used and not what happened before it was used.
- The people viewing tape will not judge situation correctly.
- The cameras may be used against the officer.
- No, because the camera would only be good to record last seconds of situation. It will not capture entire situation.
- The vulgar language would be captured. We are forced to use it because that is the only way the suspects comply.
- It’s not a good idea and it’s not necessary.
- The camera captures piecemeal situations.
- Adding the camera may decrease the use of the CED by officers.
- You’re going to be guilty with the media no matter what.
- The camera results will be on MySpace and YouTube.
- When you use the taser camera, Channel 13 is going to show a clip of me saying, ‘Listen \*#\*#\*#\*#’. Then they’re going to look at me and ask, ‘Now, why did you tase him?’
- They are too bulky.
- They are designed to get the officer in trouble.
- Policing in the City of Houston is not what you see on Law and Order. It is not clean.
- What is the camera going to do for the officers?
- Police work is not clean. It’s violent, real, and not what’s on television.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

8. **“Our preliminary statistical results indicate that African American officers use CEDs less than Latino and Anglo officers, both in general and for suspects of different races/ethnicities including African American, Anglo, and Latino. In your opinion and given your experiences, ‘What are the possible reasons for this difference?’”**

**Officers’ responses were as follows:**

- “Most African Americans officers grew up fighting and wrestling. If you can’t talk them down, you fight them.
- It’s in the genes of the African American officers.
- African American officers use the gift of gab.
- Some officers are looking for a fight.
- Look at the seniority of the officers that are using the CED’s.
- It depends on the area of the City that you work in.
- You have to be able to read people. I can talk to this guy or I need to fight this guy. It comes with experience, you can’t teach this in the Academy.
- You have to take control when you step on the scene.
- The veterans are not training the new officers any longer. The veterans taught the new officers when to use force.
- Field training officers have tenure of two years which is not enough experience to train new officers.
- Tenure and shift are major factors. More CEDs are used on the night shift.
- Cultural awareness in Academy doesn’t help with what you experience on the street.
- Tenure plays a part.
- African American suspects are less likely to be compliant to a Anglo officer.
- The style of African Americans officers. (communication, respect).
- The rearing techniques of African Americans.
- African American officers’ approach is different.
- The CED may be used more in high crime rate areas.
- Perhaps, they don’t feel like situation is out of control and don’t think it is necessary to use the CED.
- Perhaps, African Americans are more compassionate towards some people.
- African American officers know the people where they patrol and don’t want to use force against suspects.
- Everyone just wants to get a paycheck and go home safely.
- Perhaps, people calling police are calmer with the African American police officers attending to the call.
- Sometimes ethnicity affects the way the suspect responds. Sometimes suspects will only respond to someone of their own ethnicity.
- Officers working in higher crime rate areas will have more incidents.
- More senior officers may be African American. Seniors are probably less likely to use the CED.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**8. Officer's responses continued:**

- "Sometimes people don't want to speak to an African American officer.
- A lot of African American people don't like police, so they instill that mentality into the younger generation. As soon as an Anglo officer gets out of the car, it becomes a problem.
- African American suspects can relate to African American officers better.
- Different life experiences can play a role. Some African American officers can talk down suspects.
- It depends on the area you are patrolling in the City."

**9. "Based on our preliminary results we find that African American suspects are more likely to be shocked by a CED than Latino, Anglo, and Asian suspects. In your opinion and given your experiences, 'What are the possible reasons for this difference?'"**

**Officers' responses were as follows:**

- "The calls for service tend to be a lot higher in the African American community.
- The suspects have no future plans (i.e. they live for the moment).
- Racist officers are doing the tasing.
- New officers are trained a certain way by officers.
- African American officers are used to dealing with diverse groups.
- Stereotypes can play a role.
- It can be based on fear and lack of knowledge.
- When a person gets in trouble they bring up race issue and the race card is thrown.
- Whoever is committing the most crimes is being tased the most.
- The suspects of African American ethnicity do not want to look bad in front of their peers.
- Cultural issues can play a role.
- The crime rate is higher in the African American race.
- The African American culture is more aggressive. The suspects have more attitude and are more combative.
- It is directly in line with who is committing most crimes.
- The calls for service may contribute. African Americans are more likely to call police.
- Latinos may not call because of legal status.
- Look at the crime rate amongst ethnicities.
- The size of African American suspects can contribute to the amount.
- If an Anglo officer works in an African American neighborhood, he or she is going to taser more African American people."

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**10. “In light of the comments made here today, are there any HPD policies related to CEDs that HPD should consider for issuance and/or revision?”**

**Officers’ responses were as follows:**

- “It was a good tool when it came out. However, policies make it hard to use. Improve it or get rid of it.
- Why does there have to be some aggressive force before using the CED?
- You do not have to articulate some other form of force.
- It’s not about what happens, but how it’s written up.
- Assistance is needed for officers to write better reports.
- No cameras for tasers.
- Tasers are tested every morning to make sure they are operating correctly.
- How do you classify taser on the call slip? (When to use it or not to use it)
- If senior officers had partners, there probably wouldn’t be a great need for tasers.
- The department may not be thinking safety with the use of tasers.
- How many more officers could we have if they use the money from the purchase of tasers, and taser training, etc?
- It’s funny that we have to test it every morning during roll call.
- Testing it says how reliable they are. There is battery failure and holster snap is weak. How many more options are we going to use? Why y’all tell us we can’t have partners anymore?
- Some things could be condensed. There is too much paperwork.
- Different opinions form confusion about the situation. Too many reports have to be written. Sometimes, supervisors write reports when they have not even witnessed what occurred.
- You have to articulate why you do what you do. It’s too complicated to use the CED.
- We should go back to if they are not compliant you should be able to tase them.
- We need to mirror the state law.
- Liability is an issue that you have to worry about when using the CED.
- IAD (Internal Affairs Division) complaints.
- The City should implement the same amount of GOs for the CED as any other compliance tool the officers have available.
- The CED is the only situation where the supervisor has to write a supplemental report. However, no supervisor supplement report is written for any other compliance weapon. We recommend the elimination of the supplement report.
- Eliminate the incident letter for the taser.
- Keep the CED in uniform with other weapons similar to it.
- The CED was media written.
- Paperwork should not be required for the accidental use of the CED.”

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**10. Officer's responses continued:**

- "The policy needs to be revised. There is too much paperwork involved for the CED.
- The supplement report is beneficial because it will help the officer. The supervisor gives an opinion.
- IAD (Internal Affairs) complaint - two reports will support situation better than one.
- There are too many restrictions. There should be restrictions, but tasers should be allowed to be used for people not complying.
- Revise the restrictions and broaden the use of the CED.
- The City would rather pay for broken windows on an officer's car rather than pay for a lawsuit. Do not suggest allowing officers to use taser to make suspects comply even when they are in the car.
- Dry stunning is not as effective as using the darts. There is a pain issue.
- If tasers are kept, change the rules for using them.
- They want us to go out there and see a neat situation.
- There is too much controversy when tasers are used.
- We do not do a good job of writing reports.
- The policy has to be consistent and the training needs improvement.
- The tasers break too easily.
- There is not much faith in the device. Officers would rather jump on the suspect because when they tried to use the taser the first time it didn't work.
- The frequency of failure is getting higher and causing more problems.
- When one officer messes up, the policy should not change for everyone across the board.
- Management should come out on the street to see how it happens.
- You got over worked officers in Houston. There are not enough officers on the street.
- The amount of money you put in the tasers could be the number of officers back on the streets. Partners working on the street."

*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**11. “Any other comment and/or recommendation related to CEDs that you would like us to consider?”**

**Officers’ responses were as follows:**

- “We would like to see the CED issued to investigators.
- Officers don’t wear the CED because it falls off easily and you have to write a report.
- There is an administrative letter you have to write every time the CED goes off.
- The tasers are under a lot of scrutiny.
- Can you increase the voltage in the tasers?
- A lot of people base things on what makes sense. A lot of times things don’t make sense. I am a fifty year old man. This is how I do it. We deal with a situation with a little more patience and so do the Latino officers.
- We go through all these cultural diversity classes. If I get an African American woman with a hand on her hip and shaking a finger in my face, I won’t see it as a threat. I deal with that at home.
- What comes out of this is not going to matter. They already made their minds up. They could take a vote of no by 80% that we don’t want to carry it any more. We are going to carry it. When it goes back up to Big Daddy we are still going to carry it like it or not. We were ordered to attend this. For some of us, it’s our day off or just getting off work. It’s her day off today. We were ordered. If you came and asked who would come to this you will be talking to yourself.
- The holster needs to be improved. Is the City of Houston considering other providers for them?
- Manpower is an issue when using tasers.
- Although it should be used as an intermediate device some of us have run out of room on our belts for it.
- I will go to my grave before I use it. I will use the baton or flashlight.
- It gives an officer a false sense of security. With the CED as opposed to with other weapons (baton, pepper-spray) you have to ask yourself, ‘What are you doing?’
- When you taser suspects you have the possibility of getting chastised by the public. This makes you less likely to use the CED.
- Scrutiny from the department is the biggest problem when using it.
- They should have maintenance on the CED so it will function properly.
- They need to hire more qualified policemen. The shortage of staff puts an officer in a more likely position to use the CED.
- The squad system is spread thin. When back up is called it takes too long to respond.
- When I call for back up on the night shift all I hear is crickets.”



*Discussion leader asked the officers the following question(s) and the detailed response(s) that were noted are listed below.*

**11. Officer's responses continued:**

- "Language barrier is a factor (Asians & Latinos).
- Gender comes into effect. Women may be more likely to use a taser on a male. The size of the suspect matters.
- Male officers are less likely to use it on female. However, if necessary it will be used.
- Dogs are being tased to get to suspects.
- The department does a horrible job of explaining things.
- The communication between levels of tiers (i.e. within HPD) does not exist. The top tier cannot communicate with lower tier. The lowest tier cannot communicate with highest tier.
- Trigger happy officers mess it up for everyone.
- More policies are written because of the bad officers.
- When officers speak out, they are categorized as disgruntled and prone to get fired.
- Results without risks are expected.
- HPD management feels like the CED results are irrelevant.
- Lower rank's opinions are taken, but not used.
- It's the Chief's idea to have tasers in the first place.
- They tell us to use it, but when we use it they question us about it.
- If an officer speaks out he/she is fired.
- This study means nothing. Nothing will change.
- This discussion is not going anywhere. No one is going to do anything about it.
- The department just wants to be able to say they listened to their officers and they performed a study.
- The media has helped get the word out about the taser.
- You have to have a perfect situation to use it on a suspect that is 21 feet away.
- Most female officers can talk a suspect down more often than male officers.
- They gave us the taser, so we wouldn't accidentally use our gun.
- They said it was a toy and would help keep us from fighting. Then they came up with policies and procedures. I want to give it back to them at this point.
- The upper management needs to take calls."

MFR noted that certain observations and comments kept reoccurring during the meetings and they are summarized as follows:

- Most officers in the sessions complained about the paperwork requirements for CEDs.
- Officers wanted more training in report writing.
- Several officers want carrying the CED to be optional like the other intermediate weapons. Many of the officers commented on the size of their tool belt and how it affected their ability to enter and exit their patrol car as well as the tool belt weighed them down during a foot pursuit.
- Officers really appreciated the opportunity to be heard.
- Several officers thought that the CED was effective and is becoming well known because they have had suspects plead with them once the suspect sees the laser dot from the CED on their body.
- HPD management was perceived as a top down style and officers believe that executive management did not adequately support them. Certain officers appeared to have a lack of trust for executive management.
- Most officers seemed to have little to no racial bias and certain officers questioned why MFR had segregated Focus Groups.
- Most officers wanted to retain the CED as an intermediate weapon; however, HPD needs to reduce the paperwork requirements to that of other intermediate weapons.
- Several officers appeared to need clarification on the applicable GO's.
- Officers wanted the CED rules changed so they could deploy a CED on a suspect who was fleeing. Currently, several of the officers believed they could not use a CED on a fleeing suspect.

## AUDIT DETAILS, OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

### CED INVENTORY COUNT

#### Background

The inventory records for the CEDs and the cartridges were maintained at the Academy. Each police station is required to maintain a record of the replacement cartridges issued to their officers from the station's cartridge inventory.

GO # 400-26 - "Conducted Energy Devices" Section 6 requires that:

"Officers trained in the use of and issued a CED will wear it all times while wearing the official uniform, even while working extra employment". Furthermore "Officers may also carry an approved pouch for carrying a spare CED cartridge (in lieu of attaching the cartridge to the handle of the CED)."

In summary the CEDs were issued to each patrol officer with two cartridges and they should be carrying one CED and two cartridges.

#### Observation

MFR selected a judgmental sample of 100 officers who were issued a CED to verify that the serial number of their CED and the serial numbers of the CED cartridges that were assigned to them by HPD were accurately recorded in the respective HPD inventory records. The officers were selected from six roll calls at four police stations, Westside, Southeast, North, and Northwest and certain officers were selected at the Academy.

MFR counted a total of 100 CEDs and 173 cartridges. Thus 26 of the 100 officers did not retrieve their second cartridge for the Audit Team to record the serial number and one officer had both cartridges missing. The officers gave the following reasons:

- "Cartridge is in the trunk of my vehicle
- Cartridge is at home
- Blast doors fell off the cartridge
- I lost my second cartridge while chasing a suspect
- Cartridge will not stay on the handle of the CED
- I have no room on my tool belt
- Have not had time to do the paperwork
- Did not want to be reprimanded for loss of City property
- The officer in charge of the cartridges at our station only works the day shift"

In addition to the 26 officers noted above four officers went to their vehicle to get their second cartridge so that the Audit Team could record the serial number.

## AUDIT DETAILS, OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

For the sample of 100 officers, MFR traced the serial numbers from all 100 CEDs to the inventory records at the Academy, **no exceptions were noted**. Based on the results of the CED testing, the risk for unaccounted CEDs is very low.

For the sample of 100 officers, MFR traced the serial numbers for only 110 of the 173 cartridges to the cartridge inventory records. The officer at the Academy had been on sick leave and had a backlog of CED replacement cartridge serial numbers that had to be input into the computerized cartridge inventory. MFR has provided the officer at the Academy the serial numbers of the remaining 63 cartridges to trace into the inventory records, once he has completed inputting the backlog of replacement cartridge serial numbers. MFR also noted that all serial numbers of cartridges purchased by HPD were recorded on the manufacturer's shipping documentation that was received and maintained by the Academy. Even though HPD has adequate physical safeguards over CED inventories and HPD is aware of all of the CED cartridges that are in its possession, there is a risk that HPD may not be able to determine to which officer a certain CED cartridge had been assigned.

### Recommendation

MFR recommends that HPD review their policy related to replacement CED cartridges as the officers have such a reluctance in carrying their extra cartridge primarily because of their fear of losing and/or damaging it as well as the related paperwork. Additionally, HPD needs to consider a more efficient record keeping system to reduce the risk of losing accountability for cartridges.

## AUDIT DETAILS, OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

### DIGITAL POWER MAGAZINE

#### Observation

A Digital Power Magazine (DPM) or commonly known as a battery, is an integrated power magazine containing lithium battery cells and a solid state memory module for tracking the CEDs power consumption. The memory module also has the date, time, power level remaining, and contains the latest Manufacturer's software update for the CED.

According to GO # 400-26, Section 12 CED or DPM Replacement, the officer is required to write a letter to be reviewed and approved by the supervisor who in turn drafts a letter to the commander. Upon approval, the officer will take copies of the approvals to the Taser Office at the Academy for a replacement DPM. We were told that the DPMs were failing more frequently now that certain CEDs were over 3 years old. Since the frequency of failure has increased, DPMs are being replaced without the authorization letters in order to reduce the officer's time away from work.

#### Recommendation

We recommend that HPD review and assess the DPM failures and the amount of time officers are spending to get them replaced. Consideration should be given to a more cost effective and efficient replacement process.

### TRAINING CARTRIDGES

#### Observation

The boxes of cartridges issued to the Academy Defensive Tactics Office for training purposes had the same capacity as the ones issued to the officers and police stations. During the audit we noted that the records did not indicate to whom the cartridges were given during training.

#### Recommendation

To reduce the risk of inaccurate reporting of issuance of cartridges, MFR recommends that HPD implement a process to improve the controls over training cartridge inventory.

#### Corrective Action

HPD has revised the training cartridge process. Process improvements include, the CED training cartridges are now a blue color and can be easily identified by HPD.

## UNRECORDED INVENTORY

### Observation

The original cartridges that were received during the initial shipment of CEDs were not recorded in HPD's inventory records at the Academy's Taser Office. The officer in charge of the CED records told the Audit Team that the initial batches totaling approximately 1,300 cartridges were issued very quickly to the officers which did not give the Taser Office adequate time to develop an inventory process. Subsequent to the initial issuance of the cartridges, a process has been developed to record all cartridges.

MFR noted that there were six CEDs in the Defensive Tactics Office of the Training Division that were not recorded in the CED inventory records. The Training Division told the Audit Team that these CEDs were received from the manufacturer without charge and as a result were not recorded in the inventory.

### Recommendation

MFR recommends that upon receipt from the manufacturer, all the CEDs and cartridges that are assigned to an officer be recorded in HPD's CED inventory tracking system at the Taser Office.

### Corrective Action

HPD has recorded the six CEDs in the Defensive Tactics Office of the Training Division in the HPD CED inventory tracking system. The Taser Office is continuing to work on recording the 1,300 cartridges.

## SCANNER

### Observation

All CEDs, cartridges, and DPMs have a serial number and a corresponding bar code. During the audit, MFR noted that the bar code scanner was more accurate and faster to record the serial numbers into the HPD CED tracking system; however, during the audit, the bar code scanner was temporarily out of order and has since been repaired. MFR did not note any bar code scanner(s) or access to the Taser Office CED tracking system in the police stations visited during the audit. The police stations were recording the serial numbers manually. The manual numbers were then manually entered into the CED tracking system at the Taser Office at the Academy.

### Recommendation

To improve the system of internal control, MFR recommends that HPD consider installing bar code scanners in all of the police stations to facilitate the recording and issuance of the CEDs, cartridges, and DPMs. Furthermore the scanners could be part of a centralized HPD CED tracking system that would contain the serial numbers of the CED and cartridges assigned to each officer.

## AUDIT DETAILS, OBSERVATIONS, RECOMMENDATIONS, AND CORRECTIVE ACTIONS

### SPARK TEST

#### Background

GO # 400-26 - "Conducted Energy Devices" Section 6 "Spark Test" requires that,

"Roll call supervisors will document witnessing spark tests on the roll call sheet and ensure all officers on the sheet conducted a spark test."

#### Observation

MFR noted that while attending roll calls during the CED and cartridge inventory test counts that the roll call supervisors were not consistently recording the witnessing of the spark test. Certain roll call supervisors had the officers record the Spark Test on their job card.

If the spark test is not performed regularly, the CED may fail to properly deploy the probes.

#### Recommendation

To ensure that the GO # 400-26 is being followed, MFR recommends that HPD review and revise its policy to have a periodic internal review process to ensure that roll call supervisors are adhering to GO # 400-26. The periodic review should be documented to evidence that the Spark Test had been performed.



**PART III  
UNIVERSITY OF HOUSTON  
CENTER FOR PUBLIC POLICY**

**A STATISTICAL ANALYSIS OF THE  
USE OF CONDUCTED ENERGY DEVICES BY  
THE HOUSTON POLICE DEPARTMENT**



UNIVERSITY OF HOUSTON CENTER FOR PUBLIC POLICY

A STATISTICAL ANALYSIS OF THE  
USE OF CONDUCTED ENERGY DEVICES BY  
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TABLE OF CONTENTS

	<u>Page</u>
Summary	55
Background	59
Study Components	63
Data	67
Methods of Analysis	77
Results	79
Data Management	107
Conclusion	109
References	110

## SUMMARY

Using statistical analysis and data visualization/geo-spatial tools<sup>1</sup>, the research group assembled by the University of Houston Center for Public Policy<sup>2</sup> (UH CPP) studied the following questions pertaining to the use of *conducted energy devices* (CEDs) within the Houston Police Department (HPD):

- **Incidence:** *Who is subject to being shocked by a CED? What are the demographic characteristics of suspects and officers in these events? Where have these incidents<sup>3</sup> occurred?*
- **Injuries:** *Have the number of injuries to officers and suspects been affected by the CED policy?*
- **Substitution:** *Are CEDs used as substitutes for alternative intermediate weapons or lethal weapons?*
- **Complaints:** *How many complaints have been filed for CED use? What are the demographic characteristics of the complainant and the officer(s)? How many complaints have been validated?*

The results in this analysis are subject to data limitations; however, the available data are sufficient for this exploratory analysis. The short duration of time (the period reviewed) combined with an overall small number of incident reports (less than 1% of the 1.4 million cases recorded during this period) disallowed strong causal interpretations. In future statistical analyses, new control variables and the natural extension of the time period for investigation can assist in providing greater certainty in answering the questions above.

Throughout this analysis we will note where data and design limitations limit the overall certainty of our conclusions.

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<sup>1</sup> The use of visualization tools and “mapping” to find patterns and relations in quantitative data has a long history. Among the more famous examples is Dr. John Snow’s investigation of a cholera epidemic in 19<sup>th</sup> century England (see Tufte 2001). We thank Governor Bill Hobby for bringing this information to our attention.

<sup>2</sup> The members of the research team that contributed to this analysis include Renée Cross (University of Houston Center for Public Policy), Tom Duncavage (Prototype, Fusion & Modeling, LLC), Jim Granato (University of Houston Center for Public Policy), Mark Jones (Rice University), Terry Mayes (Prototype, Fusion & Modeling, LLC), Bill Reed (Rice University), Matt Soltis (Prototype, Fusion & Modeling, LLC), and M.C. Sunny Wong (University of San Francisco). Stephanie Eguia (University of Houston Center for Public Policy) provided research assistance.

<sup>3</sup> The term “incidents” refers to calls for service.

## Incidence Results

We noted that the incidence results must be viewed with caution. One challenge was the lack of adequate data on suspect and officer characteristics. This affected the confidence we put in the results of our suspect data analysis. On the other hand, the data utilized for the officer data analysis allows us to draw inferences with much greater confidence. Yet another complication was in the Council District analysis. **While the Council District analysis allowed us to control for important contextual factors, it was crucial to remember that the number of CED events in most of the nine Council Districts was sufficiently small so as to warrant caution in our interpretation.**

For the period December 2004 to June 2007, the principal statistical and geo-spatial results were as follows:

- Of the 1.4 million incident reports, there were 1,284 (.08%) events where the CED was deployed. This equates to 8 CED deployments for every 10,000 incidents.
- There were approximately 700,000 incidents in the data where primary suspects could be matched to an HPD officer (who could have deployed a CED). Of those 700,000 incidents, 1,030 involved the use of CEDs. This translated into approximately a .14% likelihood of having a CED involved in an incident. Alternatively for every 10,000 incidents, 14 involved the use of a CED.
- Among suspects, African Americans had the greatest probability of having a CED used on them. Latinos and Anglos followed in overall likelihood.
- Among officers, there were no gender differences in the overall likelihood of employing a CED.
- Among suspects, males were more likely to be involved in a CED incident than females.
- African American officers were least likely to deploy a CED. Latino and Anglo officers followed in overall likelihood, with both equally likely to use a CED.
- African American officers had an equal likelihood of using a CED on African American, Latino, and Anglo suspects.
- Latino and Anglo officers had a much greater likelihood of using a CED on an African American suspect than on Anglo or Latino suspects. Latino and Anglo officers were equally likely to use a CED on an Anglo suspect. Latino officers had a greater likelihood of using a CED on a Latino suspect than Anglo officers.
- When looking at CED use within City Council Districts in Houston: Districts D and H have the highest likelihood of CED deployment.
- African American officers were just as likely to use a CED as were their Anglo counterparts in Council District D.
- Council Districts A, C, E, F, G, and I are similar in CED deployment.
- Council District B has a greater likelihood of CED use than Council District F and G.
- **The relationships between officers and suspects disappear or change when Council Districts are used as a statistical control.**

## Injury Results

**Due to the relatively short time period when the CED policy was in place (at the time of this analysis) the findings presented here need to be interpreted with caution.** With the passage of time, it will be possible to find effects related to the CED policy.

For the period January 2000 to June 2007, the principal statistical results were as follows:

- Injury indicators, in general, indicated incidence shifts (also known as structural breaks) prior to the CED policy being instituted.
- The estimated total number of workers' compensation claims by the officers has fallen by an accumulated 20% that began in June 2004.
- The estimated level of monthly expenditures on claims shows an accumulated reduction of approximately \$50,000 per month (50%). This began in May 2003.
- Both decreases began prior to the incorporation of the CED program at HPD.
- The decline in the injury indicators has continued during the Scope period.

## Substitution Results

As with the injury analysis, the substitution analysis and results presented here covered a relatively short time period when the CED policy was in place. **Again, the findings presented here need to be interpreted with caution.** Over time, it will be possible to find affects related to the CED policy.

In addition, due to lack of available data, the results in this section did not cover intermediate weapons so the test for substitution effects will need to be extended if the data become available.

For the period January 2000 to June 2007, the principal statistical results were as follows:

- There was no evidence that the introduction of CEDs served as a substitute for the use of firearms by an officer.
- There was evidence in the data of an incidence shift (structural break) in the accidental discharge of firearms, but this occurred prior to the introduction of the CED policy.
- There was evidence of an incidence shift in citizen death due to the discharge of firearms, but this occurred prior to the introduction of the CED policy.
- There was evidence of an incidence shift in officer deaths due to the discharge of firearms, but this occurred prior to the introduction of the CED policy.
- There was evidence of an incidence shift in the total discharge of firearms, but this occurred prior to the introduction of the CED policy.

## Complaint Results

For the period December 2004 to June 2007, the principal statistical results were as follows:

- Since December 2004, there were 55 complaints filed where CEDs have been mentioned in some manner.
- Complaints were leveled at 57 male officers while 2 were directed at female officers (note that the 55 complaints included a total 59 officers).
- Of the 59 officers noted in the 55 complaints, 27 were Anglo, 20 were African American, 9 were Latino, and 3 were Asian.

The disposition of complaints is summarized in Table 1a as follows:

**TABLE 1a CED COMPLAINTS**

<b>CED Complaints<sup>4</sup></b>	<b>Total</b>
No Disposition	12
Exonerated	13
Information	1
Never Formalized	2
Not Sustained	9
Open Case	4
Sustained	3
Unfounded	11
<b>Total CED Complaints</b>	<b>55</b>

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<sup>4</sup> **No Disposition** - CED activity was not the focus of the complaint and the investigation found CED usage to be proper and appropriate.

According to GO # 200-03:

**Exonerated:** Incident occurred, but was lawful and proper.

**Information:** No evidence to prove that an incident even occurred.

**Never Formalized:** Complainant refused to make a formal written statement or if a written statement was made, refused to swear or affirm that the statement was true (notarized).

**Not Sustained:** insufficient evidence to either prove or disprove justification for the incident.

**Open Case:** Investigation is on-going.

**Sustained:** Evidence is sufficient to prove the allegation.

**Unfounded:** Allegation is false or not factual.

## BACKGROUND

The introduction and use of CEDs or what are frequently referred to as Tasers has produced considerable controversy.<sup>5</sup> HPD introduced CEDs in December 2004. By March 2005, all HPD patrol officers were issued a CED upon completion of a training course.

City Controller Annise D. Parker included a Taser Performance Audit in her 2007 Audit Plan that was issued to the Mayor and City Council on August 10, 2006. Controller Parker subsequently contracted with Mir•Fox & Rodriguez, P.C. (MFR) to audit CED use by HPD. The UH CPP was subcontracted by MFR to conduct the statistical analysis of the CED Performance Audit.<sup>6</sup>

The public concern about CED incidence was also echoed in the 2007 Houston Area Survey conducted by Stephen Klineberg (<http://houstonareasurvey.org/>). Dr. Klineberg's survey included responses from 656 people in the Houston area. For a sample of 650, there is a 95-percent probability that the data found in the survey will be true for the entire Harris County adult population within a margin of error of plus or minus 3.5 percent.

Regarding CEDs, the survey asked whether the respondent agrees or disagrees with the following statements:

1. The use of Taser devices by the police makes deadly force less likely.  
Agree: 60.7%  
Disagree: 29.1%  
Do Not Know or Refuse To Answer: 10.2%.
2. The police are more likely to use Taser devices than less aggressive methods when the suspect is African American or Latino.  
Agree: 49.4%  
Disagree: 35.7%  
Do Not Know or Refuse To Answer: 14.9%.

However these results mask substantial variations. In particular, the cross-tabulations of the responses showed distinct cleavages along racial and ethnic lines. In general, Anglos were more likely than African Americans or Latinos to have a positive view regarding the use of CEDs.

This polarization of opinion is consistent with the most available data on CEDs provided by HPD.

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<sup>5</sup> We use the term *Conductive Energy Device (CED)* in this document since it is not a commercial term. *Taser* is a brand name.

<sup>6</sup> Since the implementation of the CED policy, allegations were made that the HPD frequently applies racial profiling when using CEDs. On November 30, 2006, it was reported in the *Houston Chronicle* that Mayor Bill White supported a statistical analysis of CED incidence. The *Chronicle* reports, "With Houston police facing complaints about Tasers being deployed disproportionately on African Americans, Mayor Bill White said Wednesday that he wants an independent, statistical analysis of how the department has used the devices."

Table 1b shows that CED incidence was not equally distributed under a variety of categories. Furthermore, Table 1 summarizes HPD police divisions; shifts where CED events took place; the number of HPD officers that deployed CEDs for the particular event; the suspect's race; the suspect's gender; and the suspect's age.<sup>7</sup>

See Table 1b on next page.

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<sup>7</sup> In addition the Audit Team noted total CED deployments during the Scope period represent 0.47% of the approximately 273,000 individuals who were incarcerated in the City's Jail system.

**TABLE 1b CED INCIDENCE SUMMARY: DECEMBER 2004 TO JUNE 2007**

Source: Crime Analysis and Training Divisions

DIVISION		# OF OFFICERS THAT DEPLOYED TASERS	
AIRPORT	2	1 OFFICER	1,133
CENTRAL	112	2 OFFICERS	107
CLEAR LAKE	36	3 OFFICERS	16
CRIME ANALYSIS & COMMAND CENTER	1	4 OFFICERS	8
EASTSIDE	31	5 OFFICERS	3
FONDREN	69	MULTIPLE SUSPECTS	17
KINGWOOD	7	<b>TOTAL</b>	1,284
NARCOTICS	4		
NORTH DIVISION	190	<b># OF OFFICERS SERIOUSLY INJURED AT TASER EVENTS</b>	
NORTHEAST	216	NO	0
NORTHWEST	40	YES	3
SOUTH CENTRAL	78	<b>TOTAL</b>	3
SOUTHEAST	192		
SOUTHWEST	67		
SPECIAL OPS	5	<b>SUSPECT RACE</b>	
SWAT	4	ASIAN	9
TRAFFIC	8	AFRICAN AMERICAN	810
WESTSIDE	123	LATINO	285
X-JOB	82	ANGLO	162
<b>TOTAL</b>	1,267	ANIMAL	17
		OFFICER	1
<b>SHIFT</b>		<b>TOTAL</b>	1,284
DAYS	305		
EVENINGS	518	<b>SUSPECT GENDER</b>	
NIGHTS	444	MALE	1,187
<b>TOTAL</b>	1,267	FEMALE	79
		OFFICER	1
<b>REASON FOR POLICE RESPONSE TO TASER EVENTS</b>		ANIMAL	17
OFFICER DISPATCHED	747	<b>TOTAL</b>	1,284
OFFICER SELF INITIATED/ON-VIEW	520		
MULTIPLE SUSPECTS	17	<b>SUSPECT AVERAGE AGE</b>	
<b>TOTAL</b>	1,284	15-16	24
		17-22	197
<b>REASON FOR TASER DEPLOYMENT</b>		23-28 (most violent prone years)	331
COMBATIVE RESISTING	1,095	29-34	245
THREATENED OFFICER W-WEAPON	53	35-42	242
VERBAL AGGRESSION PHYSICAL GESTURE	131	43-49	144
ACCIDENTAL DISCHARGE	5	50-69	71
<b>TOTAL</b>	1,284	UNKNOWN	12
		ANIMAL	17
<b>SUCCESSFUL TASER DEPLOYMENT</b>		OFFICER	1
NO	267	<b>TOTAL</b>	1,284
YES	1,017		
<b>TOTAL</b>	1,284	<b># OF SUSPECTS SERIOUSLY INJURED AT TASER EVENTS</b>	
		NONE	0
		<b>TOTAL</b>	0



During the period December 2004 to June 2007, the data for the 1,284 CED incidents are summarized below:

- 47% of all incidents occurred in the Northeast (216), Southeast (192), and North (190) divisions.
- 75% of all events occurred in the evening (518) or night shifts (444).
- 88% of all events involving one police officer at the scene were deploying the CED (1,133).
- 63% of all suspects were African American (810), 22% were Latino (285), 13% were Anglo (162), and .7% were Asian (9).<sup>8</sup>
- 92% of all suspects were male (1187) and 6% were female (79).<sup>9</sup>
- 60% of all suspects were between the ages of 17 and 34 (773). 5% of all suspects were over the age of 50 (71). The modal category was between the ages 23 and 28.
- The total CED deployments during the Scope period represent 0.47% of the approximately 273,000 individuals who were incarcerated in the City's Jail system.

Therefore it was not surprising to find differences in public opinion across geographic and demographic lines when it comes to this issue.

In general, we noted that the summary data in Table 1 is typical of our experience with other social science data. Specifically, the data was *not equally distributed* across a variety of categories. Rather, there was a concentration or *clustering*. This clustering raises important questions for the subsequent analysis.

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<sup>8</sup> The remaining 17 were animals (e.g., dogs) and one officer accidentally deployed the device on himself.

<sup>9</sup> The remaining 17 were animals (e.g., dogs) and one officer accidentally deployed the device on himself.

## STUDY COMPONENTS

HPD's CED program is intended to accomplish the following:

- Assist officers in securing and controlling combative individuals,
- Reduce injuries to officers and suspects,
- Reduce financial impact of civil liability in use-of-force incidents, and
- In limited situations, provide an alternative to deadly force.

The analysis of these aspects involved the following: statistical, research design, and measurement challenges that could corrupt valid inference. Addressing these challenges was fundamental if the policy evaluation conclusions were to have any validity.

### Statistical Challenges

To obtain the valid aggregation level and inference, while also accounting for potentially confounding factors, we examined the probability of CED incidents as a function of individual and contextual factors, both individually and combined.

Our preliminary examination of CED incidence data suggested that the data possess unique measurement, sampling, and timing challenges. These challenges required a fairly comprehensive approach involving several tools that, when taken as a whole, minimized the threat of drawing false inferences from the data.

We addressed issues of measurement accuracy, sampling validity, and timing through the following:

- **Measurement.** The first step in the statistical analysis subjected the CED incidence to tests for measurement, validity, and reliability. This type of assessment was extended when feasible to other data collected for the analysis.
- **Sampling.** Along with assessing the measurement accuracy of the samples, we broke the data down by various aggregation levels including HPD division, City Council District, zip code, and police "beat" levels by combining the CED City incident data with data contained in the HPD's Offense Incident Report database. An array of statistical methodologies including basic descriptive analysis of the main variables of interest and complex rare-event analysis of matched samples were then employed.
- **Timing.** An intervention analysis was employed to determine if statistically significant changes occurred in the metrics of interest after the CED technology was announced in December 2004. The determinants of CED use and the consequences of CEDs that have evolved from December 2004 to June 2007 were evaluated as well as before and after the policy was announced or implemented. We chose January 2000 as the beginning date.

## Design Challenges

A common mistake in interpreting data is to take the facts and then directly interpret causal mechanisms from these facts and correlations. For example, Table 1 shows a set of facts, but in no way can facts and correlations substitute for causal reasoning.

The Audit Team emphasized that these observations are preliminary and are only the start of a process to enhance our understanding. This statistical study employs the protocols of social science, and in particular, we wanted to separate systematic effects of the CED policy from random chance. A scientific bias requires us to set the barrier high before making any causal pronouncements. False claims of causation only harm the process of public policy decision making.

In what sense do we refer to the word *cause*? Two variables are related if certain values of one variable tend to coincide with the values of the other variable, but the relation could be purely episodic. On the other hand, when values of one variable produce the values of the other variable, then the relation is causal. In other words, correlation is about variables moving together (they coincide), but causality involves saying not only that two variables coincide but one variable's values produce distinct values of the other.

Isolating a causal relation requires the use of controls and holding variables constant. If two variables, say A and B, “move” together the practice of holding a variable constant means we introduce a third variable, call it C, and then determine if the introduction of variable C influences variables A and B such that they no longer move together. Take a hypothetical example where we find that people with blond hair are more likely to vote for a particular political party (Shively 2008: 76). The fact that a variable representing an adult's particular hair color *is associated with* voting for a particular party's candidates may or may not be a causal relation. Now, if we add a third variable, socio-economic status, and take people of the same socio-economic status (i.e., hold socio-economic status constant) we may find that there is no difference between people with blond hair and everyone else when it comes to voting for a particular party's candidates.

The goal of the research designs the Audit Team employed was to isolate the effects of the CED policy, and in doing so, separate facts and correlations from causes. In an ideal world we would want to use a true or natural experiment. A “true” experiment involves a process that follows the sequence (Shively 2008: 82-84).

- Step 1: The random assignment of subjects to a test group and a control group.
- Step 2: The measurements of the dependent variable for both groups.
- Step 3: A treatment administered to the test group.
- Step 4: A subsequent measure of the dependent variable for the test and control group.
- Step 5: If the test group “measurements” differ between the first and second measurements (and subsequent measurements if feasible) then there is support that the treatment has an effect.

Natural experiments follow a similar structure but the analyst does not have the ability to assign subjects into test and control groups.

Unfortunately neither of these designs was an option for this study since obtaining control groups or control locations with the current data was unavailable. As a result, we did not have a way to randomize the “treatment” over individuals.

The second design challenge was that there was a difference between when the CED policy was announced and when it was actually implemented. It is difficult to determine with confidence the date on which implementation of the intervention began and even more difficult to determine the date of any effect without looking at the data.

To address these matters, we utilized both time series and cross section analysis as “second best” alternatives to uncover causal patterns. The time series analysis was applied to policy “intervention” questions. The combination of time series and cross section analysis was applied to CED incidents where we controlled for characteristics of behavior (with the available data).

## Securing Valid Metrics for the Analysis

While issues of measurement, sampling, and timing are essential to avoiding invalid inferences, a truly comprehensive research design should make use of contextual information. This contextual information has enormous potential in making for an accurate assessment of the true causal factors in any analysis. For this study, the contextual components of the analysis included several variables that were currently available and can be linked to data or dates of the CED policy.

There were four categories in this analysis:

### 1. **Incidence:** *Who is subject to being shocked by a CED?*

To determine *who* is shocked by a CED, the following information was sought:

- Demographic information on the individuals who come into contact with the HPD officers to identify the correct population (as well as various sub-populations based on the nature of the contact)
- Demographic information on HPD officers
- The number of CED incidents in this population
- The inclusion of contextual factors such as:
  - Location
  - Time
  - Number of HPD officers present
  - Reason for contact (potential violent/potential non-violent offense).

### 2. **Injuries:** *Have the number of injuries to HPD officers and suspects been affected by the CED policy?*

The following information allowed an assessment of CED related injuries or reduction in injuries:

- The number of injuries to HPD officers before and after the CED policy went into effect
- The use of the CED compared to alternative methods that involve greater physical harm (e.g., firearm, baton, flashlight, physical restraint, or negotiation)

**3. Substitution:** *Are CEDs used as substitutes for alternative intermediate weapons or lethal weapons?*

The following information led to a determination of whether the CED was used as a substitute for other weapons:

- The use of the CED compared to alternative methods that involved greater physical harm (e.g., firearm, baton, flashlight, physical restraint, or negotiation)

**4. Complaints:** *How many complaints have been filed against HPD officers for CED use? What are the demographic characteristics of the complainant and the HPD officer(s)? How many complaints have been validated?*

The following information was used to analyze the CED complaints against HPD Officers:

- The number of complaints filed and the corresponding demographic data about CED usage
- An analysis of CED usage with HPD officers that used it on more than one occasion

## DATA

The data categories we analyzed deal with the issues of *incidence, injury, substitution, and complaints*. Data sources came from the HPD Crime Analysis Division, the HPD Payroll Office, and the Internal Affairs Division.<sup>10</sup>

**Incident Data:** The best measurable representations that exist in current HPD databases provide the following information:

- Location (zip code, City Council District)
- Type of Incident (UCR subject code)<sup>11</sup>
- Shift (three point: days, evenings, and nights)
- Officer Characteristics (race/ethnicity, gender)
- Suspect Characteristics (race/ethnicity, gender)

The data are in daily intervals. The period covered was December 2004 to June 2007.

**Injury Data:** Data on injuries was collected from the City Health and Safety Unit's workers' compensation claims. Data was screened to ensure that *only claims related to physical altercations* were used in the analysis.<sup>12</sup> Data collected pertained to the number of cases that involved:

- Physical altercation (variable name: Altercation)
- Foot pursuit that ends in physical altercation (variable name: Pursuit)
- Total amount of physical altercations (variable name: Total Comp)
- Cost due to physical altercation (variable name: Altercation\$)
- Cost due to foot pursuit that ends in physical altercation (variable name: Pursuit\$)
- Total cost of physical altercations (variable name: Total\$)
- Lost days due to physical altercation (variable name: Altercation Days Lost)
- Lost days due to foot pursuit that ends in physical altercation (variable name: Foot Days Lost)
- Lost time due to physical altercation (variable name: Altercation Lost Time) which is equivalent to the total number of filed claims.
- Lost time due to foot pursuit that ends in physical altercation (variable name: Foot Lost Time) which is equivalent to the number of filed claims.
- Total amount of lost days due to physical altercations (variable name: Total Days Lost)
- Total amount of lost time due to physical altercations (variable name: Total Lost Time) which is equivalent to the total number of filed claims.

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<sup>10</sup> Note that we also consider the effects of population changes and these changes can influence magnitudes. Population dynamics are likely to be highly correlated across geographic units (i.e., zip code, council district, etc.), particularly since the period of analysis is no more than 7 years (within the same Census period). To account for this potential threat, we create an alternative data scale that standardizes the data as deviation from means. We find no statistically meaningful difference between using scaled data (deviation from means) and the raw data.

<sup>11</sup> Background information on the Uniform Crime Report Program (UCR) can be found at <http://www.fbi.gov/ucr/ucr.htm>.

<sup>12</sup> The total number of claims for the period January 2000 to June 2007 was 6,260. Of this total, 1,971 (31.5%) were due to aggressive acts (involving physical altercation).

The data covered the period January 2000 to June 2007. The descriptive statistics are presented in Tables 2a and 2b.

**TABLE 2a. MONTHLY WORKERS' COMPENSATION SUMMARY STATISTICS: JANUARY 2000 TO JUNE 2007**

	<b>Altercation</b>	<b>Altercation\$</b>	<b>Pursuit</b>	<b>Pursuit\$</b>	<b>Total Comp</b>	<b>Total\$</b>
<b>Mean</b>	15.84	\$82,148.20	6.05	\$29,524.76	21.90	\$111,673.00
<b>Median</b>	16.00	\$57,324.50	6.00	\$10,290.33	22.00	\$85,304.92
<b>Maximum</b>	25.00	\$705,392.60	15.00	\$184,145.00	32.00	\$708,218.40
<b>Minimum</b>	8.00	\$130.28	0.00	\$0.00	13.00	\$2,441.15
<b>Std. Dev.</b>	3.87	\$99,049.24	2.94	\$40,423.04	4.75	\$106,320.90
<b>Total number of altercations</b>	1,426.00	\$7,393,338.00	545.00	\$2,657,228.00	1,971.00	\$10,050,566.00

Source: HPD Payroll Office

**TABLE 2b. MONTHLY LOST DAYS AND LOST TIME SUMMARY STATISTICS: JANUARY 2000 TO JUNE 2007**

	Foot Lost Time	Foot Days Lost	Altercation Days Lost	Altercation Lost Time	Total Lost Time	Total Days Lost
<b>Mean</b>	1.69	65.20	188.00	4.02	5.71	253.00
<b>Median</b>	1.50	18.50	158.00	4.00	5.50	226.00
<b>Maximum</b>	8.00	563.00	778.00	10.00	14.00	844.00
<b>Minimum</b>	0.00	0.00	0.00	0.00	1.00	4.00
<b>Std. Dev</b>	1.54	96.88	160.00	2.03	2.71	181.64
<b>Total</b>	152.00	5,867.00	16,893.00	362.00	514.00	22,760.00

**Source: HPD Payroll Office**

According to the HPD Payroll office “Days Lost” in Table 2b refers to the total number of days lost. “Lost Time” refers to the number of claims that pertain to the 8 hour work shifts that were lost.

Among the results (see Table 2a), the mean level of monthly expenditures on workers’ compensation claims was \$111,673, with approximately 22 claims made per month. The maximum dollar expenditure for non foot pursuit claims (Altercation\$) occurred in February 2003 with a total of \$705,393 and the minimum occurred in June 2007 with a total of \$130.28.<sup>13</sup> The total dollars spent for the entire period was \$10,050,566 (see Table 2a) while the total days lost for the period was 22,760 days (see Table 2b). In Table 2b the average monthly total for days lost (Total Days Lost) was 253 days with a maximum of 844 days and a minimum of 4 days.

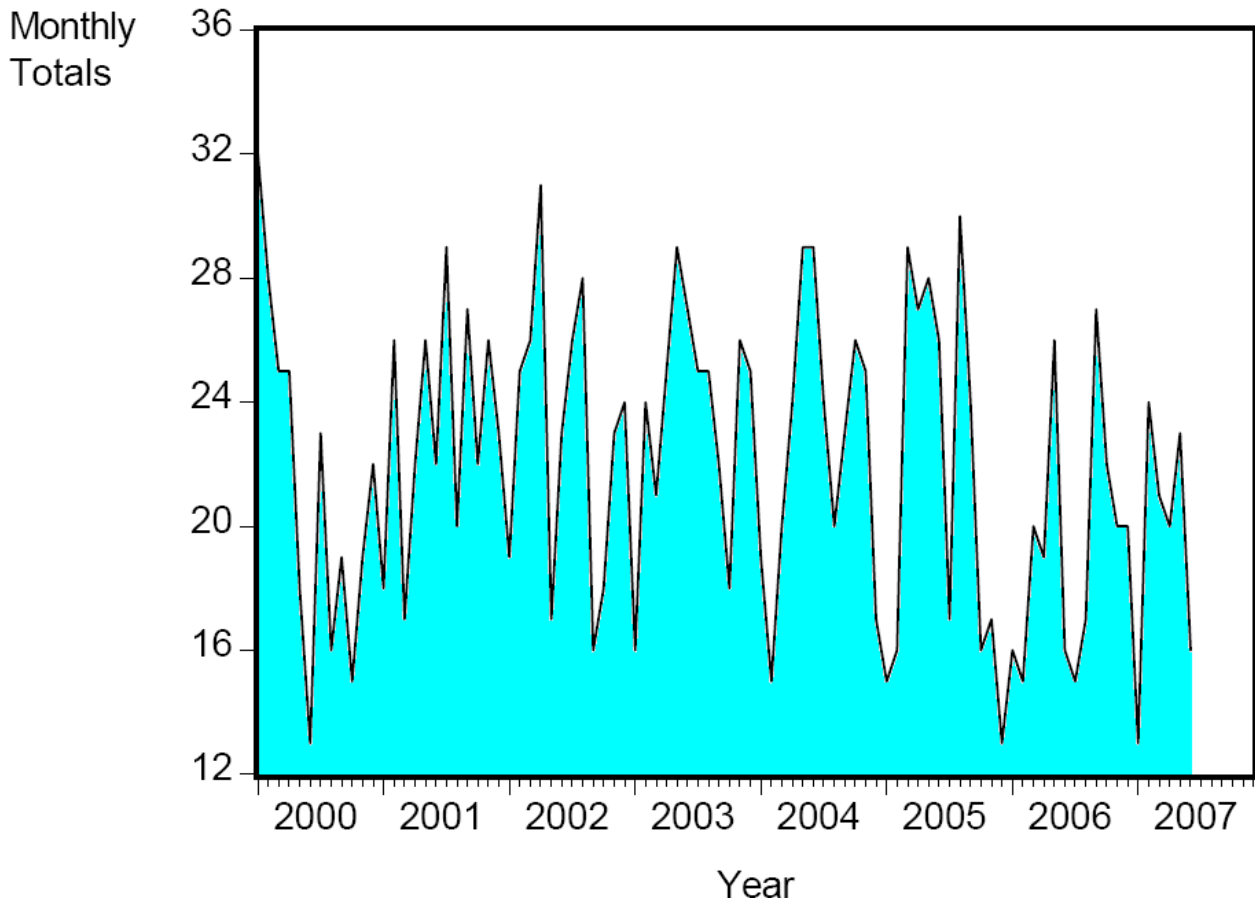
In Figures 1 through 4, are the time series behavior of total monthly claims (Total Comp), total monthly expenditures (Total\$), total days lost due to aggressive acts (Total Days Lost), and total lost time due to aggressive acts (Total Lost Time).

<sup>13</sup> The expenditures were calculated so that any expenses after the claim were always rolled into the date of the original claim. This may be a reason for the low total in June 2007.



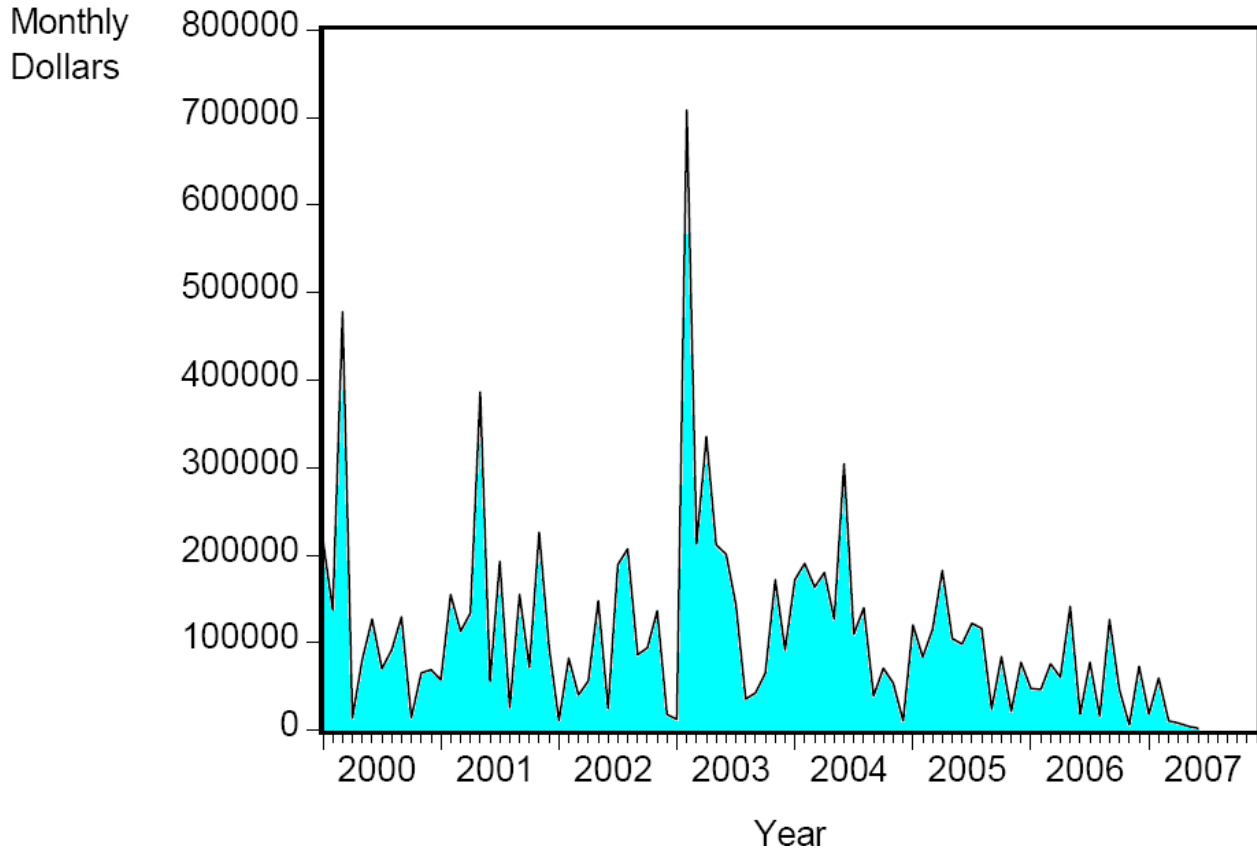
FIGURE 1

Total Monthly Injury Claims Due to Aggressive Acts:  
January 2000 to June 2007



**FIGURE 2**

Total Expenditures on Injury Claims Due to Aggressive Acts:  
January 2000 to June 2007



**FIGURE 3**

Total Days Lost Due to Aggressive Acts:  
January 2000 to June 2007

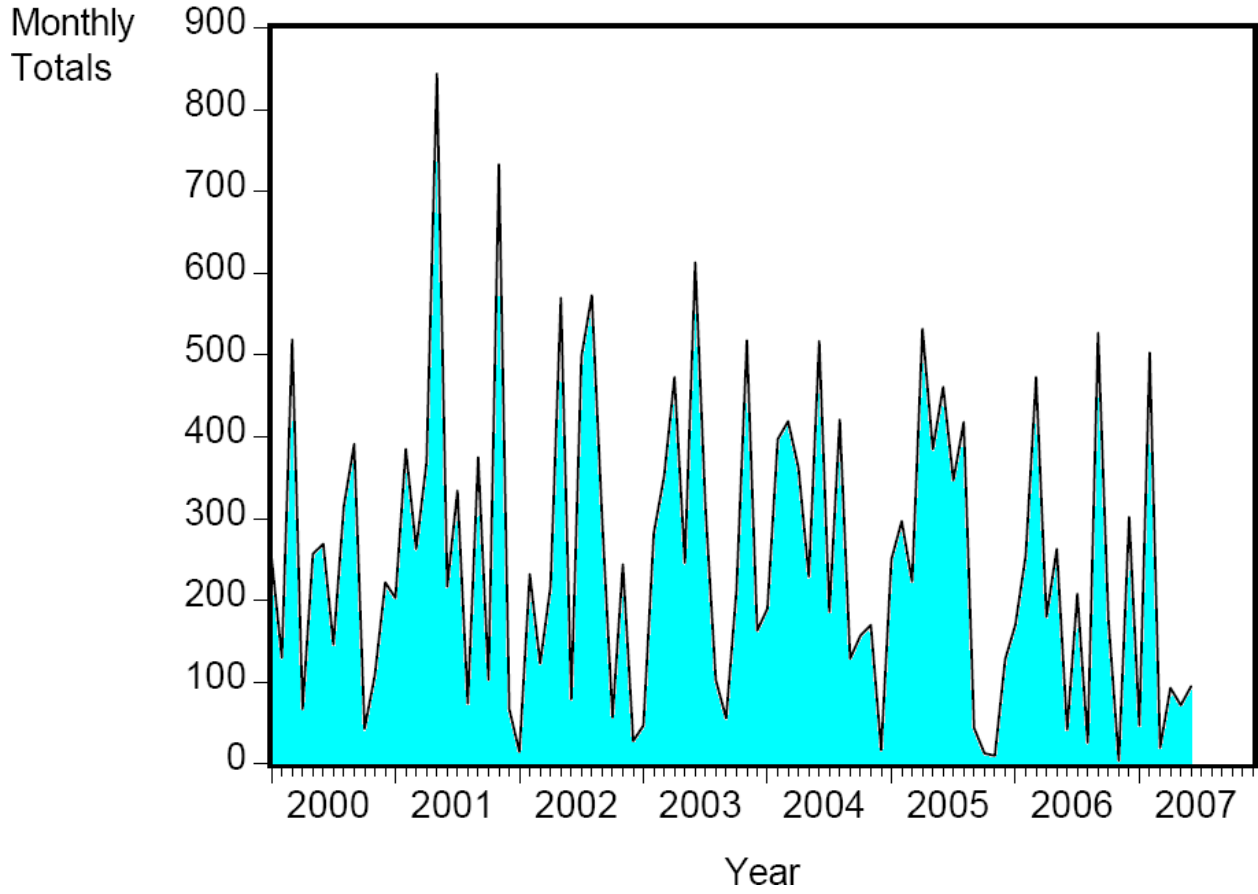
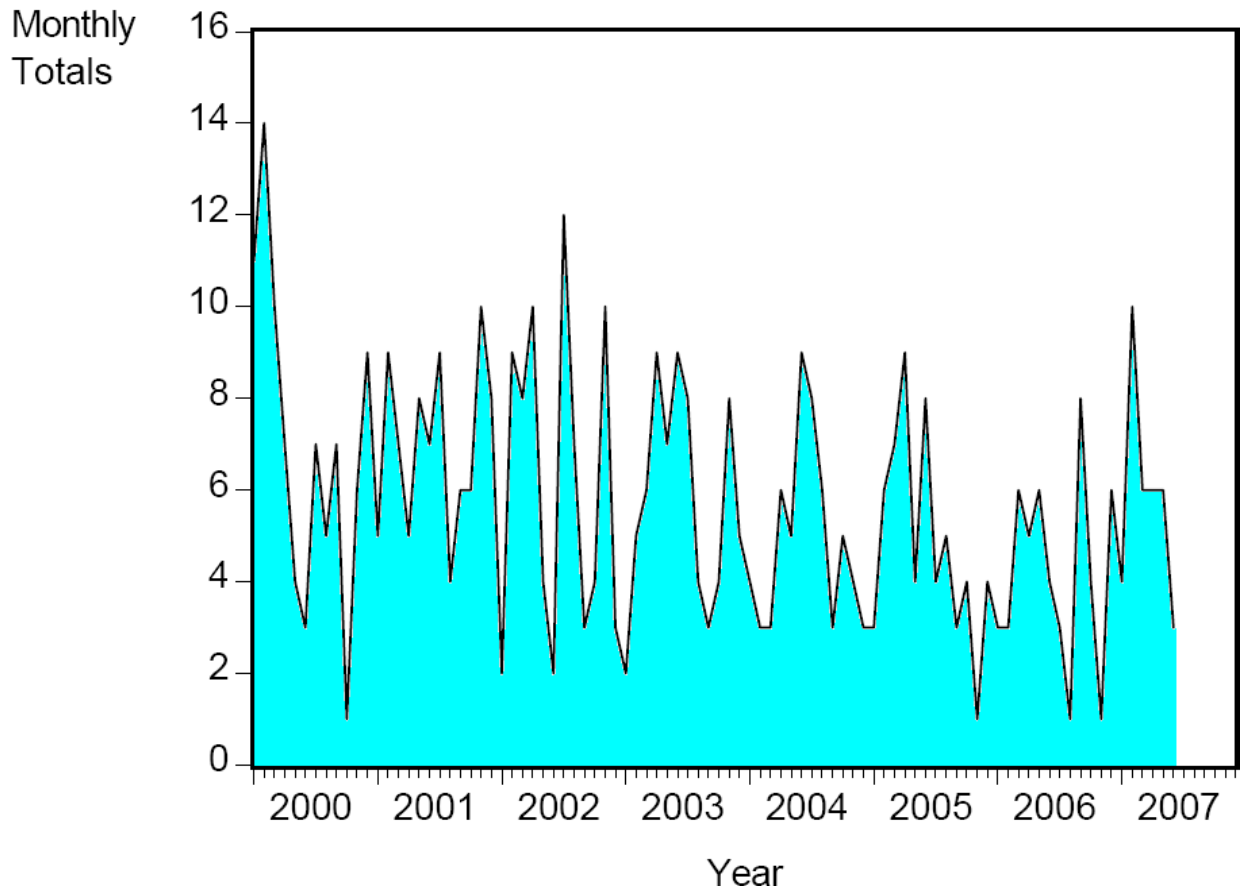


FIGURE 4

Total Lost Time Due to Aggressive Acts:  
January 2000 to June 2007



**Substitution Data:** Data on weapon substitution was collected from the HPD Internal Affairs Division (see Table 3). Existing data collected pertained to the number of cases that involved:

- Discharge of firearms that was an accident (variable name: Accident)
- Discharge of firearms that resulted in a citizen's death (variable name: Citizen Death)
- Discharge of firearms that resulted in a citizen's injury (variable name: Citizen Injury)
- Discharge of firearms that resulted in a citizen's death and injury (variable name: Citizen Death/Injury)
- Discharge of firearms that resulted in an officer's death (variable name: Officer Death)
- Discharge of firearms that resulted in an officer's injury (variable name: Officer Injury)
- Discharge of firearms that resulted in an officer's death and injury (variable name: Officer Death/Injury)
- Discharge of firearms that resulted in property damage (variable name: Property Damage)
- Discharge of firearms - total from categories above (variable name: Total/No Animal).

The data covered the period January 2000 to June 2007. The descriptive statistics are presented in Table 3.

**TABLE 3. MONTHLY DISCHARGE OF FIREARMS SUMMARY STATISTICS: JANUARY 2000 TO JUNE 2007**

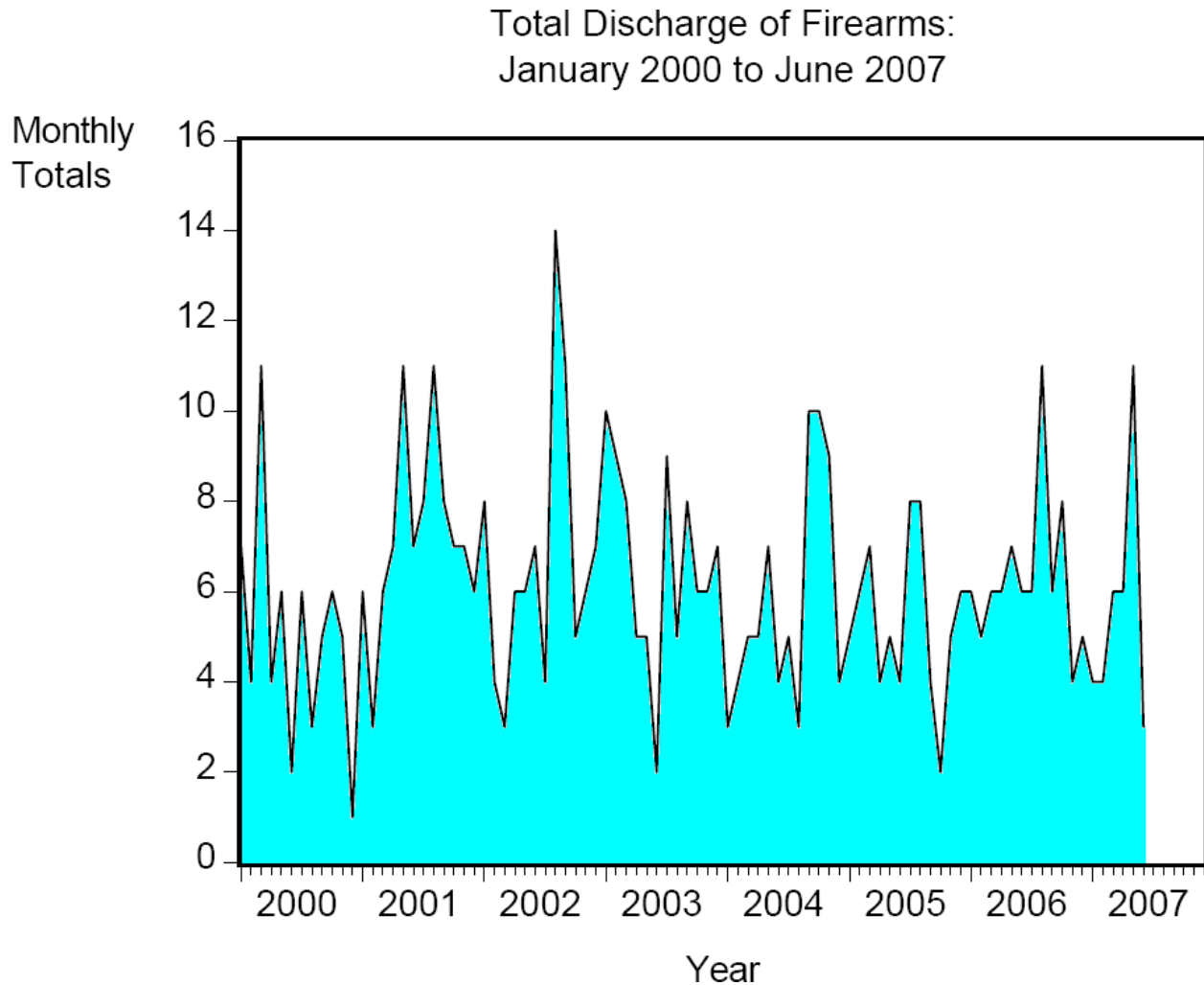
	Accident	Citizen Death	Citizen Injury	Citizen Death/Injury	Officer Death	Officer Injury	Officer Death/Injury	Property Damage	Total/No Animal
<b>Mean</b>	0.58	0.59	1.08	1.67	0.08	0.04	0.12	0.06	4.62
<b>Median</b>	0.00	0.00	1.00	2.00	0.00	0.00	0.00	0.00	4.00
<b>Maximum</b>	3.00	3.00	4.00	5.00	2.00	1.00	2.00	1.00	14.00
<b>Minimum</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<b>Std. Dev.</b>	0.72	0.70	1.07	1.34	0.34	0.21	0.39	0.23	2.26
<b>Total</b>	52.00	53.00	97.00	150.00	7.0	4.0	11.00	5.00	416.00

**Source: HPD Internal Affairs Division**

We noted that the mean level for the total discharge of firearms (not involving animals) was 4.62 and the total for the period was 416. The monthly maximum for the total discharge of firearms total was 14 and the minimum was 1. For citizen and officer deaths due to the discharge of firearms, the totals for the period were 53 and 7 respectively.

Figure 5 provides a summary of the time series behavior for a selected variable: the total discharge of firearms (Total/No Animals).

**FIGURE 5**



**Complaint Data:** The data found in Table 4 contains all complaints filed against HPD officers in regard to the use of CEDs between December 2004 and June 2007. The data contained the following information:

- Demographic characteristics of complainants and officers
- Number of officers and complainants present
- Reason for contact (potential violent/potential non-violent offense)
- Disposition of the complaint

**TABLE 4. CED COMPLAINT STATISTICS: DECEMBER 2004 TO JUNE 2007**

<u>CED Allegation Totals</u>			<u>CED Disposition Totals</u>		
CHIEF INFORMATION OFFICER (CIO) ISSUE	3	5%	No Disposition***	12	22%
CONDUCT AND BEHAVIOR	5	9%	EXONERATED	13	24%
CRIMINAL ACTIVITY	1	2%	INFORMATION	1	2%
DEATH IN CUSTODY*	1	2%	NEVER FORMALIZED	2	4%
IMPROPER POLICE PROCEDURE	6	11%	NOT SUSTAINED	9	16%
MISCONDUCT	4	7%	OPEN CASE	4	7%
OPEN CASE	4	7%	SUSTAINED	3	5%
TASER NOT ADDRESSED IN SYNOPSIS**	9	16%	UNFOUNDED	11	20%
USE OF FORCE	22	40%			
<hr/>			<hr/>		
Total:	55	100%	Total:	55	100%

\* In custody death. Harris County Medical examiner ruled death due to cocaine toxicity. Death not related to CEDs.

\*\*\* No Disposition - CIO Issues, or CED was not addressed in the synopsis. In these instances. CED activity was not the focus of the complaint and the investigation found CED usage to be proper and appropriate.

\*\* CED was used. but was not the focus of the complaint or investigation. CED use was deemed to be appropriate.

**Officer Demographics**

**Complainant Demographics**

Total Officers	59		Total Complainants:	51	
<hr/>			<hr/>		
Race			Race		
Anglo:	27	46%	Anglo:	7	14%
African America:	20	34%	African American:	36	71%
Latino:	9	15%	Latino:	7	14%
Asian:	3	5%	Asian:	1	2%
Other or Unknown:	0	0%	Other or Unknown:	0	0%
<hr/>			<hr/>		
Gender			Gender		
Male:	57	97%	Male:	39	76%
Female:	2	3%	Female:	12	24%

Some officers were involved in multiple complaints. Some complaints had more than one officer involved.

## METHODS OF ANALYSIS

### Tests for Incidence

There were four pieces of data that we used in our analysis of CED utilization. We started with the universe of incidents over our time period.<sup>14</sup> We then created subsets by breaking these incident data down to incidents that could be matched with a suspect. In the case that an incident had more than one suspect, we used the first listed suspect. Next, we matched officers to this data. Finally, we matched this data with the CED data.

### *Econometric Analysis*

We constructed a statistical model of CED utilization that could provide an estimate of the probability of CED use as a function of incident characteristics, suspect characteristics, and officer characteristics. Specifically, we estimated a linear probability model to evaluate the relative effects of incident, suspect, and officer characteristics. From these models we simulated the predicted probability and their 90% confidence intervals of CED utilization as a function of our observable variables. We conducted several robustness checks to be sure our results were not a function of any particular assumption of the linear probability model. To address the fact that CED use is an indicator variable, we used maximum likelihood estimation to obtain the estimated probability of CED use. This robustness check suggested that our initial results from the linear probability model were consistent. In addition, we used a model to correct for the empirical fact that CED use was a rare event. Although these models do not tend to fit the data particularly well, on the whole, the results were comparable to the results obtained from the linear probability model.

### *Visualization Analysis*

We augmented this particular statistical analysis with a *visualization platform*. The visualization platform maps all incidence data by geographic placement within Harris County and over time. The platform is available on the UH CPP website at <http://www.uh.edu/cpp>.

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<sup>14</sup> We chose the universe of cases, where the universe of cases for this period of analysis involved merging primary suspect data with an incident and an HPD officer (who could have deployed a CED). We relied on using a data set that was much larger than the number of CED incidents. In particular, we wanted to provide a control group to make probabilistic comparisons of how the distribution of observable variables in the CED data may differ from the distribution of the observable variables in the incidents where a CED was not deployed. There were many ways to segment the data, from the very broadest categorization to much narrower ones. In this initial analysis, we chose the broadest categorization because it required us to make no assumptions about how the probability of CED utilization might shift as a function of observable variables. We allowed the data to speak rather than make such assumptions.



## Tests for Policy Effects

The tests for policy effects involved the use of time series data. The analysis involved the following:

- Determination of incidence shifts (or structural breaks) in the data
- The combination of linking data persistence with incidence shifts when possible (intervention analysis with dummy variables)

To identify incidence shifts in the data and to determine if they corresponded with the introduction of the CED policy, we employed two types of tests.<sup>15</sup> The first test showed the timing of the largest break in the data (Andrews 1993). The second test analyzed how many breaks occurred in the data (rolling paired t-test). The tests are described as follows:

### The Andrews Test

Instead of setting break points by some subjective assessment of timing, the Andrews test uses the entire time series to determine if any break points exist. The focus on the largest and most significant break point secures information on whether the changes in the series structure occurred before or after policy changes. The Andrews statistic is calculated as follows. First, compute and find the maximum Wald statistic for the entire series.<sup>16</sup> Then determine if the maximum Wald statistic exceeds the critical value. Maximum values for a given series that are larger than the critical value are interpreted as rejections of the null hypothesis.<sup>17</sup>

There are two limitations to the Andrews test. First, it allows for only one break in the time series. Second, the Andrews test is tied to a specific regression specification.

### The Rolling Paired t-test

An alternative estimation is to compare the mean of variable for two sample periods - before and after the treatment - using a rolling paired t-test (Cureton 1957). While the Andrews test determines a break point in a regression form where controlled variables are necessarily included, the rolling paired t-test only examines the equality of means in two groups (or periods). We relaxed the restriction of controlling variables in regressions and searched for break points by running rolling paired t-tests over the break points to search break points with the highest t-statistics.<sup>18</sup>

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<sup>15</sup> In the case of the CED policy, HPD announced the policy in December 2004, but the training and distribution of the CED was not completed until March 2005.

<sup>16</sup> In applying the test we followed Andrew's "trimming" rule. Trimming involves how deep into the sample (a proportion) to look for structural breaks (shifts) as well as how close to the end of the sample to end the search. The proportions should be large enough to include sufficient data points and small enough to encompass the largest number of potential breaks. In this paper, we used 25 percent trimming as a baseline, but compared these results with other trimming proportions. The conclusions were robust to alternative proportions.

<sup>17</sup> The null hypothesis is traditionally set to indicate no break (i.e., no program effect).

<sup>18</sup> This type of test is similar to Quandt (1958), Goldfeld and Quandt (1973), Hinkley (1971), and McGee and Carlton (1970). They also run regressions over the break point periods to search for break points with the minimum residual sum of squares (RSS).

## ***Intervention Analysis***

We combined the results of the Andrews and rolling paired t-tests with an intervention analysis. The dates for incidence shifts were identified by these two tests, but we also placed these dates within a regression framework to determine the actual change in the level of the dependent variable. In addition, one of the attributes of time series analysis was that point estimates for the immediate effect were adjusted to determine the long-run or steady state effect. It was sometimes the case that analysts ignored the cumulative effect and focus on the point estimates. This would be a mistake as the point estimate effect could be dwarfed by the long-run cumulative effect. A useful way to test a hypothesis is to examine the effect of a specific policy change. These possibilities are great since many subjects in the social sciences are influenced by changes in regime or policy. The interventions can be characterized in many ways, but they generally can be categorized as either temporary or permanent.

## **RESULTS**

### **Incidence Analysis**

The main purpose of the incidence analysis was to examine the role of suspect and officer race/ethnicity in the use of CEDs by HPD officers between December 2004 and June 2007. The results of the analysis focused on suspects, then officers, and then relevant governmental/geographical units (the nine Houston City Council Districts).

To conduct this analysis we merged data from three separate datasets: Offense Incident, Suspect, and Officer Employee Number for the period December 2004 through June 2007. HPD officers were equipped with CEDs (analysis was also done excluding the first four months when not all officers were equipped with CEDs). Four sets of variables were employed in the analysis:

- Suspect
- Officer
- Crime Context
- Geographic/Temporal Context<sup>19</sup>

Two types of Suspect data were utilized: suspect race/ethnicity (African American, Anglo, Latino, or other) and gender (male or female).<sup>20</sup> All offenses without a suspect or when the suspect was not human were excluded from the analysis. Information on an officer's physical characteristics (i.e., height, weight, strength) was not available.

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<sup>19</sup> Recall that the variables we used involved:

- Incident Location (zip code, Council District)
- Type of Incident (UCR subject code)
- Shift (three point: days, evenings, and nights)
- Officer Characteristics (race/ethnicity, gender)
- Suspect Characteristics (race/ethnicity, gender)

<sup>20</sup> An insufficient number of cases with Asian suspects and Asian officers exist to conduct reliable analysis when these two groups are examined separately.

Additional desirable suspect data such as physical characteristics (weight/height/size) were unavailable for a large majority of suspects, and even in those instances when available, the data was considered unreliable (or at best, extremely imprecise). A possible critical variable, information on a suspect's past criminal record, was not available. The lack of information on suspect characteristics required that we be very cautious in interpreting all of the suspect related data analysis (i.e., that analysis which examines the impact of suspect race/ethnicity on the likelihood that they are the subject of a CED event). In contrast, we are more comfortable making interpretations based on the officer related data (i.e., the analysis which examines the impact of officer race/ethnicity on the likelihood that an officer employs a CED), since most important contextual factors are controlled for in this analysis by the essentially random assignment of officers to incidents.

As of 2006, the City's population had the following racial/ethnic distribution: Latino (41.9%), Anglo (27.6%), African American (24.7%), and Other Groups (5.8%).

The Audit Team compared the race/ethnicity of suspects in the Total Service/Incident Reports Analysis Population to the race/ethnicity of the suspects noted by HPD in the CED Service/Incident Reports. The results of our comparison are as follows:

Table 5a summarizes the Race/Ethnicity of the suspects that were in the Analysis Population of the Service/Incident Reports and the Race/Ethnicity of the CED Service/Incident Reports.

**TABLE 5a. RACE/ETHNICITY OF SUSPECTS**

<i>Suspect's Race/Ethnicity</i>	<b>Total Service/Incident Reports Analysis Population</b>	<b>CED Service/Incident Reports</b>	<b>Difference</b>
<b>African American</b>	46.0 %	66.9 %	20.9 %
<b>Latino</b>	28.2 %	23.5 %	-4.7 %
<b>Anglo</b>	24.4 %	9.0 %	-15.4 %
<b>Other Groups</b>	1.4 %	0.6%	-0.8 %

Based on the above analysis, African American suspects were involved in a proportionally greater number of total Service/Incident Reports analyzed as well as CED service/incident reports. In addition, the proportion of CED Service/Incident Reports was 20.9% more than the total service/incident reports. The Latino, Anglo, and Other Group suspects were involved in proportionally less service/incident reports.

According to HPD, the Department-wide officer demographics (see table 5b) during the Scope period were as follows:

**TABLE 5b. NUMBER OF CLASSIFIED OFFICERS BY RACE/ETHNICITY AND GENDER**

2004 Classified	Male					Total M	Female					Total F	Total M/F
	W	P	A	B	H		W	P	A	B	H		
***** No data available *****													

2005 Classified	Male					Total M	Female					Total F	Total M/F
	W	P	A	B	H		W	P	A	B	H		
January	1,361	79	3	445	508	2,396	132	4	-	93	51	280	2,676
February	1,333	78	3	442	501	2,357	131	3	-	91	50	275	2,632
March	1,327	78	3	440	498	2,346	129	3	-	91	49	272	2,618
April	1,304	79	3	439	495	2,320	126	3	-	90	47	266	2,586
May	1,289	78	3	438	492	2,300	125	3	-	89	47	264	2,564
June	1,281	77	3	439	487	2,287	124	3	-	88	47	262	2,549
July	1,277	77	3	436	487	2,280	124	3	-	88	47	262	2,542
August	1,272	77	3	434	489	2,275	125	3	-	87	47	262	2,537
September	1,237	85	3	440	507	2,272	125	3	-	90	46	264	2,536
October	1,286	84	3	440	501	2,314	126	3	-	90	46	265	2,579
November	1,275	84	3	438	500	2,300	126	3	-	89	46	264	2,564
December	1,268	82	3	431	499	2,283	124	3	-	87	45	259	2,542
<b>2005 Average</b>	<b>1,293</b>	<b>80</b>	<b>3</b>	<b>439</b>	<b>497</b>	<b>2,311</b>	<b>126</b>	<b>3</b>	<b>-</b>	<b>89</b>	<b>47</b>	<b>266</b>	<b>2,577</b>

2006 Classified	Male					Total M	Female					Total F	Total M/F
	W	P	A	B	H		W	P	A	B	H		
January	1,260	84	3	436	496	2,279	120	3	-	88	47	258	2,537
February	1,274	89	3	454	526	2,346	125	3	-	95	55	278	2,624
March	1,263	90	3	453	524	2,333	125	3	-	95	56	279	2,612
April	1,267	91	4	459	531	2,352	126	3	-	110	55	294	2,646
May	1,265	91	4	456	525	2,341	124	4	-	110	53	291	2,632
June	1,258	91	4	457	533	2,343	126	4	-	110	54	294	2,637
July	1,258	91	6	460	532	2,347	129	4	-	112	55	300	2,647
August	1,256	98	6	463	542	2,365	130	4	-	112	52	298	2,663
September	1,255	98	6	467	541	2,367	132	4	-	111	53	300	2,667
October	1,248	98	5	461	544	2,356	129	3	1	110	53	296	2,652
November	1,247	96	5	459	537	2,344	130	4	1	110	54	299	2,643
December	1,249	97	5	460	537	2,348	130	4	1	113	51	299	2,647
<b>2006 Average</b>	<b>1,258</b>	<b>93</b>	<b>5</b>	<b>457</b>	<b>531</b>	<b>2,343</b>	<b>127</b>	<b>4</b>	<b>0</b>	<b>106</b>	<b>53</b>	<b>291</b>	<b>2,634</b>

**TABLE 5b (continued). NUMBER OF CLASSIFIED OFFICERS BY RACE/ETHNICITY AND GENDER**

2007 Classified	Male					Total M	Female					Total F	Total M/F
	W	P	A	B	H		W	P	A	B	H		
January	1,245	94	4	457	551	2,351	127	4	1	11	47	290	2,641
February	1,246	98	4	458	550	2,356	128	4	1	110	49	292	2,648
March	1,246	100	3	455	554	2,358	123	4	1	114	46	288	2,646
April	1,256	101	3	462	561	2,383	123	4	1	116	49	293	2,676
May	1,263	105	3	460	564	2,395	123	5	1	119	49	297	2,692
June	1,263	107	4	453	569	2,396	119	6	-	117	49	291	2,687
<b>2007 Average</b>	<b>1,253</b>	<b>101</b>	<b>4</b>	<b>458</b>	<b>558</b>	<b>2,373</b>	<b>124</b>	<b>5</b>	<b>1</b>	<b>98</b>	<b>48</b>	<b>292</b>	<b>2,665</b>

<p>W = White  P = Asian or Pacific Islander  American Indian or Alaskan  A = Native  B = Black  H = Hispanic</p>
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The Audit Team compared the race/ethnicity of officers in the Total Service/Incident Reports Analysis Population to the race/ethnicity of the officers noted by HPD in the CED Service/Incident Reports. Table 5c summarizes the results of our comparison are as follows:

Table 5c summarizes the Race/Ethnicity of the Officers that were in the Analysis Population of the Service/Incident Reports and the Race/Ethnicity of the CED Service/Incident Reports.

**TABLE 5c RACE/ETHNICITY OF OFFICER'S**

<b>Officer's Race/Ethnicity</b>	<b>Total Service/Incident Reports Analysis Population</b>	<b>CED Service/Incident Reports</b>	<b>Difference</b>
<b>African American</b>	25.1 %	17.3 %	-7.8 %
<b>Latino</b>	24.3 %	27.9 %	3.6 %
<b>Anglo</b>	46.2 %	52.3 %	6.1 %
<b>Other Groups</b>	4.4 %	2.5 %	-1.9 %

Based on the above analysis, the positive values in the Difference column indicate the officer racial/ethnic group was involved in a proportion of CED events that was larger than the proportion represented by it for all HPD incidents in the Analysis Population. Negative values indicate the officer racial/ethnic group was involved in a proportion of CED events that was smaller than the proportion represented by it for all HPD incidents in the Analysis Population.

For our statistical analysis, the crime context was measured using splines (both individual and grouped) based on the UCR subject codes. Geographic context was measured using two types of data: zip code splines and splines for the nine City Council Districts. We focused on the City Council Districts in the analysis presented here given their more substantively meaningful status within this analysis.<sup>21</sup> The nine City Council Districts were employed as substantively meaningful dummy variables which allowed us to control for one key contextual variable (the geographic location of the officer-suspect interaction).

The City Council Districts had the advantage of representing distinct regions of the City. They were independent of any HPD or investigator decisions (e.g., they could not be altered to affect the outcome of the analysis). They were mutually exclusive (i.e., events can occur in one, and only one Council District) and, in part as a consequence of the Voting Rights Act (combined with moderate to high racial/ethnic housing segregation) are representative of the ethnic/racial context within which officer-suspect interactions take place in the City.

<sup>21</sup> Recall that we used a host of statistical procedures in the incidence analysis. In particular, we used Ordinary Least Squares regression analysis, Logistic regression analysis, and Rare Events regression analysis. In addition, under each of these econometric regimes a variety of diagnostics were employed ranging from extreme bounds tests to sub-group evaluation. The results presented here represented our summary judgment regarding the impact of the variables taking into account the combined results of this meta-analysis. The main analysis population was approximately 570,000 individual cases (due to missing data issues, the actual number varied somewhat depending on the specific analysis population).

In contrast, alternative geographic variables, such as HPD Divisions, could not provide context since they were not mutually exclusive in terms of their geographic coverage (some Divisions were City-wide and thematic while others were geographically based). At the same time the reliability of the decision-rules utilized to place incidents were under different HPD Divisions was not entirely clear.

The City Council District level analysis opened an important window on the context in which officer-suspect interaction took place in the City of Houston, providing important caveats to broad-brush City-wide interpretations of the data. For instance (see Table 9), while City-wide Anglo officers were more likely to utilize their CED when interacting with African American suspects than were African American officers, in District D (the Council District in which the largest number of African American suspects were involved in a CED event), African American officers were just as likely to use a CED as were their Anglo counterparts (both when speaking of all suspects as well as when limiting the analysis to African American suspects).

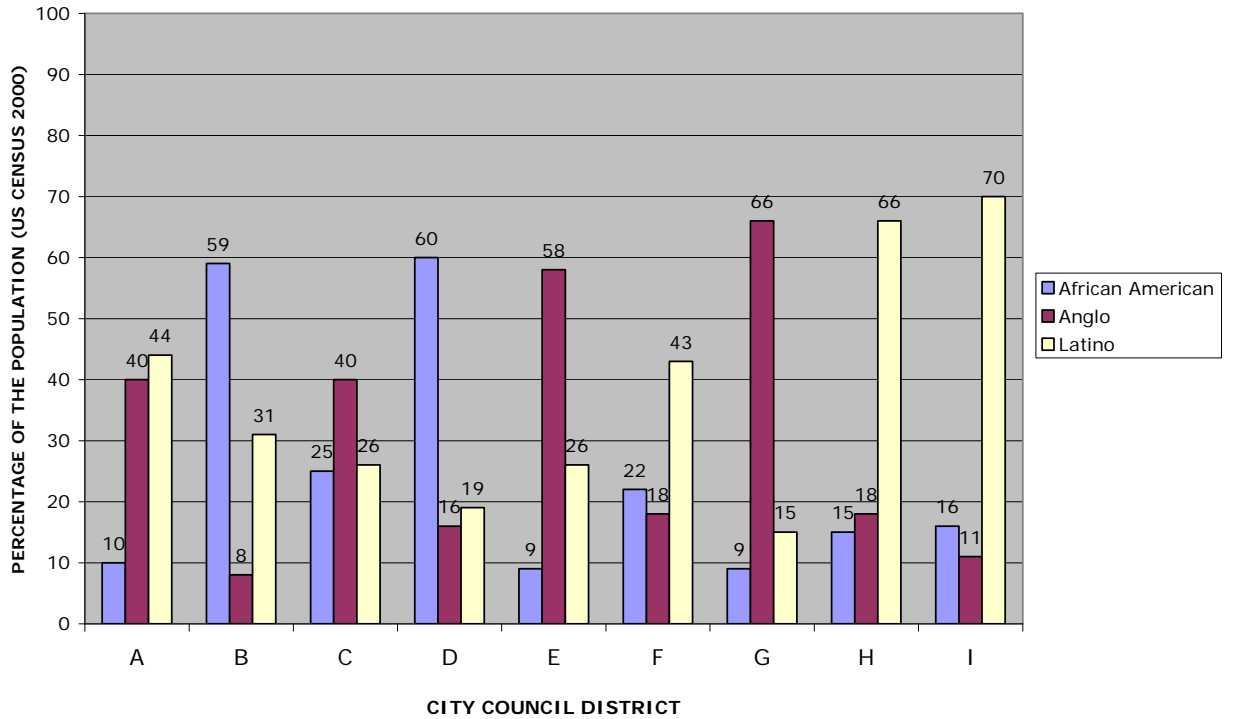
For the present data analysis, the number of CED events was too fragmented across HPD's 19 Divisions to allow for valid City-wide analysis of CED events while employing HPD Divisions rather than Council Districts as the contextual control variables. In fact, even if we focused on Division-level analysis comparable to that conducted for the nine City Council Districts, it would only be possible to conduct this analysis for 9 of the 19 HPD Divisions (eight of which are geographically defined Divisions, and one of which is the City-wide "Extra Jobs" Division).

## Council Districts

Guided by social science protocol, we determined that the most objective unit of analysis was City Council Districts.

Using U.S. Census 2000 data, the racial/ethnic breakdown of the various City Council Districts are shown in Figure 6.

**FIGURE 6. THE RACIAL/ETHNIC DISTRIBUTION OF THE POPULATION OF THE HOUSTON CITY COUNCIL DISTRICTS**





CED deployments took place in all City Council Districts during the scope period. Table 6 below summarizes the total number of CED deployments by Council District for the periods November and December 2004, 2005, 2006, and January through June 2007.

**TABLE 6. CED DEPLOYMENTS BY CITY COUNCIL DISTRICT**

Council District	Scope Period				Total
	November and December 2004	2005	2006	January through June 2007	
A	3	31	25	18	77
B	5	101	85	42	233
C	2	48	49	21	120
D	7	123	93	37	260
E	4	31	20	10	65
F	3	29	37	16	85
G	3	20	24	13	60
H	4	85	82	26	197
I	4	62	64	22	152
<b>Total</b>	<b>35</b>	<b>530</b>	<b>479</b>	<b>205</b>	<b>1,249</b>

### Suspect Component

The results suggest that African American suspects were significantly more likely to be subject to a CED shock than Anglo or Latino suspects (see Tables 7A, 7B, and 7C). This is an observation that was significant, for both City-wide and within five of the nine City Council Districts of Anglos and three of the nine City Council Districts for Latinos (see Table 8).<sup>22</sup> Latino suspects were significantly more likely to have a CED used on them than Anglo suspects, although this observation was not especially strong as well as only present in one of the nine Council Districts. Male suspects were significantly more likely to be subject to a CED shock than female suspects (see Table 9). This observation was present in all nine Council Districts.

<sup>22</sup> A result that was strong and significant in some Districts does not imply that it was not present in others; rather it means that we do not consider the finding as strong as what we found at the City-wide level. We did not find results “flipping” signs in a significant manner at the District level.

**TABLE 7a. CED USE IN HOUSTON, AFRICAN AMERICAN SUSPECTS**

COMPARISON SUSPECT GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN AN AFRICAN AMERICAN IS THE SUSPECT COMPARED TO:					
Anglo Suspect	<b>Much Higher</b>	<b>Much Higher</b>	Equal	Equal	<b>Much Higher</b>	<b>Much Higher</b>
Latino Suspect	<b>Much Higher</b>	<b>Much Higher</b>	Equal	Equal	<b>Much Higher</b>	Equal
<b>Analysis Population</b>	Full	Male Officers	Female Officers	African American Officers	Anglo Officers	Latino Officers

**TABLE 7b. CED USE IN HOUSTON, LATINO SUSPECTS**

COMPARISON SUSPECT GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN A LATINO IS THE SUSPECT COMPARED TO:					
African American Suspect	<b>Much Lower</b>	<b>Much Lower</b>	Equal	Equal	<b>Much Lower</b>	Equal
Anglo Suspect	<b>Higher</b>	<b>Higher</b>	Equal	Equal	Equal	<b>Higher</b>
<b>Analysis Population</b>	Full	Male Officers	Female Officers	African American Officers	Anglo Officers	Latino Officers

**TABLE 7c. CED USE IN HOUSTON, ANGLO SUSPECTS**

COMPARISON SUSPECT GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN AN ANGLO IS THE SUSPECT COMPARED TO:					
African American Suspect	<b>Much Lower</b>	<b>Much Lower</b>	Equal	Equal	<b>Much Lower</b>	<b>Much Lower</b>
Latino Suspect	<b>Lower</b>	<b>Lower</b>	Equal	Equal	Equal	<b>Lower</b>
<b>Analysis Population</b>	Full	Male Officers	Female Officers	African American Officers	Anglo Officers	Latino Officers

**TABLE 8. LIKELIHOOD A SUSPECT OF THE GROUP IN COLUMN A WILL BE INVOLVED IN A CED DEPLOYMENT COMPARED TO A SUSPECT OF THE GROUP IN COLUMN B: FULL POPULATION AND INVOLVING OFFICERS BY RACE/ETHNICITY**

ANALYSIS POPULATION	SUSPECT COLUMN A	SUSPECT COLUMN B	CITY COUNCIL DISTRICT									
			A	B	C	D	E	F	G	H	I	
Full	African American	Anglo		RED	RED	ORANGE					RED	RED
	African American	Latino								ORANGE	RED	RED
	Latino	Anglo			ORANGE							
African American Officers	African American	Anglo										
	African American	Latino										
	Latino	Anglo										
Anglo Officers	African American	Anglo	ORANGE		RED		ORANGE		ORANGE	RED	RED	RED
	African American	Latino					ORANGE		ORANGE	RED	RED	
	Latino	Anglo			ORANGE							
Latino officers	African American	Anglo		ORANGE		ORANGE			ORANGE			
	African American	Latino							ORANGE			
	Latino	Anglo			RED	ORANGE						

**RED = Much Higher Likelihood**  
**ORANGE = Higher Likelihood**  
**Blank = Equal Likelihood**

**TABLE 9. CED USE IN HOUSTON, FEMALE SUSPECTS**

COMPARISON SUSPECT GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN A FEMALE IS THE SUSPECT COMPARED TO:					
	A MALE SUSPECT	Much Lower	Much Lower	Lower	Much Lower	Much Lower
ANALYSIS POPULATION	Full	Male Officers	Female Officers	African American Officers	Anglo Officers	Latino Officers

When the analysis population was restricted to incidents involving African American Officers (see Tables 7A, 7B, and 7C), there were no racial/ethnic differences in the probability of suspects having a CED used on them. In other words, all suspects - whether African American, Anglo, or Latino - were all equally likely to be subject to a CED shock by African American officers.

When the analysis population was restricted to incidents involving Latino officers (see Tables 7A, 7B, and 7C), African American suspects were significantly more likely to be subject to a CED shock than Anglo suspects. This was a strong and significant relationship that was present in three council districts (see Table 8). Latino suspects were slightly more likely to have a CED used on them than Anglo suspects. This latter relationship was relatively modest City-wide and present in a significant manner in only one City Council District.

When the population was restricted to incidents involving Anglo officers (see Tables 7A, 7B, and 7C), African American suspects were significantly more likely to be subject to a CED shock than Anglo suspects. Latino suspects were very marginally more likely to have a CED used on them than Anglo suspects, and African American suspects were marginally more likely to be subject to a CED shock than Latino suspects. Both of these latter results were not especially strong, with the former noteworthy City-wide but not at the City Council District level (except in one district) while the latter is not noteworthy at the City-wide level, but was strong and significant in four City Council Districts (see Table 8).

The main conclusion from the analysis above was that African American suspects were significantly more likely to be subject to a CED shock than Anglo and Latino suspects. However, this greater probability of having a CED used on them was only the case when the officer was Anglo or Latino. The results also demonstrate that Latinos were marginally more likely to be subject to a CED shock than Anglos (though only when the officer is Anglo or Latino). This observation is substantially less robust than that regarding African American suspects.

As mentioned earlier, **the lack of adequate suspect data** (height/weight/size; criminal history) required that we treat the above results with considerable skepticism. It is very likely that our models suffered from omitted variable bias and that if proper controls regarding the suspect characteristics were included, many of the significant results we identified would vanish.<sup>23</sup>

### Suspect and Officer Component

The results suggest that African American officers were significantly less likely to use a CED on suspects than both Anglo and Latino Officers (see Tables 10A, 10B, and 10C). This result was significant City-wide as well as in four of the nine City Council Districts for Anglos and four of the nine City Council Districts for Latinos. Anglo, and Latino Officers were equally likely to use a CED on suspects (see Table 11).

This result is present City-wide as well as in all City Council Districts. Male and female officers were equally likely to use a CED on suspects (see Table 12).

**TABLE 10a. CED USE IN HOUSTON, AFRICAN AMERICAN OFFICERS**

COMPARISON OFFICER GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN AN AFRICAN AMERICAN IS THE OFFICER COMPARED TO:					
	AN ANGLO OFFICER	Much Lower	Much Lower	Much Lower	Much Lower	Equal
A LATINO OFFICER	Much Lower	Much Lower	Much Lower	Much Lower	Equal	Lower
<b>ANALYSIS POPULATION</b>	Full	Male Suspects	Female Suspects	African American Suspects	Anglo Suspects	Latino Suspects

<sup>23</sup> In a separate analysis we also controlled for the number of years an officer had been on the force, utilizing a variety of functional forms. By including this additional variable/set of variables to control for years on the force, we reduced the overall analysis population by approximately one-fifth (due to the lack of data for officer years on the force for many cases). Furthermore, analysis controlling for years on the force provided general conclusions similar to those presented here (although in a few specific instances, some sub-conclusions were altered slightly, although this was also in part due to the reduction in the number of overall cases analyzed). As a result of the above factors, we did not include the analysis that incorporated the years in service control set here (the results of this analysis can be obtained from the authors upon request).

**TABLE 10b. CED USE IN HOUSTON, LATINO OFFICERS**

COMPARISON OFFICER GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN A LATINO IS THE OFFICER COMPARED TO:					
	AN AFRICAN AMERICAN OFFICER	Much Higher	Much Higher	Much Higher	Much Higher	Equal
AN ANGLO OFFICER	Equal	Equal	Equal	Equal	Equal	Equal
<b>ANALYSIS POPULATION</b>	Full	Male Suspects	Female Suspects	African American Suspects	Anglo Suspects	Latino Suspects

**TABLE 10c. CED USE IN HOUSTON, ANGLO OFFICERS**

COMPARISON OFFICER GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN AN ANGLO IS THE OFFICER COMPARED TO:					
	AN AFRICAN AMERICAN OFFICER	Much Higher	Much Higher	Much Higher	Much Higher	Equal
A LATINO OFFICER	Equal	Equal	Equal	Equal	Equal	Equal
<b>ANALYSIS POPULATION</b>	Full	Male Suspects	Female Suspects	African American Suspects	Anglo Suspects	Latino Suspects

**TABLE 11. LIKELIHOOD AN OFFICER OF THE GROUP IN COLUMN A WILL BE INVOLVED IN A CED DEPLOYMENT COMPARED TO AN OFFICER OF THE GROUP IN COLUMN B: FULL POPULATION AND INVOLVING SUSPECTS BY RACE/ETHNICITY**

ANALYSIS POPULATION	OFFICER COLUMN A	OFFICER COLUMN B	COUNCIL DISTRICT								
			A	B	C	D	E	F	G	H	I
FULL (i.e. All Suspects)	AFRICAN AMERICAN	ANGLO		GREEN	BLUE					GREEN	GREEN
	AFRICAN AMERICAN	LATINO		GREEN	GREEN			GREEN		GREEN	
	ANGLO	LATINO									
AFRICAN AMERICAN SUSPECTS	AFRICAN AMERICAN	ANGLO		BLUE	GREEN			BLUE	BLUE		GREEN
	AFRICAN AMERICAN	LATINO		GREEN	BLUE	BLUE		BLUE			
	ANGLO	LATINO									
ANGLO SUSPECTS	AFRICAN AMERICAN	ANGLO									
	AFRICAN AMERICAN	LATINO								ORANGE	
	ANGLO	LATINO									
LATINO SUSPECTS	AFRICAN AMERICAN	ANGLO									
	AFRICAN AMERICAN	LATINO			GREEN			BLUE	ORANGE		
	ANGLO	LATINO			GREEN			BLUE			

**GREEN = Much Lower Likelihood**  
**BLUE = Lower Likelihood**  
**Blank = Equal Likelihood**  
**ORANGE = Higher Likelihood**

**TABLE 12. CED USE IN HOUSTON, FEMALE OFFICERS**

COMPARISON OFFICER GROUP	THE LIKELIHOOD THAT A CED IS USED WHEN A FEMALE IS THE OFFICER COMPARED TO:					
	Equal	Equal	Equal	Equal	Equal	Equal
A MALE OFFICER						
<b>ANALYSIS POPULATION</b>	Full	Male Suspects	Female Suspects	African American Suspects	Anglo Suspects	Latino Suspects

When the analysis was restricted to African American suspects (see Tables 10A, 10B, and 10C), we noted that both Anglo and Latino Officers were significantly more likely to use a CED on suspects than African American Officers. This finding was present City-wide as well as in six Districts (Anglo versus African American Officers) and four City Council Districts (Latino versus African American Officers) (see Table 11). There were no differences in the probability of CED usage among Anglo and Latino Officers.

If the analysis was restricted to Latino suspects, we noted virtually no differences among the officers. Anglo, Latino and African American Officers were equally likely to use a CED on Latino suspects. The only observation, and it is relatively modest, is that Latino Officers were more likely to use a CED on suspects than African American Officers (but this is a weak finding City-wide and is significant only in two City Council Districts) (see Table 11).

The analysis also considered Anglo suspects. Differences were not identified among the African American, Anglo, and Latino Officers in terms of their probability of using a CED on a suspect. This observation holds up in all of the City Council Districts, with one very minor exception.

Unlike the case for the Suspect data analysis, where the specter of omitted variable bias required considerable caution in interpreting the results, here we had no such concerns. Given the quasi-experimental nature of our analysis (similar context, with only officer race/ethnicity varying), we were quite confident that these results would withstand any addition of omitted variables. These results made clear that among the officers, there were virtually no differences in terms of the probability of using their CED when the suspect was an Anglo or Latino (with the minor exception that Latino Officers were slightly more likely to use a CED on Latino suspects than African American Officers. In two Districts, Anglo Officers were less likely than Latino Officers to use their CED when the suspect is a Latino). When the suspect was an African American, African American Officers were significantly less likely to employ their CED than Anglo or Latino Officers (who were equally likely to utilize their CED).

A final note on sample sensitivity is merited when discussing the Council District level analysis provided in Tables 8 and 11. **While this analysis is important in that it allows us to control for one key contextual variable (i.e., the geographic location of the officer-suspect interaction), the relatively small number of CED cases per district limits the accuracy of the results.**



## Geographic Component: Council Districts

Two City Council Districts stood apart from the rest when CED deployment was statistically analyzed. CED use in Districts D and H was significantly greater than all other Districts with the exception of District B. District B had a CED use that was significantly greater than Districts F and G. Other significant differences did not exist.

Given the finding that African American suspects were significantly more likely to be subject to a CED deployment than Anglo and Latino suspects, these results were not particularly surprising. However, of some interest was the greater use of CEDs in District D compared to District B (as both have comparable racial and socioeconomic demographics). It was not immediately clear why District H had a high CED usage or why District I, with similar demographics to District H, did not have a similar number of CED deployments.

If we focus on the three City Council Districts with the highest CED probabilities (D, H, and B), we noted the following three sets of relationships (see Tables 8 and 11).

In terms of the suspect data (see Table 8), in District H, African American suspects were significantly more likely to be the subject of a CED use than either Anglo or Latino suspects. This observation was driven primarily by the greater tendency of a CED to be used on an African American suspect when the officer was an Anglo. There were no significant differences present when the officer was an African American or Latino.

In City Council Districts B and D, African American suspects were more likely to have a CED used on them than Anglo suspects, but not Latino suspects. This significant relationship was driven in part by the greater tendency of CED use when the suspect was an African American and when the officer was a Latino.

For the officer data (see Table 11), we noted that in City Council Districts H and B that African American Officers were less likely to deploy their CEDs than Anglo and Latino Officers. This result was driven primarily by the much lower tendency of these African American Officers to use the CED than their Anglo and Latino counterparts when the suspect was an African American. In District D however, we did not observe any racial/ethnic differences among the officers in CED use. There was a minor exception when the suspect was an African American. African American Officers were noticeably less likely to use a CED than Latino Officers.

Overall, there appears to be some behavioral differences in City Council District D (e.g., those HPD divisions that were dominant in these Districts) that were worthy of future investigation.

### Summary

The absence of adequate data on suspect and officer characteristics limits the inferences that can be made from the results of our suspect data analysis. Nonetheless, the results do highlight several *relationships* between suspect race/ethnicity and CED use that merit further scrutiny. The stronger research design and data utilized for the officer data analysis allows us to draw inferences with much greater confidence. Lastly, while the Council District cross-sectional analysis allows us to control for important contextual factors, it is crucial to remember that the number of CED events in most of the nine Council Districts is sufficiently small so as to warrant caution in our interpretation of the Council District analysis results.

**As mentioned previously, given the data limitations, considerable caution must be exercised in the interpretation of the suspect related results.** The data analysis above however allowed three observations:

- African American suspects were significantly more likely to have the CED used on them than Anglo and Latino suspects.
- African American Officers were significantly less likely to use their CED than Anglo and Latino Officers. The explanation for this observation was most likely hinges on a complex set of factors related to the way in which the suspect interacted/responded to the officer and in which the officer interacted/responded to the suspect.
- Latino suspects were somewhat more likely to be subjected to a CED deployment than Anglo suspects. This difference was modest, and driven primarily by the greater tendency of Latino Officers to utilize their CED when a suspect was Latino, compared to when the suspect was an Anglo.

### **Recommendation: Diverse Patrol Experiment**

It is clear that a complex set of factors has yet to be investigated. Among these variables are measures (to be developed) that capture the threat that officers face, the general context in which the CED incident occurs, as well as the relation between an officer's productivity, arrest history, and their use of CEDs. In order to obtain a more thorough and complete understanding of the dynamics of these new variables, it would be advisable to conduct a series of natural experiments. These natural experiments would be designed to evaluate, for example, the role of officer and suspect race and ethnicity in the probability that a CED incident occurs.

### **Injury Analysis**

The analysis of the injuries to HPD Officers was conducted from workers' compensation claims data. Time series intervention analysis was used where applicable. Recall that the variables examined (see tables 2a and 2b) included the following:

- Physical altercation (variable name: Altercation)
- Foot pursuit that ends in physical altercation (variable name: Pursuit)
- Total amount of physical altercations (variable name: Total Comp)
- Cost due to physical altercation (variable name: Altercation\$)
- Cost due to foot pursuit that ends in physical altercation (variable name: Pursuit\$)
- Total cost of physical altercations (variable name: Total\$)
- Lost days due to physical altercation (variable name: Altercation Days Lost)
- Lost days due to foot pursuit that ends in physical altercation (variable name: Foot Days Lost)
- Lost time due to physical altercation (variable name: Altercation Lost Time) which is equivalent to the number of filed claims.
- Lost time due to foot pursuit that ends in physical altercation (variable name: Foot Lost Time) which is equivalent to the number of filed claims.
- Total amount of lost days due to physical altercations (variable name: Total Days Lost)
- Total amount of lost time due to physical altercations (variable name: Total Lost Time) which is equivalent to the number of filed claims.

### Andrews Test Results

The results are summarized in Table 13, and Figures 7 and 8. There were two variables that shifted (structural breaks). The cost due to physical alternation (Altercation\$) had a shift in July 2002 (p-value < .01) and the total cost of physical altercations (Total\$) had a break in April 2003 (p-value < .01).

**TABLE 13. ANDREWS TESTS FOR STRUCTURAL BREAKS IN INJURY DATA: JANUARY 2000 TO JUNE 2007**

Model	Maximum Test Statistic	Month of Maximum	Trimming
Altercation	0.966	June 2006	25%
Altercation\$	14.08*	July 2003	25%
Pursuit	3.825	March 2002	25%
Pursuit\$	5.58	October 2004	25%
Total Comp	2.97	May 2003	25%
Total\$	20.95*	April 2003	25%
Foot Days Lost	5.60	October 2004	25%
Foot Lost Time	2.05	January 2003	25%
Altercation Days Lost	3.45	August 2002	25%
Altercation Lost Time	4.75	August 2004	25%
Total Days Lost	4.44	August 2002	25%
Total Lost Time	2.23	May 2005	25%

**Notes: N = 90 months.**

The Chi-squared critical value for testing for a break in a single parameter with 25 percent trimming is 11.48 at the 1% level (\*). (See Andrews 1993, Table 1).

**FIGURE 7**

Andrews Test for Maximum Structural Break:  
Expenditures on Injury Claims Due to Aggressive Acts (non-foot pursuit)

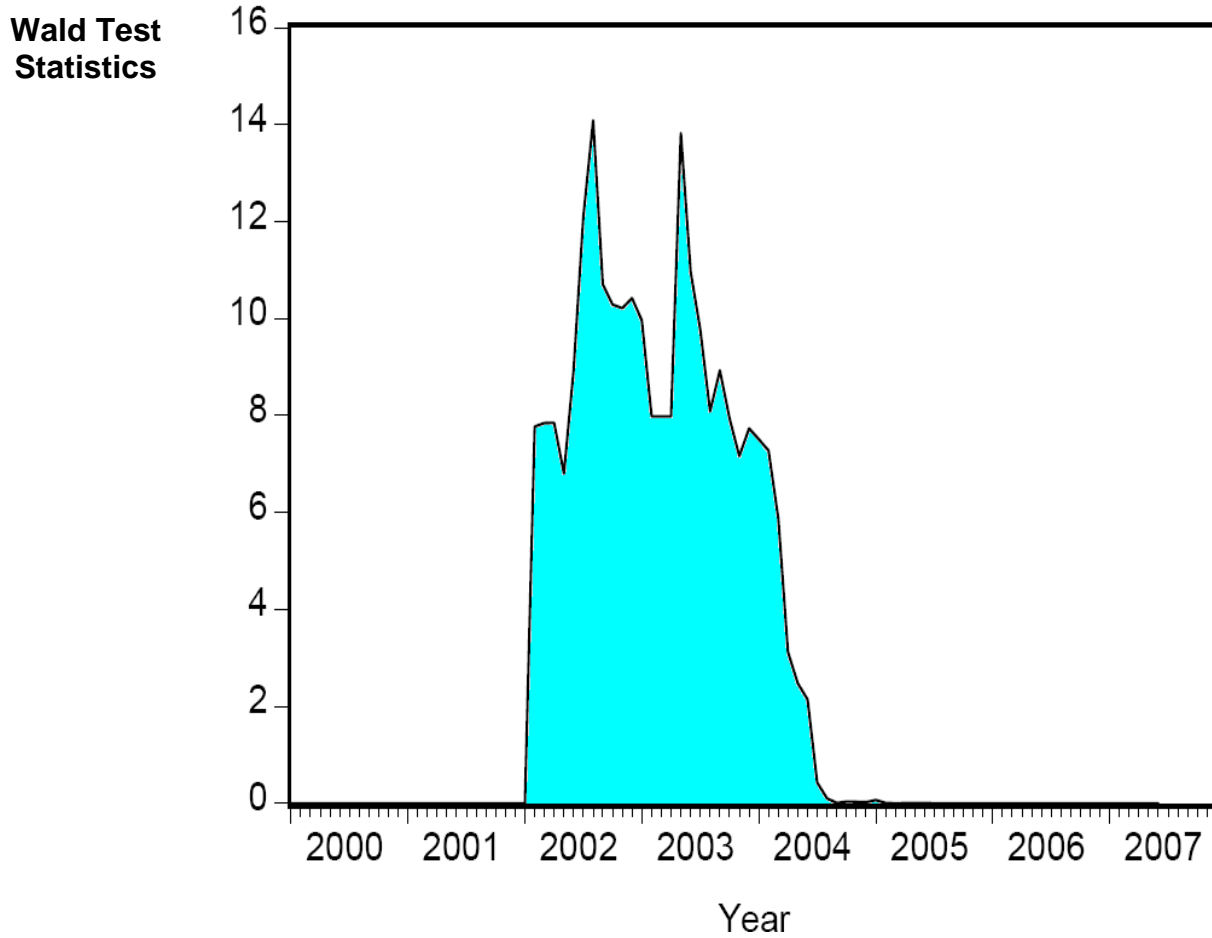
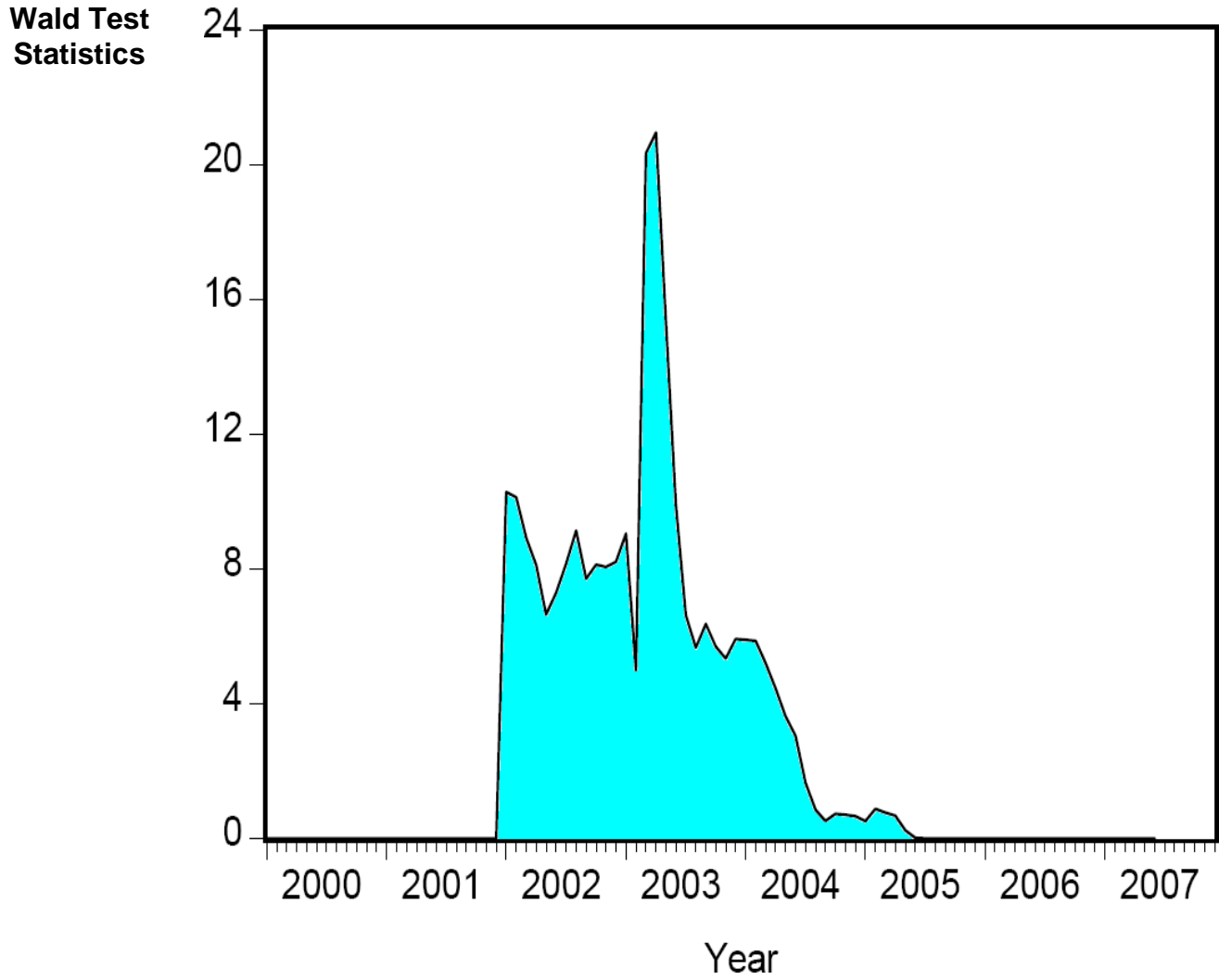


FIGURE 8

Andrews Test for Maximum Structural Break:  
Total Expenditures on Injury Claims Due to Aggressive Acts



### **The Rolling Paired t-test Results**

The rolling paired t-test (summarized in Table 14) results indicated that initial shifts occurred in Altercation\$ (April 2004); foot pursuits that ended in physical altercations (Pursuit-January 2003); the total amount of physical altercations (Total Comp-July 2004); Total\$ (May 2003) (see Figure 9); and the total amount of lost days due to physical altercations (Total Days Lost-July 2005) (see Figure 10).

In addition, shifts occurred for the following variables on January 2002: lost days and lost time due to physical altercations (Pursuit\$, Foot Lost Time, Altercation Lost Time, and Total Lost Time).

**TABLE 14. ROLLING PAIRED t-tests FOR STRUCTURAL BREAKS IN INJURY DATA: JANUARY 2000 TO JUNE 2007**

<b>Model</b>	<b>t-statistic (maximum)</b>	<b>Month of Maximum</b>	<b>Initial Effect</b>	<b>Cumulative</b>
<b>Altercation</b>	1.36	May 2003	NA	NA
<b>Altercation\$</b>	2.65**	August 2004	NA	NA
<b>Pursuit</b>	3.56**	July 2005	NA	NA
<b>Pursuit\$</b>	3.15*	July 2005	NA	NA
<b>Total Comp</b>	3.07**	July 2005	(2.63)	(3.24)
<b>Total\$</b>	3.53**	September 2004	(\$38,081)	(\$50,774)
<b>Foot Days Lost</b>	1.98*	July 2005	NA	NA
<b>Foot Lost Time</b>	2.94**	December 2003	NA	NA
<b>Altercation Days Lost</b>	1.48	August 2004	NA	NA
<b>Altercation Lost Time</b>	2.84**	September 2002	NA	NA
<b>Total Days Lost</b>	2.21*	July 2005	NA	NA
<b>Total Lost Time</b>	3.51**	August 2003	NA	NA

**Notes: N = 90 months.** \* indicates  $p < .05$ , \*\* indicates  $p < .01$ .

FIGURE 9

Rolling Break Point t-tests:  
Total Expenditures on Injury Claims Due to Aggressive Acts

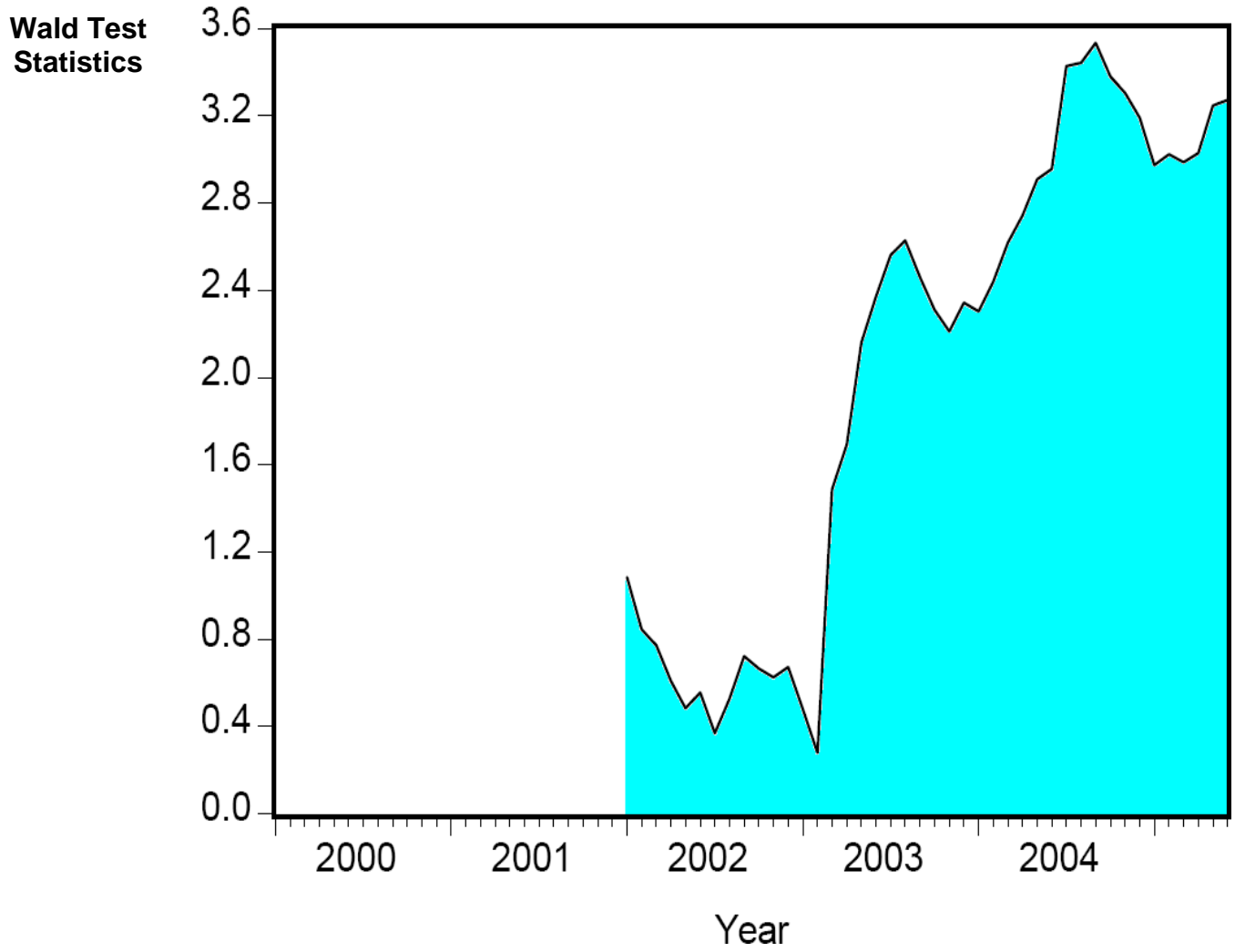
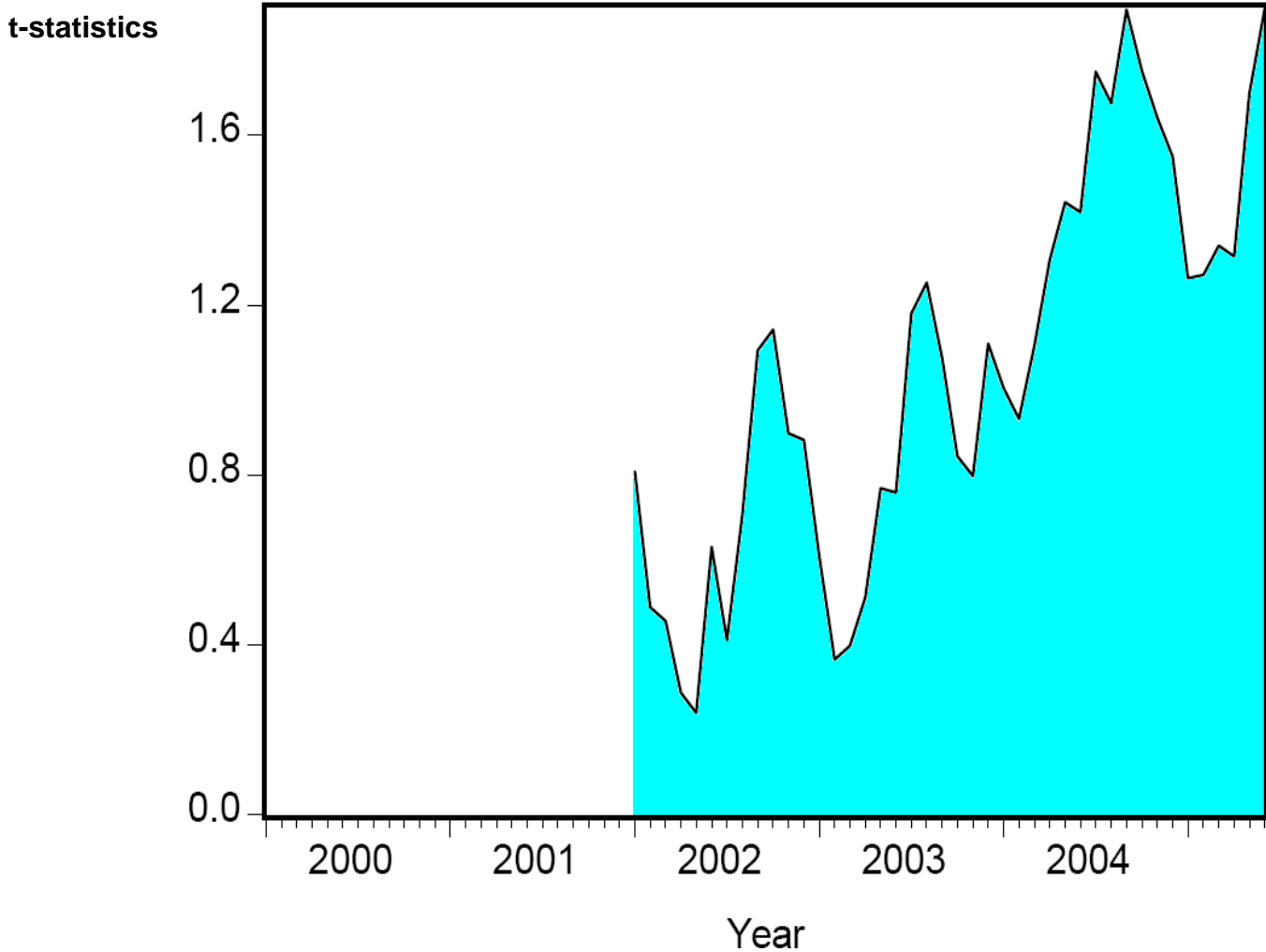


FIGURE 10

Rolling Break Point t-tests:  
Total Days Lost Due to Aggressive Acts



**Intervention Results**

The intervention analysis for using the dates for the Andrews test indicated no effect. However, the rolling paired dates resulted in the following cumulative policy effects for particular variables.

As reported in Table 14, the variables where a cumulative effect occurs were Total Comp and Total\$. In the case of Total Comp, there was a drop in the level of monthly claims (starting in July 2004) to -2.63 and that over time dropped to -3.24. The reduction in the intercept was approximately 18% (3.24/18.27). For Total\$ the initial reduction in the level, starting in May 2003 was \$38,081 which accumulates to a reduction of \$50,774. This equals a total expenditure of 49% (\$50,774/\$102,635).



## Summary

The results on injury analysis indicated there have been shifts in a variety of injury indicators. There have been substantial reductions in the number of compensation claims as well as the total expenditures. These reductions began prior to the institution of the CED policy and have continued through the scope period. While the CED policy cannot be the initial cause for the change and the scope period with CED capability is short, with the passage of time, it will be possible to see the full statistical effect of the CED policy.

## Substitution Analysis

Here we present the results of the HPD discharge of firearms for the period January 2000 to June 2007. Recall that our analysis for weapon substitution effects includes the following variables:

- Discharge of firearms that was an accident (variable name: Accident)
- Discharge of firearms that resulted in a citizen's death (variable name: Citizen Death)
- Discharge of firearms that resulted in a citizen's injury (variable name: Citizen Injury)
- Discharge of firearms that resulted in a citizen's death and injury (variable name: Citizen Death/Injury)
- Discharge of firearms that resulted in an officer's death (variable name: Officer Death)
- Discharge of firearms that resulted in an officer's injury (variable name: Officer Injury)
- Discharge of firearms that resulted in an officer's death and injury (variable name: Officer Death/Injury)
- Discharge of firearms that resulted in property damage (variable name: Property Damage)
- Discharge of firearms - total from categories above (variable name: Total/No Animal).

## Andrews Test Results

The results are summarized in Table 15. For the Andrews test, the only variable that showed a shift was citizen's death. As Table 14 indicates, the break in the series occurs in September 2004 (p-value < .01).

**TABLE 15. ANDREWS TESTS FOR STRUCTURAL BREAKS IN SUBSTITUTION DATA: JANUARY 2000 TO JUNE 2007**

Model	Maximum Test Statistic	Month of Maximum	Trimming
Accident	3.60	January 2003	37.5%
Citizen Death	11.97*	September 2004	25%
Citizen Injury	0.76	February 2003	25%
Citizen Death Injury	6.10	September 2004	25%
Officer Death	NA	NA	NA
Officer Death Injury	NA	NA	NA
Property Damage	NA	NA	NA
Total/No Animal	3.10	December 2004	25%

**Notes: N = 90 months.**

The Chi-squared critical value for testing for a break in a single parameter with 25 percent trimming is 11.48 at the 1% level (\*). (See Andrews 1993, Table 1).

***The Rolling Paired t-test Results***

As reported in Table 16, the variables with shifts using this test were: the discharge of firearms that was an accident (Accident-January 2002), the discharge of firearms that resulted in a citizen’s death (Citizen Death-August 2002), the discharge of firearms that resulted in an officer’s death (Officer Death-January 2002), and the total number of events (Total-November 2003).

**TABLE 16. ROLLING t-tests FOR STRUCTURAL BREAKS IN SUBSTITUTION DATA: JANUARY 2000 TO JUNE 2007**

Model	t-statistic (maximum)	Month of Maximum	Initial Effect	Cumulative
Accident	4.77**	September 2003	-.50	---
Citizen Death	2.39*	January 2005	.31	---
Citizen Injury	1.46	November 2003	NA	NA
Citizen Death Injury	1.29	June 2005	NA	NA
Officer Death	2.38*	August 2002	NA	NA
Officer Death Injury	1.67	October 2002	NA	NA
Property Damage	3.24**	December 2004	NA	NA
Total/No Animal	2.10*	January 2004	NA	NA

**Notes: N = 90 months.** \* indicates  $p < .05$ , \*\* indicates  $p < .01$ .

### ***Intervention Results***

There was no evidence of persistence in any of these variables. However, it was possible to find evidence of initial effects. The Accident variable showed a drop in its mean of -.50. This constituted a reduction of 59%  $(-.50/.85)$ . On the other hand, there was evidence of an increase in the level of Citizen Death, an increase from .42 to .73 or 74%.

### **Summary**

As with the injury analysis, we noted that shifts or structural breaks in the data occurred prior to the introduction of the CED policy. This was not entirely surprising since the only data available that could be associated with weapons pertains to firearms. Note also that the CED policy has been in existence for such a short duration. Over a period of time, it will be possible to see the full statistical effect of the CED policy. A more direct test for substitution effects would involve the use of batons or flashlights, which are more readily associated with the intermediate weapon status a CED possesses. These tests, along with the addition of an extended time period would improve the overall research design.

## **Complaint Analysis**

Between December 2004 and June 2007, there were 55 complaints filed against HPD Officers where CEDs were mentioned in the complaint. A reading of these complaints (see Table 4 for a summary) indicated the following:

### ***Gender Breakdown***

- Of the 59 officers noted in the 55 complaints, 97% of the complaints were leveled at male officers while 3% of the complaints were directed at female officers.
- 76% of the complaints were made by males and 24% were made by females.

### ***Racial Breakdown of Officers (59)***

- 27 or 46% of the complaints were directed at Anglo Officers
- 20 or 34% of the complaints were directed at African American Officers
- 9 or 15% of the complaints were directed at Latino Officers
- 3 or 5% complaints were directed at Asian Officers

### ***Racial Breakdown of Complainants (51)***

- 7 or 14% of the complaints were made by an Anglo
- 36 or 71% of the complaints were made by an African American
- 7 or 13% of the complaints were made by a Latino
- 1 or 2% of the complaints were made by an Asian

### ***Racial/Gender Breakdown of Officers and Complainants***

- Of the 23 complaints leveled at Anglo male Officers, 3 were made by Anglo males, 14 by African American males, 2 by African American females, 2 by Latino males, and 2 by Latino females.
- Of the 14 complaints leveled at African American male Officers, 1 was made by an Anglo male, 8 by African American males, 1 by a Latino male, 1 by an Anglo female, and 3 by African American females.
- Of the 9 recorded complaints leveled at Latino male Officers, 2 were made by Anglo males, 1 by an Asian female, 4 by African American males, 1 by an African American female, and 1 by a Latino female.
- The 3 complaints leveled at Asian male Officers were made by 1 African American male, 1 African American female, and 1 Asian female.
- The 2 complaints leveled at African American female Officers were made by 1 African American male and 1 African American female.

### ***Disposition of the Complaints***

Of the 55 complaints noted in HPD documentation, 3 were sustained and 9 were not. In the remaining cases investigated, the following outcomes occurred: the officer was exonerated (13); there was no evidence or insufficient evidence to prove the incident occurred (1); the complaint was never formalized (2); the CED was not the focus of the complaint and the investigation found the CED usage appropriate (12); and the allegation was false or not factual (11).

Four cases remained open.

### **Summary**

In summary, this statistical analysis identified racial and gender differences in the breakdown of both officers and complainants involved with the use of CEDs. Anglo and African American male Officers had the most complaints filed against them. In particular, the mode (most frequent category) was Anglo Officers that had a complaint filed by an African American complainant.

## DATA MANAGEMENT

The process for collecting the data raised some important issues that affected the analysis. The research team found the personnel of HPD to be fully cooperative in all requests for information. However, there were delays in acquiring and assembling the data as the data collection process was underway. Much of the delay was attributed to an outdated database system so it is important to keep in mind that HPD's planned transition to a new system should alleviate some of the problems.

For example, HPD fielded approximately 1.4 million calls for service/incident reports that were recorded in multiple databases during the Scope period. Approximately 48% of the 1.4 million electronic police call for service/incident reports did not contain suspect information (e.g., the incident was reported after the suspects had long left the scene of the incident, no suspect was involved in the incident, and/or no information on the suspect was collected). The addition of key explanatory variables (suspect race/ethnicity, Uniform Crime Report (UCR) code, zip code of incident location, City Council District of incident location) resulted in the exclusion of approximately 110,000 cases while the lack of officer data for an incident led to the exclusion of approximately 50,000 additional cases. This left the Audit Team with a final analysis population of approximately 570,000 merged records (the Analysis Population).

The original electronic data was of poor quality, incomplete, inconsistent, and retrieval was difficult. The physical size (weight, height) of the suspect was often not recorded in either the electronic or hardcopy reports and if it was we noted that the majority of the suspects were 175 pounds. Included in the approximately 700,000 calls for service/incident reports were 1,284 incidents where a CED was deployed. Only 951 (75%) of the 1,284 CED deployments could be statistically analyzed primarily because of the data merging challenges. In summary, the Audit Team reviewed all 1,284 of the hardcopy CED calls for service/incident reports; however, they could not include CED incidents that were lost during the electronic data merges without biasing the results of the analysis.

There appeared to be two organizational barriers to data management at HPD. The current data management process was fragmented or de-centralized. Rather than storing data in one central location with the use of common software and universally defined units of analysis, there was more than one sub-organization that had its own method of data management. Data management knowledge was concentrated in too few individuals.

The lack of coordination among the various data management units within HPD combined with insufficient knowledge diversification within each unit results in the following process and delivery:

- Due to incompatible and sometimes outdated software, HPD analysts must frequently engage in inefficient data acquisition practices (i.e., open and close various programs and manually write data outcomes).
- Those who ask for data (such as the Audit Team) are faced with delays in data merges, including further requests for clarification due to coding error, coding ambiguity, and missing data from the original source.
- Several HPD call for service/incident databases were developed in COBOL, a seldom used computer language in modern systems. As a result HPD is at risk of inadequate staffing resources in the event of staff turnover. COBOL is a computer language that is generally neither mandated nor offered in current college curriculums.

The impairment of process and delivery is compounded by the additional factor that HPD appears to be understaffed in the data management area. In addition to requests for data, particularly large data requests such as this, there are daily requests that are a function of Open Records requirements.

### **Summary**

The impairment of process and delivery was compounded by the additional factor that HPD appeared to be understaffed in the data management area. In addition to requests for data, particularly large data requests such as the ones for this CED audit, there were numerous Open Records requests.

The current structure for data management is organizationally deficient and under-staffed. This combination of factors may produce inefficiencies in data transmission, increases in measurement and coding errors, and an overall inability to create a template for connecting disparate pieces of information to support overall HPD Management processes. The implications are even more severe however, if there are efforts to increase situational awareness for HPD officers that require data in real time.

### **Recommendation: An Audit on Data Management Processes**

To end delays in data dissemination and to provide a process to enhance the forthcoming modernization in data management, we believe a process audit is imperative. The current structure for data management at HPD seriously impairs efficient data processing and data acquisition. The audit would seek to merge efficient processes, remove impediments to efficient processing, and combine these methods with the new data processing capabilities that are now being constructed.

## CONCLUSION

Before summarizing the statistical conclusions, it bears repeating that this study faced some important data limitations. The limitations meant that a variety of alternative explanations have yet to be evaluated and important statistical controls have not been included. The fact that the CED policy has been in existence for such a brief period means the passage of time could lead to new results and conclusions.

With these caveats in mind we provide some summary thoughts. In regard to *incidence*, the results from the CED analysis suggest that certain combinations of officer and suspect characteristics resulted in an increased probability of CED utilization. Depending on how the race of the officer and the race of the suspect were paired, it was possible to see significant increases and decreases in the rate of CED utilization. Although these City level results were robust to numerous statistical controls, it was important to note that we observed interesting deviations from these general patterns when we conducted our analysis at the City Council District level. The results for *injuries* and *substitution* indicated that nearly all statistically discernible changes occurred prior to the implementation of the CED policy. We also noted that the data for injuries and substitution had little persistence in their behavior. The effects of policy changes for the most part occurred quickly.

The *complaint* analysis indicated that complaints in which a CED was mentioned did have a distinctive racial and gender propensity. More males and African Americans filed complaints. The mode (most frequent category) of HPD officers receiving complaints were Anglo males. We also noted that few complaints have been sustained.

A final observation centers on *data management*. Despite cooperation by HPD in providing the data, we found that there were delays that can be traced to organizational rigidity and a general lack of staffing.



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**Sam Houston State University,  
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## **PART IV**

# **A QUALITATIVE ANALYSIS OF THE USE OF CONDUCTED ENERGY DEVICES BY THE HOUSTON POLICE DEPARTMENT**

SAM HOUSTON STATE UNIVERSITY,  
A QUALITATIVE ANALYSIS OF THE USE OF CONDUCTED ENERGY DEVICES  
BY THE HOUSTON POLICE DEPARTMENT

TABLE OF CONTENTS

	<u>Page</u>
Summary	111
Background	114
Study Components and Method of Analysis	118
Results of Compliance Review of Houston Police Department Incident Reports	120
Houston Police Department Incident Report Review	132
Houston Police Department Training Academy - CED Training	139
Comments on UH CPP Team Statistical Analysis of the Use of CEDs	143
Recommendations	147

## SUMMARY

The study period was from the implementation of the Conducted Energy Device (CED) program, December 4, 2004, through June 30, 2007. Using qualitative analysis and observation, the research group from Sam Houston State University College of Criminal Justice (SHSU CCJ)<sup>1</sup> studied the following issues in relation to the use of CEDs by the Houston Police Department (HPD).

- *When officers deployed a CED, were they responding to a call for service for which they were dispatched, or did the officer self-initiate the call by making a traffic stop, or otherwise encountering the suspect?*
- *What was the nature of the original call for service? In other words, why was the officer there?*
- *When an officer deployed the CED, how many cycles were used?*
- *In what percentage of the cases in which an officer deployed the CED, was it noted that the suspect on whom the CED was deployed appeared to have used alcohol and/or drugs?*
- *What appeared to be the effectiveness of the deployment of the CED in controlling the suspect's behavior? When the device appeared to be ineffective, what was the apparent reason?*
- *Were officers in compliance with HPD policy in the deployment of the CED and the reporting of the incident? If not, were factors present which made the deployment appropriate despite the apparent failure to comply with policy?*
- *Were there cases in which the CED was deployed in which the officer would have been justified in using deadly force?*
- *During the training of cadets on the use of CED, what was observed that might be affecting the manner in which officers deploy the CED?*

### Initiation of Call for Service

Fifty-five percent (55%) of the time, in the incidents which resulted in the deployment of a CED, the officer had responded to the scene as a result of being dispatched. In 33% of the cases, the contact with the suspect against whom the CED was eventually deployed, was initiated by the officer. In 12% of the cases, the initial reason for the contact with the suspect was a traffic issue. A majority of the self-initiated contacts were drug related.

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<sup>1</sup> The principal investigator from Sam Houston State University was Margo L. Frasier, J.D. Assisting was Jennifer Schulenberg, Ph.D., and Brian Lawton, Ph.D.

## **Nature of Call for Service**

The two most frequent types of calls for service were drug related (15%)<sup>2</sup> and disturbance related (15%).<sup>3</sup> The incidents involving drugs were notable in that, with a few exceptions, they were calls which were self-initiated by an officer.<sup>4</sup> Assault was the basis for 13% of the calls. In addition to the 13% of the calls which were assault based, 7% of the calls were based on a report of family violence. Criminal trespass was the basis of 6% of the calls. Traffic offenses were the basis for 11% of the calls. Other misdemeanors such as Driving While Intoxicated, Theft, and Criminal Mischief comprised the basis of 13% of the calls. Other felonies comprised the basis of 9% of the calls. Approximately one-third of the felonies were related to automobile theft. Eleven percent of the calls were based on the need for crisis intervention by officers with a person suspected of having a mental health issue.

## **Number of CED Cycles Used When Deployed**

A standard cycle of the CED is five seconds. In 38% of the incidents, the officer only deployed one cycle. In 31% of the incidents, the officer deployed two cycles. In 15% of the incidents, three cycles. In 5% of the incidents, the CED was cycled four times. In 3% of the cases, the CED was cycled five times. In 5% of the cases, the CED was cycled between six and ten times. In 3% of the cases, the CED was cycled over ten times.

## **Impact of Alcohol and/or Drugs Consumed by Suspects**

In 58% of the incidents, officers did not note that the suspect appeared to be under the influence of drugs and/or alcohol. The researcher did not attempt to determine whether the officer, if asked, would have said that drugs and/or alcohol might have been a contributing factor to the behavior which resulted in the need for CED deployment. However, it is highly likely that a significant percentage of these suspects were under the influence of drugs or alcohol given the behavior that was noted by the officer.

In 15% of the incidents, the officers noted in their reports that the suspect appeared to be under the influence of alcohol. In 27% of the incidents, the officers noted in their reports that the suspect appeared to be under the influence of drugs and/or possessing drugs.

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<sup>2</sup> For the purposes of this study, drug related calls include the possession of and/or sale of drugs.

<sup>3</sup> For the purposes of this study, disturbance related calls include the crimes normally associated with disorderly conduct and public intoxication.

<sup>4</sup> The fact that a call was self-initiated by an officer does not mean that citizen complaints were not the basis for officers being in the area.

## **Effectiveness of CED in Controlling a Suspect**

The device was reported as being effective in assisting in controlling the suspect in 77% of the incidents. It should be noted that this does not mean that the device was effective in its initial deployment or effective in controlling the suspect's behavior with only one cycle of the CED. In some cases, the officer deployed the device in probe mode and then resorted to using the CED in the drive stun mode to gain control. In other cases, the officer used multiple cycles in the probe mode to gain control of the suspect.

In 4% of the incidents, the report indicated that the CED was not effective due to the clothing the person was wearing. In 4% of the incidents, the officer missed the suspect with one or more darts. In 2% of the cases, it was reported that the darts hit the suspect, but the suspect pulled out the darts. In 2% of the incidents, it was reported that the CED was defective and did not fire the probes. In an additional 11% of the incidents, the officer indicated that the CED was not effective without attributing the ineffectiveness to any of the reasons previously identified. In the majority of the cases where the officer indicated that the CED was not effective, the officer reported that the suspect appeared to be under the influence of alcohol and/or drugs or experiencing some form of mental health crisis.

## **HPD CED Policies**

**HPD CED policies, in general, followed the best practices of the law enforcement profession.** Additionally, the majority of the reports indicate that the officer used the CED in compliance with HPD CED policies. Any concerns about the use of CEDs did not appear to be a result of any shortcoming with HPD CED policies. Instead, as detailed later, the concerns appear to be as a result of training and/or implementation of HPD CED policies.

## **Use of CED Instead of Deadly Force**

The results of the study by the University of Houston Center for Public Policy (UH CPP) did not indicate a reduction in the number of officer involved shootings since the introduction of the CED. This was not surprising as the opportunities to use a CED instead of a firearm are very limited. For example, it would be highly unusual for an officer to rely on a CED if the suspect was armed with a firearm.

However, there were incident reports which indicate that officers would have been legally justified in using deadly force and the officers chose, instead, to deploy the CED. It should be noted that just because the officer would have been legally justified in using deadly force, it does not mean that the officer would definitely have chosen this option if not for being CED equipped. However, a review of the reports indicated situations in which other intermediate weapons were unlikely to have been used due to officer safety concerns; thus, if the CED had not been available, the use of deadly force would have been more likely.

## **HPD Training Academy - CED Training**

There were numerous issues involved in the training of cadets on CED use. Many of the issues, which are detailed later in this report, center around the lack of emphasis on the potential danger to a suspect if numerous cycles of a CED are deployed; particularly on a suspect who might be at risk for excited delirium. Additional concerns center around the lack of training in a manner which more accurately reflects the situations described in the actual incident reports of HPD officers. Also, while the cadets went through the motion of deploying the CED, demonstration of true proficiency was not required of the cadets.

## BACKGROUND

### Introduction

Law enforcement officers perform their duties, day and night, without much notice from the public. The general public gives little thought to how officers go about maintaining order and the challenges officers face in pursuing that goal.

Further, there may be a disconnect between public perception and legal reality. Statutes and court decisions direct officers that they may use the amount of force that is reasonably necessary to control a situation given the facts and circumstances facing the officers.<sup>5</sup> The public, however, tends to believe that officers should use the absolute *minimum* amount of force necessary to control the situation. The criticism leveled at officers often centers around a perception that officers should attempt the lowest level of force, and, if not successful, progress to the next higher level of force. Only if, each level of force proves unsuccessful should the officer, in the public's opinion, resort to a greater level of force. Meanwhile, officers are trained to use a level of force which is reasonable under the totality of the circumstances. This does not necessarily translate to an officer using the least amount of force justified. In fact, officers are trained to use the level of force that, while reasonable, will control the situation.

These observations were not meant to be critical of the public or law enforcement. They were meant to portray the reality in which use-of-force issues were dealt with by law enforcement, viewed by the public, and portrayed by the media.

There are two circumstances in which the public tends to pay particularly close attention to the use-of-force by law enforcement officers. The first is when a law enforcement officer uses deadly force. When a law enforcement officer uses force that results in a death, the public wants to know "why." Why didn't the officer wound the suspect instead of killing him/her? Why didn't the officer use less than deadly force to resolve the situation?

The second circumstance is when the public, or a segment of the public, perceives that law enforcement officers have used force in a disproportionate or discriminatory manner towards one segment of the community. Once again the public asks questions. Would the situation have been handled differently if the suspect had been of a different race or ethnicity? Was more force used because of who was involved as opposed to what the person did to warrant law enforcement action?

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<sup>5</sup> Texas Penal Code 9.32

When CEDs are considered, both circumstances may come into play. CEDs are viewed by a majority of the general public as an alternative to deadly force.<sup>6</sup> When an officer has resorted to the use of a firearm resulting in the death of a suspect, often one of the first questions asked was, “Why didn’t the officer use a Taser?”<sup>7</sup> On the other hand, when a CED was used to control a situation, the public sometimes asked, “Why did the officer have to use a Taser?” HPD’s utilization of CEDs has been called into question by some; particularly concerning the issue of whether certain racial minority groups have had CEDs deployed against them in a disproportionate and/or discriminatory manner. Also, since the introduction of CEDs at HPD, when officers have used deadly force, one of the first questions posed is, “Why a CED was not used instead of deadly force?”

## Basics of Conducted Energy Devices

Most of situations confronted by law enforcement officers are controlled simply by the presence of officers. Only 1% of the contacts between law enforcement and the public, nationwide, result in a use-of-force at a level higher than a verbal command and handcuffing.<sup>8</sup> For circumstances in which physical force is required, law enforcement agencies have long sought tools to assist the officer in controlling the situation.

Traditionally, officers were equipped with a handgun and some type of striking instrument. With the development of chemical munitions for non-military purposes, law enforcement agencies began using tear gas to disperse crowds during protests. During the 1960s, there was an emphasis on the advancement of weapons which would give an officer an alternative to the lethal force option of using a firearm. The modern day results are pepper spray, which causes irritation to the suspect, and the expandable baton. Some officers have found pepper spray to be problematic due to the fact that the situations are limited in which its use is appropriate and the officer often becomes contaminated by the residue of the pepper spray when handling a suspect who has been sprayed. Additionally, there are individuals who appear to be unaffected by pepper spray and others who appear to have an adverse reaction to the spray. Batons, expandable or fixed, are a useful device, but require the officer to be in very close proximity to the suspect in order for the device to be used. Additionally, a suspect struck with a baton will often suffer some level of injury. While rarer than reports of ineffectiveness of pepper spray, there are reports of some individuals being virtually unaffected by being struck with a baton. For many law enforcement agencies, utilization of CEDs is just another step in the development and use of what are commonly referred to as **intermediate weapons**.

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<sup>6</sup> The Annual Houston Area Survey found that 60% of the public thought equipping law enforcement with CEDs made it less likely they would use deadly force. [www.houstonareasurvey.org](http://www.houstonareasurvey.org).

<sup>7</sup> While “Taser” is the name of a particular brand of conducted energy devices, the public has come to refer to CEDs generally as Tasers. In fact, during the training at HPD, officers are instructed to announce “Taser, Taser, Taser” when deploying a CED as the suspect might be confused if the terms “CED” or “conducted energy device” were used instead.

<sup>8</sup> U.S. Bureau of Justice Statistics (1999). *Contacts between police and the public: Findings from the 1999 National Survey*, Washington D.C.; U.S. Department of Justice.



Approximately thirty-five years ago, NASA scientist Jack Cover developed the TASER, an acronym for a device used by the hero in the 1911 fictional adventure story, “Thomas A. Swift’s Electric Rifle.” The development of this technology went basically unnoticed for the first decade. While some members of the law enforcement community used CEDs during the 1980s and 1990s, the practice was confined primarily to the West Coast. Most likely, the public would have been unaware of these devices prior to 2000 had it not been for the infamous Rodney King incident which brought widespread public attention to the Los Angeles Police Department’s use of a CED. On television screens across America, the public watched as law enforcement officers delivered what appeared, to many, as never ending strikes with batons and jolts with a CED to Rodney King while he was on the ground surrounded by a group of officers. Whether one believed the use-of-force to be appropriate or not, for most of the public, it was the first time they had seen a CED used on a suspect.

In 1999, a CED, known as the TASER was produced and introduced by TASER, International. The TASER administers an electric charge that causes muscular dysfunction and temporarily incapacitates a person; particularly if used in “probe” mode. If a CED is used in the “drive stun” mode,<sup>9</sup> it is regarded as a compliance tool as it often does not cause incapacitation, but does cause pain and discomfort. If officers use the device in the drive stun mode, they place it against the person’s body and pull the trigger to deliver the shock. The term “drive” refers to the method of delivery as the officer is instructed to place the CED against the suspect’s body and use pressure to maintain contact when the suspect moves away from the CED, whether intentionally or involuntarily. If officers deploy the CED in the probe mode, the trigger is pulled and a cartridge fires two darts. The CED then delivers 50,000 volts of electric current through the filament line which is attached to the darts. In both of these modes, the pulling and releasing of the trigger results in a standard five second cycle. However, if the officer does not release the trigger, the cycle will continue until the trigger is released. If the officer wishes to shorten the five second cycle, the device must be turned off.

The incapacitation of the suspect is due to the electrical charge overriding the central nervous system. The idea is that the suspect simply cannot control his/her neuromuscular system and that the incapacitation is not affected by the suspect’s mental state or use of drugs and/or alcohol. However, the incapacitation ceases as soon as the electrical charge ceases. Thus, at the end of the cycle, the suspect must either voluntarily submit to control or the officer must use the incapacitation period as an opportunity to gain control. Additionally, as will be seen later in the analysis, the CED does not appear to affect some individuals and there are times when one or both probes miss,<sup>10</sup> the probes become dislodged either due to the suspect pulling them out or due to a struggle, or the probes do not penetrate the suspect’s skin.<sup>11</sup>

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<sup>9</sup> Some agencies refer to it as the “dry stun” mode. HPD uses the term “drive stun” or “drive” so that is the term that will be used herein.

<sup>10</sup> Both probes must make contact in order to complete the cycle so that the voltage is delivered. If only one probe makes contact, the circuit may be completed by placing the CED electrodes against the suspect (Drive Stun Mode). However, this method requires close contact with the suspect.

<sup>11</sup> While it is not necessary for the probes to penetrate the suspect skin for the voltage to be delivered, experience shows that the CED is less effective if at least one probe does not penetrate the skin.

## HPD's Use of CEDs

A study conducted by the Texas Law Enforcement Management and Administrative Statistics Program of the SHSU CCJ in 2005, found that 54% of the Texas law enforcement agencies who were surveyed were currently utilizing CEDs and an additional 10% were considering the use of CEDs.<sup>12</sup> Notably, the study found that the Texas Department of Public Safety did not equip its troopers with CEDs and did not have plans to do so. Currently, nationwide, over 8,000 law enforcement agencies utilize CEDs in some manner.

A review of newspaper accounts reflect that many Texas law enforcement agencies made the decision to add CEDs to their officers' equipment belts as a result of a particular incident in which an officer used deadly force and the public questioned whether the use of an intermediate weapon, including a CED, would have resulted in a life being spared. Houston was no different. The timing of the acquisition of CEDs in relation to an incident where deadly force was used tends to reinforce the public's perception that CEDs are an alternative to deadly force as opposed to simply being one of the intermediate, or less lethal, weapons available to an officer.

In December, 2004, HPD began issuing CEDs to its officers. By March, 2005, all HPD street officers were being issued a CED upon completion of a training course.<sup>13</sup> Now, all new cadets are issued a CED during their basic training at the HPD Training Academy (Academy) upon the completion of a CED training course. Presently, with a few exceptions, all Officers have been trained in the use of CEDs and authorized to deploy CEDs. HPD policy requires that officers, who are issued a CED, carry the CED when in uniform.

Questions regarding the use of CEDs arose shortly after their use by HPD began. One issue was whether CEDs were being used disproportionately and/or in a discriminatory manner against certain groups; particularly, African American males. As part of the Fiscal Year 2007 Audit Plan submitted by City Controller, Annise D. Parker, in August, 2006, the City Controller informed the Mayor and City Council that her Audit Division intended to perform an independent assessment of CED use by HPD. In November, 2006, Mayor Bill White also called for an independent analysis into the use of CEDs. In March 2007, the City Controller and Mir•Fox & Rodriguez, P.C. (MFR) assembled a team to conduct a Performance Audit of the use of CEDs. A group from the SHSU CCJ responded to a request for a proposal to assist in the conduct of the audit.

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<sup>12</sup> Frasier, M.L. (2005). The use of conducted energy devices (Tasers). *Telemasp Bulletin*, 12 (6), 2.

<sup>13</sup> Originally, the training program was four hours in length; now it is six hours.

## STUDY COMPONENTS AND METHOD OF ANALYSIS

### Policy Compliance Review

The review for policy compliance took several steps. First, past, and current policies were reviewed in light of what is considered “best practices” by the law enforcement profession. One of the difficulties encountered was that HPD’s policy on CED use had undergone several changes since its original development and implementation. Some of the initial changes in the policy were the result of HPD hosting a symposium on the use of CEDs in conjunction with the Police Executive Research Forum (PERF) in 2005. Other changes were a reflection of experience. In other words, as CEDs were introduced and used, a decision was made that the policy needed to be changed in some manner. HPD continued to review CED use with the most recent changes taking place in March 2007.

Second, each CED incident report was analyzed in light of the policy in effect at the time to determine whether the officers followed HPD policy. Additionally, particular attention was paid to any incident of non-compliance to determine whether the non-compliance appeared to reflect a problem with the policy, training, and/or implementation of the policy, and/or training.

### Report Review

One of the most challenging aspects of any analysis of CED use by HPD was the gathering of the data. As outlined in the report by the UH CPP, there also have been statistical challenges due to the lack of data.

One of the major obstacles was the CED Incident reporting form used by HPD. The incident reports reflected the final charge, if any, against the suspect on whom the CED was deployed. It also reflected any additional charges filed. However, the initial reason for the call for service was not readily available for a majority of the reports. For instance, the report may have reflected that the suspect was arrested for Resisting Arrest, Search, or Transportation. However, our review of the report may have identified that the officer was initially dispatched to a disturbance call due to a reported verbal altercation, and, when the officer attempted to investigate the incident, the suspect became aggressive and physically resisted the officer. Certain incident reports listed Resisting Arrest, Search, or Transportation as the reason for the call, but the actual reason for the officer being at the location in the first place was a disturbance call.

Additionally, there was no easy method to determine the number of cycles for which the CED was deployed; whether the suspect appeared to be under the influence of alcohol or drugs at the time of the deployment; whether the officer initiated the call or was dispatched to the call; and the apparent effectiveness of the CED deployment. While there was a specific report required by policy to be generated by the reviewing supervisor as to the number of cycles deployed, it was not captured electronically in a form that made it electronically retrievable without reviewing the actual report.

The only way that the above information could be reliably obtained for the purposes of this study was to read the actual police incident reports. This task was undertaken by the SHSU CCJ team. Each of the reports related to the 1,284 incidents was read and analyzed so as to obtain the above information in addition to making a determination as to whether the use of the CED was in compliance with the applicable HPD policy.

### **Training Observation**

By the time the audit began, almost all of the current patrol officers of HPD had undergone the initial CED training. The members of the audit team were afforded an opportunity to attend a demonstration of the in service training received by current officers. Members of the team were given the same information officers received in the classroom training and the hands on training. This included deploying a CED in the same manner as officers were trained.

Additionally, a member of the SHSU CCJ team attended the actual CED training received by cadets at HPD. The students and instructors were observed during the classroom and hands on portions of the training. In order to make the observation more beneficial, the same team member who had read and analyzed the CED incident reports was used to perform the observation. Additionally, this observation was purposely delayed until the team member had the opportunity to complete the reading and initial analysis of the reports. During the observation, the team member paid particular attention to whether the CED policy was being followed and whether any concerns noted during the analysis of the reports might be attributable or influenced by the training provided. Due to time restraints, the team member was not able to attend all of the portions of the Basic Academy which dealt with the use of force and/or dealing with individuals with potential mental health problems. However, the team members did have conversations with various members of the Academy staff and reviewed, in written form, the scenarios used during other portions of the training.

## RESULTS OF COMPLIANCE REVIEW OF HOUSTON POLICE DEPARTMENT INCIDENT REPORTS

### Review of HPD's Policy

HPD's implementation of a CED program was extremely aggressive. While some, if not most, agencies have utilized a test period and phased in the use of CEDs over a period of months or years, HPD trained, equipped, and implemented the use of CEDs to its patrol force in less than six months. This was a particularly difficult task given that 3,600 officers were trained and equipped with CEDs during this period.

Such an approach, undoubtedly, resulted in a CED Policy being written based on the experience of other agencies' use of CEDs as opposed to being tested within the confines of HPD. Not surprisingly, such an approach resulted in there needing to be changes made in the policy shortly after it was implemented.

Additionally, some of the changes in the policy within the first year of CED use were the result of HPD hosting a symposium on the use of CEDs in conjunction with the PERF in 2005. In October, 2005, PERF developed and published National Guidelines for the Use of CEDs. HPD revised its policy in accordance with those guidelines. However, it did not adopt all of them verbatim.

HPD policy, in general, followed the best practices of the law enforcement profession. Any concerns about CED use did not appear to be as a result of any shortcomings in the policy. Instead, as detailed later, any problems that existed, appeared to be the result of issues involving training and/or implementation of the policy.

### PERF Recommendations

PERF describes itself as being a "national membership organization of progressive police executives from the largest city, county, and state law enforcement agencies" and as being "dedicated to improving policing and advancing professionalism through research and involvement in public policy debate."<sup>14</sup> When CED usage became prevalent in 2005, PERF assembled a group of law enforcement professionals and researchers to discuss what recommendations, if any, should be made regarding CEDs. The national meeting was held in Houston, Texas, and co-hosted by HPD.

As a result of that meeting, surveys, and additional research, PERF published its guidelines in October, 2005. It should be noted that PERF did not recommend a model policy, but, instead, provided policy and training guidelines for consideration by agencies.

PERF has 52 guidelines regarding CEDs. While the entire list is available through PERF, the following guidelines and corresponding guideline numbers were considered to address the more important issues and be relevant to CED use by HPD.

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<sup>14</sup> Police Executive Research Forum website, [www.policeforum.org](http://www.policeforum.org).

## **Review of HPD Policy and/or Practice:**

The guideline number is the actual number assigned by PERF in their guidelines. The comment in italics after the guideline reflects the SHSU CCJ review and analysis of the HPD policy and/or practice.

### **PERF Guideline No: 1**

CEDs should only be used against persons who are actively resisting or exhibiting active aggression, or to prevent individuals from harming themselves or others. CEDs should not be used against a passive suspect.

#### **Observation**

*HPD policy followed the guideline. As noted in the compliance section, there are reports which call into question whether the measuring stick for deployment is active aggression or passive resistance.*

### **PERF Guideline No: 2**

No more than one officer should activate a CED against a person at a time.

#### **Observation**

*HPD policy followed the guideline.*

### **PERF Guideline No: 3**

When activating a CED, law enforcement officers should use it for one standard cycle and stop to evaluate the situation (a standard cycle is five seconds). If subsequent cycles are necessary, agency policy should restrict the number and duration of these cycles to the minimum activations necessary to place the suspect in custody.

#### **Observation**

*HPD policy called for an officer to reevaluate the need for additional cycles after the initial cycle. As noted in the compliance section, given the large percentage of uses which involved more than one cycle, it may be that the language of the policy and resulting training needs to continue to be emphasized.*

### **PERF Guideline No: 4**

Training protocols should emphasize that multiple activations and continuous cycling of a CED appear to increase the risk of death or serious injury and should be avoided where practical.

#### **Observation**

*As will be reflected in the Training Observation section, this did not appear to be sufficiently occurring. In fact, as indicated, the exact opposite message may have been perceived by the cadets.*

**PERF Guideline No: 5**

Training should include recognizing the limitations of CED activation and being prepared to transition to other force options as needed.

**Observation**

*While the language of this guideline was relayed in the training, the “how to” was lacking in the CED specific training. While transition is covered in other sections, it should be mentioned during the CED specific training.*

**PERF Guideline No: 6**

That a suspect is fleeing should not be the sole justification for police CED use. Severity of offense and other circumstances should be considered before officers' CED use on the fleeing suspect.

**Observation**

*This guideline was reflected in HPD policy. However, as reflected in the Compliance section, there were a significant number of reports in which fleeing, either alone or fleeing accompanied by resistance, such as pulling away or pushing the officer was the justification given for using the CED.*

**PERF Guideline No: 7**

CEDs should not generally be used against pregnant women, elderly persons, young children, and visibly frail persons unless exigent circumstances exist.

**Observation**

*HPD policy followed the guideline.*

**PERF Guideline No: 8**

CEDs should not be used on handcuffed persons unless they are actively resisting or exhibiting aggression, and/or to prevent individuals from harming themselves or others.

**Observation**

*HPD policy followed the guideline.*

**PERF Guideline No: 16**

Following a CED activation, officers should use a restraint technique that does not impair respiration.

**Observation**

*Officers are trained, in general, to use a restraint technique which does not impair respiration. However, during the CED specific training, the issue was not addressed.*

**PERF Guideline No: 25**

CEDs should be maintained in a holster on an officer's weak (support) side to avoid the accidental drawing and/or firing of an officer's sidearm.

**Observation**

*HPD policy followed the guideline.*

**PERF Guideline No: 28**

A warning should be given to a person prior to activating the CED unless to do so would place any other person at risk.

**Observation**

*HPD policy followed the guideline. As reflected in the Compliance section, a large number of the incident reports did not indicate any such warning. If the warning was given, it was not being documented in the incident report. Additionally, the incident reports often did not reflect that a warning is being given prior to subsequent cycles in a large percentage of the cases. However, some reports reflect a warning being given prior to subsequent use and the suspect choosing to comply with the officer's command in order to avoid another cycle.*

**PERF Guideline No: 29**

When applicable, an announcement should be made to other officers on the scene that a CED is going to be activated.

**Observation**

*During training, officers were told to make such an announcement. Generally, reports did not reflect any such announcement being made.<sup>15</sup>*

**PERF Guideline No: 30**

A supervisor should respond to all incident scenes where a CED was activated.

**Observation**

*HPD policy followed the guideline.*

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<sup>15</sup> When it is noted that the report does not reflect the warning or announcement being made, it is not intended as a finding that the warning or announcement is not being made, but that it is often not reflected in the incident report.



**PERF Guideline No: 31**

A supervisor should conduct an initial review of a CED activation.

**Observation**

*HPD policy followed the guideline.*

**PERF Guideline No: 32**

Every instance of CED use, including an accidental discharge, should be accounted for in a use-of-force report.

**Observation**

*HPD policy followed the guideline.*

**PERF Guideline No: 37**

CED activations should be tracked in the Early Intervention System (EIS).

**Observation**

*HPD policy followed the guideline to the extent that officers with multiple uses of CEDs were reviewed. The tracking of those who used multiple cycles of the CED during one incident did not appear to occur.*

**PERF Guideline No: 40**

Departments should not solely rely on training curriculum provided by a CED manufacturer. Agencies should ensure that manufacturers' training does not contradict their use-of-force policies and values. Agencies should ensure that their CED curriculum is integrated into their overall use-of-force system.

**Observation**

*As reflected in the Training Observation section, the training did not appear to follow this guideline.*

**PERF Guideline No: 50**

Officers should be aware that there is a higher risk of sudden death in people under the influence of drugs and/or symptoms associated with excited delirium.

**Observation**

*As reflected in the Training Observation section, the training did not appear to sufficiently stress this issue.*

## Compliance with Policy

While the incident reports were read and analyzed in light of HPD policy in effect at the time, HPD policy has not changed significantly for the purposes of this portion of the audit. One notable change to the policy was that a CED should not be used on someone who is attempting to ingest drugs orally. Other than this noted change in the policy, compliance testing with HPD policy has been based on the current edition of the policy.

Overall, incident reports indicate that officers were complying with HPD policy on use of CEDs.<sup>16</sup> For uniformity, the PERF guidelines are used once again and the italicized remarks reflect whether SHSU CCJ's review found the use of the CED to be in compliance with HPD policy.

### PERF Guideline No: 1

CEDs should only be used against persons who are actively resisting or exhibiting active aggression, or to prevent individuals from harming themselves or others. CEDs should not be used against a passive suspect.

### Observation

*There were sufficient incidents in which CEDs appear to be used against those who were not aggressively resisting so as to raise a question as to what was being used as the measuring stick for deployment by some officers; active aggression or passive resistance. In a number of cases, the suspect was reported as refusing to follow an officer's orders, but it was not clear whether the suspect was physically resisting or simply not doing what the officer was requesting. The determining of what level of resistance was involved was made more difficult by officers' frequent reliance on "boilerplate language" as opposed to actually describing what the suspect did and/or said.<sup>17</sup> Training recommendations will be addressed in the Recommendations section*

### PERF Guideline No: 2

No more than one officer should activate a CED against a person at a time.

### Observation

*There were incident reports, although few, which reflect a violation of this policy provision. The failure to follow this guideline may be linked to a failure to follow guideline #29, in that incident reports did not reflect that officers were announcing that they intended to use the CED. There were a few incidents in which the officers consciously decided to deploy their CEDs at the same time. These decisions may have been the result of officers not appreciating the concern as to whether multiple cycles, and, in particular, multiple cycles by two or more officers at the same time, may have a negative health effect on the suspect.*

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<sup>16</sup> One of the difficulties in conducting any research and/or analysis based on incident reports is that the researcher does not have the capability of independently assessing the accuracy of what is reflected in the reports.

<sup>17</sup> For instance, officers would report that the suspect "aggressively resisted" and/or that the officers "applied reasonable force," but would not describe the behavior and/or words of the suspect.

### PERF Guideline No: 3

When activating a CED, law enforcement officers should use it for one standard cycle and stop to evaluate the situation. If subsequent cycles are necessary, agency policy should restrict the number and duration of these cycles to the minimum activations necessary to place the suspect in custody.

#### Observation

*Approximately 38% of deployments of a CED consisted of one cycle. Another 31% of the deployments were two cycles in duration. Three cycles were used in 15% of the deployments. Four cycles were used in 5% of the deployments, while five cycles account for 3% of the deployments. In 5% of the deployments, between six and ten cycles were used. In 3% of the deployments more than ten cycles were used. It appears that what officers were evaluating was not whether they should use another cycle of the CED, but whether the CED had produced the desired results: the individual complying with their orders. **In the cases in which the CED was cycled more than five times, it often appeared that not only had the device not produced the desired results, but that additional cycles did not change the ultimate outcome.** In these incidents, it was suggested that the officer should be evaluating other options. Part of the problem, as detailed in the Training Observation section, was that some of the films used in the training appeared to send a message that multiple cycles were an acceptable practice, as opposed to emphasizing that it was unknown as to whether multiple cycles posed a health risk for the suspect. Also, what appeared to be an issue was a lack of integrated training as to how an officer should transition from one type of use-of-force to another.*

### PERF Guideline No: 4

Training protocols should emphasize that multiple activations and continuous cycling of a CED appear to increase the risk of death or serious injury and should be avoided where practical.

#### Observation

*As noted above, and as reflected in the Training Observation section, this did not appear to be sufficiently occurring. In fact, as indicated, the exact opposite message might be perceived by at least some of the cadets in that some of the films used in the training appeared to send a message that multiple cycles were acceptable as opposed to emphasizing that it was unknown as to whether multiple cycles pose a health risk for the suspect. Also, as indicated above, there appeared to be a lack of integrated training as to how an officer should transition from one type use-of-force to another.*

## **PERF Guideline No: 5**

Training should include recognizing the limitations of CED activation and being prepared to transition to other force options as needed.

### **Observation**

*As far as transition to other force options, the “how to” appeared to be lacking in the CED specific training as reflected in the Training Observation and Recommendations sections. Given the large number of deployments which result in multiple cycles being used, it may be that officers lack an understanding as to how to reevaluate the situation and determine if a different approach is appropriate, including the use of a different form of force. As noted above, in over 30% of the incidents, three or more cycles were used. In approximately 3% of the deployments, over ten cycles were used.*

## **PERF Guideline No: 6**

That a suspect is fleeing should not be the sole justification for police CED use. Severity of offense and other circumstances should be considered before officers' CED use on the fleeing suspect.

### **Observation**

*There were incident reports in which fleeing, either alone or fleeing accompanied by resistance, such as pulling away from the officer or pushing the officer was the justification for using the CED. In a number of cases, particularly self-initiated drug investigations, it appeared that a CED was deployed even though the suspect was never touched by the officer. In those incidents, the incident report indicated that the suspect began to flee either upon seeing the officer or as the officer was approaching the suspect. Some reports indicated that the suspect was reaching into his waistband area or pockets while fleeing.*

## **PERF Guideline No: 7**

CEDs should not generally be used against pregnant women, elderly persons, young children, and visibly frail persons unless exigent circumstances exist.

### **Observation**

*Very few reports indicated that this policy was violated. When a CED was used on one of these populations, the reports indicated exigent circumstances.*

**PERF Guideline No: 8**

CEDs should not be used on handcuffed persons unless they are actively resisting or exhibiting aggression, and/or to prevent individuals from harming themselves or others.

**Observation**

*There were incidents when CEDs have been deployed on handcuffed individuals. The reports, with very few exceptions, articulated the active resistance or aggression of the suspect.*

**PERF Guideline No: 16**

Following a CED activation, officers should use a restraint technique that does not impair respiration.

**Observation**

*As reflected in the Training Observation section, this did not appear to be occurring in the CED specific training. In other parts of training, this was covered generally. In general, there did not appear to be sufficient emphasis on the potential health risks to the suspect upon which the CED was deployed.*

**PERF Guideline No: 25**

CEDs should be maintained in a holster on an officer's weak (support) side to avoid the accidental drawing and/or firing of an officer's sidearm.

**Observation**

*This policy was followed. In a few reports, it appeared that the officer drew both the CED and sidearm (although the officer did not necessarily have both of them out of their holsters at the same time). HPD does not use the bright yellow CEDs. One of the advantages of the bright yellow CED is that it is a visual reminder to the officer as to whether the officer is holding the CED or a sidearm.*

**PERF Guideline No: 28**

A warning should be given to a person prior to activating the CED unless to do so would place any other person at risk.

**Observation**

*The majority of the reports did not indicate any such warning. If the warning was given, it was not articulated in the incident reports. Additionally, the majority of the incident reports did not indicate that a warning was given prior to additional cycles. However, some reports reflected a warning was given prior to subsequent use and the suspect choosing to comply with the officer's orders in order to avoid another cycle. As more of the public becomes aware of the CED, greater use of a warning may result in compliance with an officer's order without having to resort to deployment. HPD does not track the number of times that an officer displayed the CED or warned that the CED would be used and did not deploy the CED. We had inadequate information to determine if such actions by officers were effective in gaining cooperation without deployment of the CED.*

### **PERF Guideline No: 29**

When applicable, an announcement should be made to other officers on the scene that a CED is going to be activated.

#### **Observation**

*During training, officers were told to make such an announcement. Generally, reports did not reflect any such announcement being made. It was unclear whether the announcement was being made, but not being reflected in the report or not being made. This may be a result of lack of hands on training and practical situational training in CED use. Studies show that telling someone what to do is not as effective in instilling the behavior by having them practice the behavior.*

### **PERF Guideline No: 30**

A supervisor should respond to all incident scenes where a CED was activated.

#### **Observation**

*It was very rare that a supervisor did not respond. Under early versions of the policy, it was not clear who was to respond to scenes where officers deployed their CED while working an extra job or off duty job. The policy has been clarified and on duty sergeants now respond.*

### **PERF Guideline No: 31**

A supervisor should conduct an initial review of a CED activation.

#### **Observation**

*Sergeants conduct an initial review. One of the problems noted, particularly in early reports, was that the sergeant would simply write "download reflects agreement with report" without either the officer or the sergeant detailing how many times and for how long the CED had been deployed. A download report exists, but it was frequently not incorporated in either the incident report or the sergeant's report. Inclusion of the information in the sergeant's report would be beneficial for determining compliance with policy and tracking of individual officers' CED use.*

### **PERF Guideline No: 32**

Every instance of CED use, including an accidental discharge, should be accounted for in a use-of-force report.

#### **Observation**

*Generally, it appears that this policy was being followed and that HPD's control over the CED cartridges helped to insure that all uses were documented. During the Scope period, HPD improved their system of internal control by documenting their review of each CED Incident Report by an Executive Assistant Chief. A new policy is still required to insure that each officer has their required two cartridges and is not deploying or losing a cartridge and not reporting it.*

### **PERF Guideline No: 37**

CED activations should be tracked in the EIS.

#### **Observation**

*There were instances in which a particular officer's multiple CED uses were reviewed. It would be beneficial to have those cases independently reviewed. According to the results of the Focus Groups conducted by MFR, when an officer's frequent CED use is questioned, the explanation that the officer makes a lot of arrests or works a particular assignment such as street narcotics is given. As with other uses of force, the more complete analysis is to compare the officer's use of the CED with other officers who have similar levels of arrests or similar assignments. Additionally, the tracking of those who use multiple CED cycles during one incident did not appear to be occurring.*

### **PERF Guideline No: 40**

Departments should not solely rely on training curriculum provided by a CED manufacturer. Agencies should ensure that manufacturers' training does not contradict their use-of-force policies and values. Agencies should ensure that their CED curriculum is integrated into their overall use-of-force system.

#### **Observation**

*As reflected in the Training Observation section, this did not appear to be sufficiently occurring. The officers conducting the training have received training through TASER, International, and appeared to often be simply repeating the training they received.*

## **PERF Guideline No: 50**

Officers should be aware that there is a higher risk of sudden death in people under the influence of drugs and/or symptoms associated with excited delirium.

### **Observation**

*As reflected in the Training Observation section, this did not appear to be sufficiently occurring. In fact, as noted in that section, officers were told that CEDs have not been found to be responsible for any deaths. Whether that is an accurate statement is not the issue, the issue is whether officers have an appreciation for the potential danger to the suspect who is under the influence of drugs and/or exhibiting symptoms associated with excited delirium.*



## HOUSTON POLICE DEPARTMENT INCIDENT REPORT REVIEW

### Introduction

During the design of the audit, it was determined that several issues should be reviewed by SHSU CPJ. For instance, when a CED was used, had the officer become involved in the incident as a result of being dispatched, having initiated the contact, or as a result of a traffic stop? Additionally, what types of calls were resulting in CED use? When a CED was deployed, how many cycles were being used on suspects? Were the suspects noted to be under the influence of alcohol or drugs at the time of the deployment? When a CED was used, was it effective? If the CED was not effective in controlling the suspect, why was it not effective?

As noted previously, one of the major obstacles to determining compliance with policy and ascertaining any trends is the reporting form used by HPD. In order to obtain the answers to the above questions, each report had to be read and analyzed.

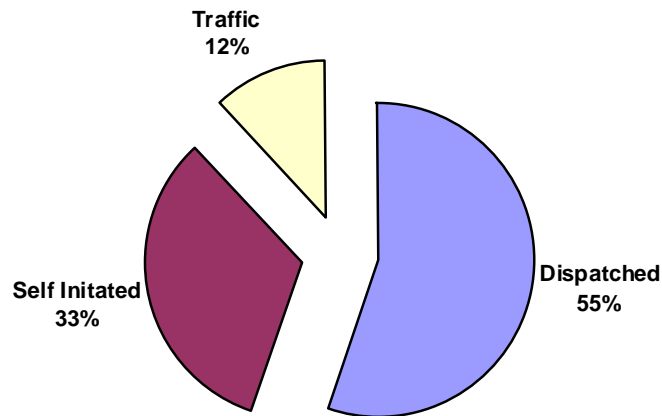
### Initiation of Call for Service

Fifty-five percent (55%) of the time, in the incidents which resulted in the CED deployment, the officer responded to the scene as a result of being dispatched. In other words, a member of the public telephoned HPD and reported either a crime or a situation which warranted law enforcement attention.

In 33% of the cases, the contact with the suspect, against whom the CED was eventually deployed, was initiated by the officer. A large percentage of these cases were drug investigations in which HPD was proactively patrolling areas known for drug sales and/or use. Another group which falls into this category was the situation in which an officer noticed someone behaving in a bizarre manner so as to indicate the subject was either under the influence of drugs, alcohol, and/or experiencing a mental health problem.

In 12% of the cases, the initial reason for the contact with the suspect was a traffic issue. It should be noted that in many of these cases, it appeared that the officer also suspected the person to be involved with other criminal activity, particularly drugs.

**Table 1 - Summary of Calls for Service and Whether They Were Dispatched, Self-initiated, or as a Result of a Traffic Stop**



### **Nature of Call for Service**

As indicated previously, the incident reports were designed so that the nature of the call was captured based on the charges ultimately filed against a suspect, if any. For instance, the charge might reflect that the suspect was charged with Escape. However, it would be extremely unusual for an officer to respond to a call for service for an Escape. After review of the incident report, SHSU CPJ determined that the officer responded to the call for another underlying reason, arrested the person, and the person fled or escaped from the officer.

While some reports reflect the initial basis for the call, many do not. What made it even more challenging was that the only way to definitely determine the nature of the original call was to read the actual, detailed incident report.

The two most frequent types of calls for service were drug related (15%)<sup>18</sup> and disturbance related (15%).<sup>19</sup> The incidents involving drugs were notable in that, with a few exceptions, they were calls which were self-initiated by an officer. Some were, as noted above, the result of a traffic stop where the officer had probable cause to make the traffic stop based on a traffic violation, but the traffic violation appeared to be a pretext to determine whether the occupants in the automobile were involved in illegal activity.<sup>20</sup>

Assault was the basis for 13% of the calls. This was in addition to the 7% of the calls which were based on a report of family violence. Criminal trespass was the basis of 6% of the calls. Traffic offenses were the basis for 11% of the calls. Other misdemeanors such as Driving While Intoxicated, Theft, and Criminal Mischief comprised the basis for 13% of the calls. Other felonies comprised the basis for 9% of the calls. Approximately one-third of the felonies were related to automobile theft. The incident reports indicated that these suspects often abandoned the stolen vehicle and fled on foot.

The last category of calls for service was related to mental health issues. While the person involved may have committed a crime, the criminal charge was often not filed so that the person could be committed to receive the necessary mental health care. Eleven percent of the calls were based on the need for crisis intervention by officers with individuals experiencing a mental health issue.

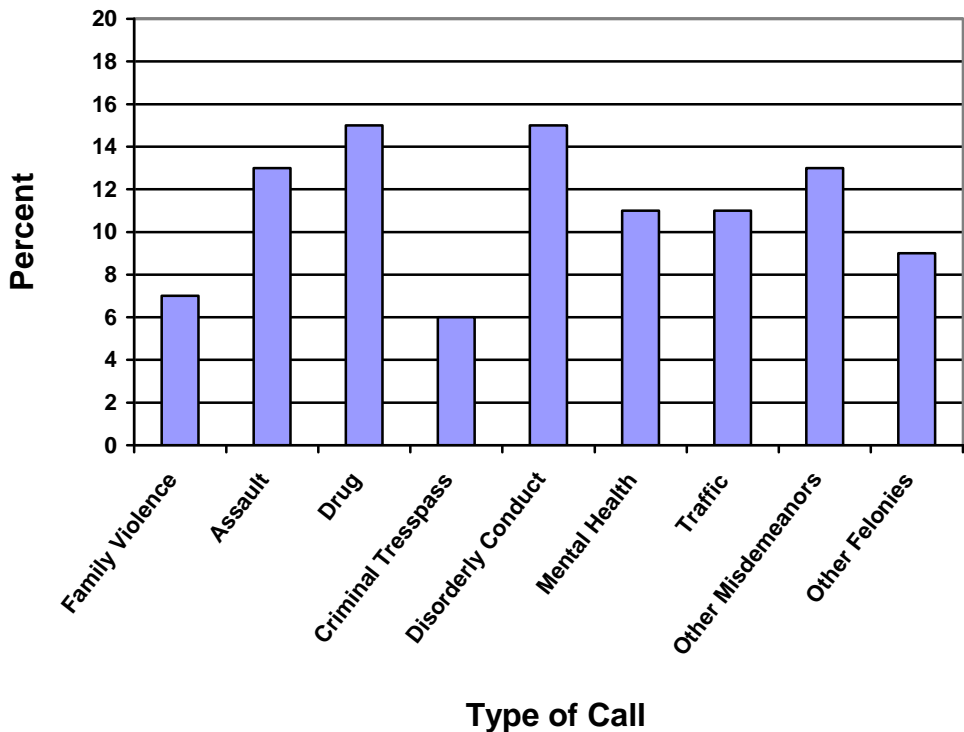
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<sup>18</sup> For purposes of this study, drug related calls include possession of drugs and the sale of drugs.

<sup>19</sup> For purposes of this study, disturbance related calls include the crimes normally associated with disorderly conduct and public intoxication.

<sup>20</sup> It should be noted that the United States Supreme Court has ruled that pretext traffic stops are not a violation of the Fourth Amendment to the United States Constitution.

**Table 2 -Summary of the Original Type of Call for Service Which Resulted in CED Deployment**



**Number of CED Cycles Used When Deployed**

A standard cycle of the CED is five seconds. This occurs when the officer pulls the trigger and releases it. If the officer continues to hold the trigger down, the CED has a continuous cycle lasting as long as the trigger is pulled.

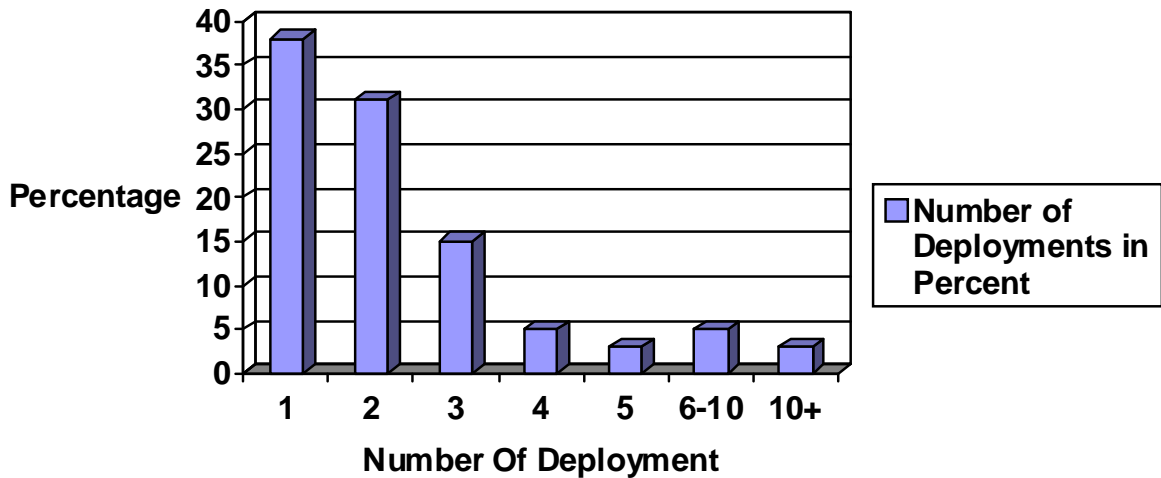
In 38% of the incidents, the officer only deployed one cycle of the CED. In 31% of the incidents, the officer deployed two cycles of the CED. In reviewing the reports, the most common justification for a second cycle was that, while the initial deployment resulted in the person being incapacitated, once the suspect was no longer incapacitated, the suspect did not comply with the cuffing instructions.<sup>21</sup>

<sup>21</sup> It appears that this usually consisted of the person refusing to put his hands behind his back.

In 15% of the incidents, three cycles of the CED were used. Again, the most common reason was that the individual would not allow himself to be cuffed. In 5% of the incidents, the CED was cycled four times. In 3% of the cases, the CED was cycled five times. In 5% of the cases, the CED was cycled between six and ten times. In 3% of the cases, the CED was cycled over ten times.

In many of the cases in which the CED was cycled in excess of five times (8% of the cases), the report indicated that the CED was not effective in controlling the suspect. This calls into question whether the officer should have continued to use additional cycles or should have reevaluated the situation to determine whether a different approach was required to resolve the situation.

**Table 3 -Summary of Number of CED Cycles Deployed**



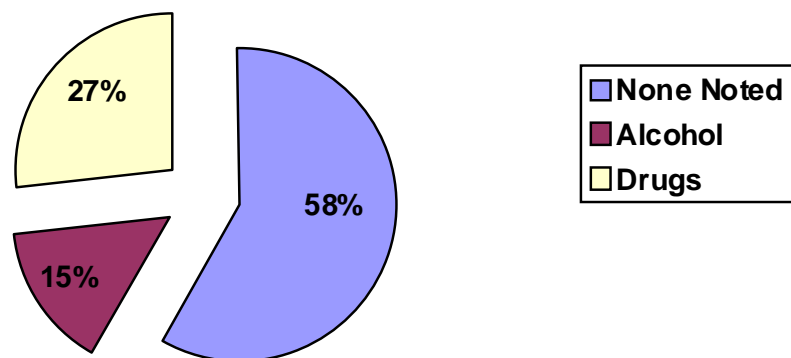
**Impact of Alcohol and/or Drugs Consumed by Suspects**

In 58% of the incidents, officers did not note that the suspect appeared to be under the influence of drugs and/or alcohol. The researcher did not attempt to determine whether the officer, if asked, would have said that drugs and/or alcohol might have been a contributing factor to the behavior which resulted in the need for the CED deployment. However, it is highly likely that a significant percentage of these suspects were under the influence of drugs and/or alcohol given the behavior that was noted by the officer.

In 15% of the incidents, the reports noted that the suspect appeared to be under the influence of alcohol. In 27% of the incidents, the reports noted that the suspect appeared to be under the influence of drugs and/or possession of drugs.

PERF Guideline #50 states that officers should be aware that there is a higher risk of sudden death in people under the influence of drugs and/or symptoms associated with excited delirium. The reason for the caution is the suspected correlation between drug use, particularly methamphetamine and cocaine, and excited delirium. What is unknown is the additional effect of repeated cycles of the CED on the health of someone who is under the influence of drugs and/or experiencing excited delirium. The majority of the cases in which the CED was cycled more than ten times involved a subject who was described as being “high” on drugs and/or having a mental health issue.

**Table 4—Summary of Impact of Alcohol and/or Drugs Consumed by Suspects**



### **Effectiveness of CED in Controlling a Suspect**

The CED was reported as being effective in assisting in controlling the suspect in 77% of the incidents. It should be noted that this does not mean that the CED was effective in its initial deployment or effective with only one cycle. In some cases the officer deployed the CED in the probe mode and then resorted to using the CED in the drive stun mode or used multiple cycles in the probe mode to gain control.

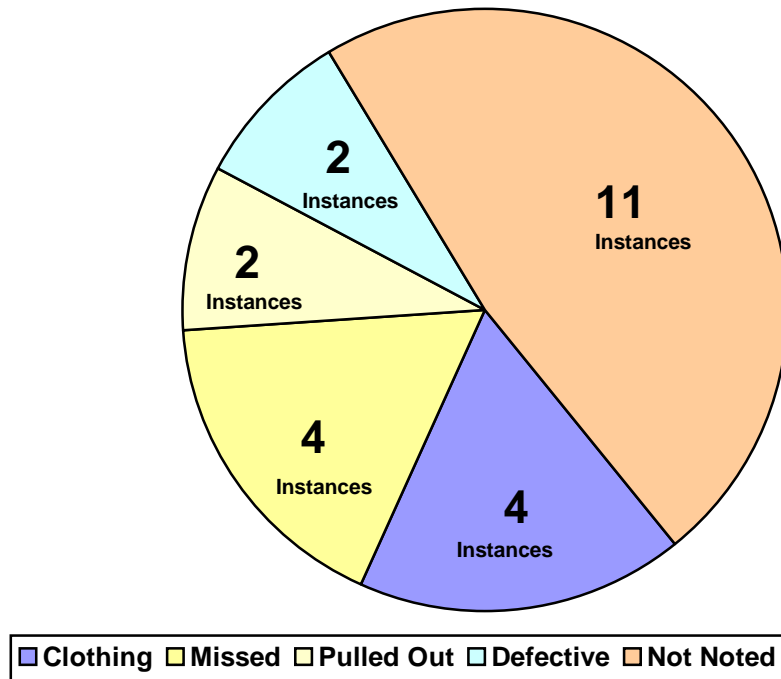
In 4% of the incidents, the incident report indicated that the CED was not effective due to the clothing the person was wearing. By this it was meant that the clothing would not allow the dart to penetrate the skin. In northern states, longer probes are utilized by law enforcement to overcome this problem. Given the low number of incidents in which clothing appears to be an issue, it does not appear the longer probes are warranted.

In 4% of the incidents, the officer missed the suspect with one or more darts. In 2% of the cases, it was reported that the darts hit the suspect, but the suspect pulled out the darts. In 2% of the incidents, it is reported that the CED was defective and would not fire the probes. In an additional 11% of the incidents, the officer indicated that the CED was not effective without attributing the ineffectiveness to any of the reasons previously identified. In the majority of the cases where the officer indicated that the CED was not effective, the officer reported that the subject appeared to be under the influence of alcohol and/or drugs or experiencing some form of mental health crisis.

While the CED was effective in three out of four situations, the quarter of the time it was not effective, highlights the need for officers to have another option in mind to gain control of the situation. It is suspected that the reports of ineffectiveness of the CED in the drive stun mode may be related to training. As is detailed in the Training Observation, emphasis is lacking in the training on how to properly administer a drive stun.

During the Focus Groups, there was a difference of opinion as to the effectiveness of the CED. The officers appeared to be of the opinion that the CED was less likely to work on someone who was high on drugs, intoxicated, or had a mental health issue. The reports appear to support their anecdotal based belief.

**Table 5 - Summary of the Reasons Given When the CED Deployment was Not Effective**



## HOUSTON POLICE DEPARTMENT TRAINING ACADEMY - CED TRAINING

### Classroom Instruction

A SHSU CCJ team member attended the CED cadet training on August 29, 2007. The instruction was provided by members of the training staff from the Academy.

At the beginning of the class, the instructor asked for volunteers for the afternoon. The students were obviously aware that what they were volunteering for was to have a CED deployed on them. Students were instructed to place their names in a hat for a drawing for thirteen volunteers. From the beginning, this created a stir of excitement among the students. The discussion continued amongst the students during the breaks and lunch hour (they already knew whose names had been drawn) with students who were not chosen often professing their desire to experience the CED and students whose names had been drawn professing their lack of fear.

During the actual classroom training, instructors highlighted the various provisions of the policy. Some of the notable ones were:

- CED is an intermediate weapon and not a substitute for lethal force. Students were told “do not use a Taser to stop a knife.” This was emphasized several times by the instructor.
- CED is to be used on those who are actively resisting. Actively resisting was explained as “kicking, fighting, etc.”
- CED is not to be used on those who are passively resisting, handcuffed, or known to be mentally ill. Protesters were used as an example of passive resistance.
- CED is not to be used on suspects who are pregnant, elderly, visibly frail, or young children.
- CED is not to be used on someone simply because they are fleeing. The instructor went on to say that if the person had been fighting with the officer right before fleeing then it was okay to deploy the CED.
- CED is not to be used on someone who is only verbally non-compliant.
- Number of cycles is to be kept to a minimum. The instructor expressed that excited delirium is a concern and that the officer should reevaluate after one cycle.
- Warnings are to be given to the suspect and backup officers that a CED is going to be deployed.

Also notable were some of the other comments by instructors. When describing that the device delivers 50,000 volts, the instructor said, “The media always plays this up. It isn’t going to kill anybody.” Students were also told that multiple cycles were appropriate to keep the suspect incapacitated. In contrast, there was only one mention of the danger of excited delirium and little recognition of there having been cases in which the issue of the role the CED had played in the death of a suspect upon whom a CED had been deployed had been raised.



Part of the classroom instruction was spent watching a slide demonstration which appeared to have been distributed by the manufacturer. Most of the information was technical in nature and appeared to contribute little to the cadets' understanding of when CED deployment was appropriate. It appeared to reinforce a message that the CED was extremely reliable. Students were told that the CED had a 94.3% success rate and the instructor indicated that most failures were "failures in use" as opposed to a failure of the CED.

A series of film clips from the manufacturer were shown to the cadets. One of the instructors stated, right before he started showing the film clips, "Watch how a Taser can change attitudes." While this may have been meant as harmless bantering, the film clips tended to reinforce the idea that use of the CED was appropriate when an officer needed to "change the attitude" of the suspect as opposed to being required to overcome the active resistance by the suspect. For instance, one of the clips showed a CED deployed against a man in a jail cell who was being verbally disruptive. The man was in the cell by himself and did not appear to present any danger to the officers. Additionally, the film depicted the CED deployed multiple times with the prisoner being seen hitting his head while the officers did nothing to prevent the potential injury. Another clip showed multiple cycles used without the suspect given the opportunity to comply with the orders that were given.

Almost no emphasis was given to the unknown or potential dangers of the use of the CED. The one discussion of custody deaths was sped through right before lunch. In fact, more time was spent showing and commenting on a film clip of a CED being used on a dog by an officer than the possible dangers of the CED.

There was some discussion regarding the possibility of adding on of cameras to CEDs. The instructor stated there were problems with CED cameras because the cameras do not record any information prior to the CED being turned on by the officer. The cadet's concern was that the activity prior to the activation of the CED camera was not recorded and therefore not available for review to justify the CED deployment.<sup>22</sup>

After lunch, cadets were shown a videotape of Chief Hurtt. In the first part of the videotape, the **Chief stated, in essence, that after introduction of CEDs in Phoenix that officer involved shootings went down by one-half and that it was an alternative to deadly force.** During his remarks he made no mention of whether officers should deploy multiple cycles or use the CED on the mentally ill. He did state that the CED should not be used on someone who is only passively resisting such as refusing to get out of a vehicle or passively protesting.

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<sup>22</sup> The negative reaction to the idea of cameras being placed on the CEDs also was reflected in the Focus Groups conducted by MFR. While some officers in the Focus Groups appeared to be concerned about the cameras being another item on their tool belt that would add weight and might get broken, the main concern seemed to be that camera use would be detrimental to the officer. One of the issues appeared to be that the camera would capture only part of the situation since it would not be activated until the CED was turned on immediately prior to deployment. The other issue was that the microphone on the camera would capture inadvertent, inappropriate language being used by the officers. The issue on the officers' part appears to be more centered on a fear of the images and language being used than the technical reliability of the equipment.

The students were also shown a videotape of Assistant Chief McClelland in which he answered the most frequently asked questions regarding the CED use. He also emphasized that CEDs were not to be used on passive suspects. Additionally, he cautioned officers not to use the CED when a suspect had placed drugs in his mouth.

Another part of the classroom instruction consisted of the students being required to drive stun the classmate on each side of them.<sup>23</sup> This resulted in a lot of jumping in reaction to the stun and yelling. Unfortunately, it may be that it gave a false sense of how to apply a drive stun and the level of pain experienced by a suspect when a drive stun is properly applied.

During the classroom instruction, one student asked, "If the Taser doesn't work, what should I do then? Shoot him?" The instructor responded by telling the student to make an assessment based on the use-of-force criteria. Unfortunately, that is all that was said and it appeared that an opportunity to discuss what to do in such a situation was missed. Cadets as well as in service officers should be provided with training which more closely resembles actual situations faced by officers and incorporating different levels of use-of-force and how to transition from one to another. During other parts of the training, scenarios were used and it was intended that cadets will have to transition from one use of force to another. However, there were not specific scenarios regarding situations where the CED use was ineffective.

### **Hands On Instruction**

In the afternoon, the students were taken into the gym and the volunteers were instructed to remove their uniform shirts and protective vests so as to only have their undershirts on their upper bodies. Students were then held up over protective pads by two of their fellow students while the CED was deployed into their backs. In all cases, the students demonstrated incapacitation and were lowered to the mats by their classmates. While it is understandable that there are limitations as to what is proper to do in hands on training, the method chosen seemed to ignore some of the realities of deploying a CED in real situations and the consequences. For instance:

- All of the students were standing still at the optimal distance with their backs turned to the instructor. In actual incident reports, often the suspect is fleeing or struggling and does not present an easy target.
- None of the students were running when they were hit by the darts. This may have resulted in the students, perhaps, not appreciating the force at which a running suspect would fall to the ground in the case of sudden incapacitation.
- None of the students were given orders during the cycle so that they and their fellow students could appreciate the inability of the suspect to comply with orders during the cycle and, perhaps, to even comprehend orders given during the cycle.
- None of the students were subjected to multiple cycles.
- There was no training, during this section, on how to go about cuffing the suspect once the CED resulted in incapacitation. Specifically, there was no mention of the PERF recommendation that a restraint technique be used that does not restrict respiration.
- There was no training, during this section, on how to transition from CED use to another type of use-of-force if the CED proved ineffective.

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<sup>23</sup> As noted previously, a "drive stun" or "dry stun" is when the CED is deployed on a person without the use of the probes.

After the demonstration on the cadets, all of the cadets were given two cartridges. The first cartridge was to be deployed into a standing silhouette target. The student was instructed to then discard that cartridge, load a second cartridge, and deploy the second cartridge at a silhouette in a prone position. The student was to then discard the second cartridge and drive stun a dummy. The students were then divided into two lines and quickly put through this portion of the training.

Several problems were noted during the hands on training. First, a true demonstration of proficiency was not required. Students were required to go through the steps, but they were not required to perform them correctly. For instance, approximately ten percent of the students missed the first silhouette with one or both of the darts. More disturbing, clearly 40% of the students did not perform the drive stun correctly. The most common error in the drive stun was that the cadet placed the CED against the dummy but did not pull the dummy towards them to overcome any resistance. Second, although it was explained to the cadets that in order to have the darts hit a prone target that they would have to cant the weapon, it was not explained when it would be appropriate to deploy the CED against someone who was in a prone position.

It should be noted that the observer was only present in the training for the one day. It should also be noted that the Academy staff appears to be under pressure to get a large number of students through training in a very short period of time which does not necessarily lend itself to stopping each student when the task was performed incorrectly and correcting their technique. Additionally, the cartridges are expensive which limit the ability to have the students deploy multiple cartridges. That being said, it may be that cadets are leaving the Academy with some mixed messages.

- They were told that the CED is only to be used on persons who are actively resisting, but they are shown a film clip in which the CED was used on a suspect whose provocation was limited to verbal. In addition, they were told that CEDs “change attitudes.”
- They were told that the CED was not alternative to deadly force and should not be relied on if the suspect had a knife, but they were shown a videotape in which Chief Hurtt talked about the reduction in officer involved shootings in Phoenix after the introduction of the CED.
- Little mention and almost no emphasis were put on the potential danger of the CED to the suspect. In fact, cadets were told CEDs have never killed anyone and only passing mention was made of excited delirium and individuals under the influence of drugs.
- The hands on training during which cadets were subjected to having the CED deployed was not in a realistic atmosphere with no time taken to explain how it was not reflective of real life situations.
- The students were not required to demonstrate proficiency with the CED; only go through the steps.

## COMMENTS ON UH CCP TEAM STATISTICAL ANALYSIS OF THE USE OF CEDS

### Introduction

Often the results of studies and/or audits are viewed in terms of the numbers that result from them. The comments on the results of the statistical analysis were an attempt to answer the “whys”. Why was it that if the CED is effective in bringing a suspect under control that there had not been a significant reduction in the number of injuries to officers? Since CEDs were viewed by a majority of the public as an alternative to the use of deadly force by officers, why hadn’t the number of officer involved shootings gone down? Were there circumstances where officers were deploying a CED to control a suspect where they would have been legally justified in using deadly force? If there were disparities in the way officers deployed CEDs, what might be at the root of the decisions being made by officers?

### Injury Data Comments

While the CED tends to be effective in temporarily incapacitating the suspect, in order to take the suspect into custody, the officer is still required to “put hands on.” By this it is meant that, even if the CED was effective at stopping an aggressive action or a fleeing suspect, the officer still must physically engage the suspect to handcuff the suspect and transport the suspect to jail. A great number of the incident reports indicated that the suspect began to again resist once the initial cycle was finished.

The results of the study by UH CPP did not indicate a reduction in injuries which resulted in workers’ compensation claims since the introduction of the CED that could be attributed to the use of CEDs at this time. There was inadequate data to determine whether there was a reduction in minor injuries to officers which would not result in a claim being filed.

Additionally, the data was not available as to injuries to suspects. While there are dangers to the suspect as a result of the CED, there are also dangers of injury to the suspect when other types of force are used. Deadly force is the most obvious extreme example, but the use of a baton is probably more appropriate for analysis of reduction of injuries to suspects. While in most cases it appears that the effects of the CED deployment dissipate shortly after the cycle is over, the effects of being struck by a baton, particularly with enough force to knock the suspect to the ground, continue after the use of the baton has ceased.

### Substitution Data Comments

The results of the study by the UH CPP did not indicate a reduction in the number of officer involved shootings since the introduction of the CED. This is not surprising as the opportunities to use a CED instead of a firearm are very limited. For example, no one would expect an officer to rely on a CED to stop a suspect who was armed with a firearm. For one, the officer must be a maximum of 21’ from the suspect in order to successfully deploy the CED.<sup>24</sup> At such a distance, the officer would definitely be within range of a firearm.

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<sup>24</sup> The wires on the CED are 21’ long. Additionally, the optimal distance is 7’ to 15’.

As far as knives or other items which might cause serious bodily harm or death<sup>25</sup> to an officer, the range of the CED also presents a challenge. Studies have shown that a suspect can cover 21' (the maximum distance from which a CED can be deployed) in the time it takes an officer to perceive the need to react, draw a weapon, and fire. That is why it was emphasized in the training that a CED is not the proper weapon to use if the suspect has a knife unless the officer has cover and there are at least two officers on the scene. In that situation, one of the officers deploys the CED while the other officer stands ready to use a firearm if the CED is not effective and the suspect's actions warrant the use of the firearm.

That being said, there were incident reports which indicated that officers would have been legally justified in using deadly force and officers chose, instead, to deploy the CED. What was not clear from most of the reports was whether another officer was present who had drawn a firearm and was prepared to use it if the danger to the officer deploying the CED escalated. The following are examples of when it appeared that the situation might escalate, or had escalated to the point where an officer would have been justified in using deadly force, but chose to use the CED instead. It should be noted that just because the officer would have been legally justified in using deadly force, it does not mean that the officer would definitely have chosen this option. However, a review of the reports indicated situations in which other intermediate weapons were unlikely to have been used due to officer safety concerns; thus, if the CED had not been available, the use of deadly force would have been more likely. Some examples of these types of incidents are:

- 2005-Suspect who was wanted on six felony warrants fled on foot. While running he was yelling that he was going to kill the officers and was reaching into his pocket. The officer deployed the CED which knocked the suspect to the ground and he was secured.
- 2005-Assault suspect charged after the complainant was attacked with a machete. The officer deployed the CED twice and the suspect was secured.
- 2005-Mental health suspect had knives taped to both hands. Subject told officers he wanted the officers to shoot him. Officer deployed CED which caused the subject to go to ground where officers were able to disarm and secure the subject.
- 2005-Aggravated robbery suspect fled after robbing a restaurant with a gun. Officer deployed CED to knock suspect to ground and to keep him incapacitated until backup officers arrived.
- 2005-Juvenile suspect who was reported to have knives refused to remove hands from pocket and told officers she had a gun. Officer deployed CED one time and suspect was secured.
- 2006-Criminal trespass suspect fled on foot. When caught, he pulled out a knife. The officer deployed the CED one time and was able to disarm him.
- 2006-Mental health subject was yelling at the officers and waving a pipe and a tire iron at the officers. The first officer deployed the CED, but missed. The sergeant deployed the CED and the subject was subsequently secured.

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<sup>25</sup> Under both the Texas Penal Code and United States Supreme Court cases, the criteria that must be met before an officer may legally use deadly force is that the suspect's actions pose a significant risk of serious bodily injury or death to the officer or others.

- 2006-Suspect dropped a gun during a chase. When caught, he looked towards the gun and appeared to be getting ready to reach for it. Officer deployed a CED one time and the suspect was secured.
- 2007-Assault suspect who was intoxicated came at officers with a 15” pipe in each hand telling the officers they would have to kill him to stop him. Officer deployed CED one time and the suspect was secured.

### Incidence Data Comments

The results of the incidence analysis indicate that African American suspects are more likely to have a CED deployed on them. This is particularly true when the officer deploying the CED is a Anglo male. As reflected in the UH CPP report, more analysis of the reason for this disparity is appropriate.

One possible hypothesis is the phenomenon coined by sociologist Jerome Skolnick as “symbolic assailants.”<sup>26</sup> The idea is that the use-of-force, particularly excessive use-of-force, is an outcome of the informal subculture of law enforcement. According to the theory, the subculture is a function of the danger to which officers are exposed and the authority they are given to use force. This phenomenon may be heightened when the persons that law enforcement encounters are seen as “defiant, threatening, disrespectful, and disorderly individuals, many of whom possess the low socioeconomic and minority status attributes of the marginalized.”<sup>27</sup>

Correspondingly, studies indicate that minorities, particularly African Americans, perceive law enforcement more negatively than Anglos. Some studies have shown that minorities fear law enforcement.

Often the reports reflect that the suspect, when confronted by officers, remarks that the officers have somehow singled the suspect out unfairly. This response appears to often be taken by the officer as a further warning sign of impending aggression by the suspect. It may be that one explanation for the disparity noted of Anglo male officers deploying CEDs disproportionately on African Americans is that these officers perceive these suspects as “symbolic assailants” who present a threat to their safety and the suspects perceive the Anglo male officers as being more likely to treat them unfairly. Just as the Anglo male officers may react to the African American suspect differently, the African American suspects may be reacting to the Anglo male officer differently than they react to female officers of all races or African American male officers. Further analysis of reports with an emphasis on this possibility is recommended.

<sup>26</sup> Skolnick, J. (1994). *Justice without trial: Law enforcement in a democratic society* (3<sup>rd</sup> ed.). New York: Macmillan.

<sup>27</sup> Micucci, A.J., & Gomme, I.M. (2005). American police and subcultural support for the use of excessive force. *Journal of Criminal Justice*, 33, 487-500.

Another important issue, assuming no disproportionate or discriminatory effect, is what the officer should do instead of deploying the CED. Assuming the officer is legally justified in detaining the suspect and the suspect is not yielding to verbal commands, the officer is placed in a position of escalating the level of force to one where the officer goes “hands on” with the suspect. With physical contact comes the risk of injury to both the officer and the suspect. This is particularly true when the subject is under the influence of drugs and/or alcohol or experiencing a mental health crisis. It may be that the CED is the most effective way to get the person under control. Perhaps the emphasis should be on what officers should do once the person is under control so as to lessen the likelihood of further injury to the suspect.

One particular type of incident noted was that the CED was used because the suspect had fled the officer on foot when the officer attempted to detain the suspect due to a suspicion of drug activity. The report often described the suspect as reaching into his pocket, groin area, or waistband while running. In a number of these cases, the suspect discarded some thing as he fled. In Texas, Resisting Arrest, Search, or Transportation is a Class A misdemeanor.<sup>28</sup> Evading Arrest is a Class B misdemeanor.<sup>29</sup> Possession of cocaine or methamphetamine is a felony.<sup>30</sup> It can be assumed that a majority of the suspects hope to elude capture by the officer. It also appears, at the very least, that the suspects may be fleeing in hopes of being able to discard their drugs before they are captured. If the suspect is successful in discarding the drugs and they are not retrieved by the officer, the most serious charge the suspect will face as a result of fleeing is a misdemeanor. If the suspect does not flee and is in possession of drugs such as cocaine or methamphetamine, they will face felony charges.

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<sup>28</sup> A Class A misdemeanor is punishable by confinement in jail for up to one year.

<sup>29</sup> A Class B misdemeanor is punishable by confinement in jail for up to 180 days.

<sup>30</sup> Whether the possession will be a state jail felony (punishable by confined in a state jail for up to two years) or a higher level of felony punishable by confinement in the Institutional Division of the Texas Department of Criminal Justice depends on the drug involved and the amount of the drug possessed.

## RECOMMENDATIONS

### Policy

HPD's policy on the use of CEDs is well written and in line with the best practices of the law enforcement profession. The problems with its implementation may be the result of training and supervision issues as opposed to the wording of the policy. However, it is recommended that HPD consider altering the policy so as to:

- Require the CED download information to be incorporated into the initial report so that it can easily be obtained and reviewed. This should be in an electronic format. The current system does not allow for this recommendation to be implemented; it is suggested that this option be explored when designing the new system.
- Stress in training that officers should limit the number of cycles deployed in light of the potential danger to the suspect of multiple cycles and the apparent ineffectiveness of multiple cycles. The review of the reports indicated that the CED was seldom successful on a subject when it was used more than five cycles. It is recommended that there be an automatic detailed analysis of any incident in which the CED is used in excess of five cycles to determine compliance with policy.
- HPD GOs require medical screening at the jail of any subject against whom a CED is deployed. This practice should be emphasized as, while the available research which has been conducted on the physical effects of being shocked by a CED has not definitely concluded that deploying a CED on a person under the influence of alcohol and/or drugs has an adverse effect, the majority of the studies suggest that it is desirable to have the subject checked out by medical personnel.
- Require immediate medical screening and transportation to a medical facility of the subject if a CED is deployed and the subject appears to be experiencing excited delirium. While the research which has been done on the physical effects of being shocked by a CED has not definitely concluded that deploying a CED on a person suffering excited delirium has an adverse effect, a majority of the studies, which has addressed the issue, strongly suggest that this particular group is the one most likely to be adversely effected. Given the sudden onset of the effects of excited delirium, it is suggested that a subject should be transported to the hospital immediately for medical care.
- Clarify when it is appropriate to use a CED on a subject who is fleeing from an officer. This should require active aggression on the part of the subject, separate and apart from fleeing in itself. The HPD GOs set out the policy clearly, but the focus groups indicated there may be a lack of understanding in the implementation on the part of some officers.
- Provide for tracking of CED deployment and the number of cycles used in the HPD EIS.
- Continue to prohibit use of the CED by multiple officers at the same time. The HPD GOs set out the policy clearly; however, it should be emphasized in roll call training.



## Training

While it is recognized that the Academy has been called upon to train a large number of new cadets and to provide in services training to the entire force, it is recommended that the CED training continued to be reviewed. One of the tools that HPD has used that appeared to be particularly effective was the use of training bulletins and roll call training to emphasize certain aspects of the GOs. It is recommended that the training be reviewed to:

- Determine whether additional scenarios should be included in the Field Problems Program or Simulations which specifically involves the use of CEDs under situations in which the CED appears to be less effective.
- Continue to emphasize when a suspect's behavior is actively aggressive so as to warrant CED use. The calls for service/incident reports reflect a lack of understanding by a small number of officers of the difference between passively resisting and aggressively resisting and the alternatives available to overcome the resistance.
- Continue to emphasize when it is appropriate to use a CED on a fleeing subject. Part of the training should be to demonstrate, or, at least, explain the risk to the subject of sustaining injury due to falling after being suddenly incapacitated. Also, training should emphasize the difficulty of actually hitting a fleeing subject with both darts.
- Demonstrate how a subject has difficulty in complying with orders given by an officer while being subjected to a CED deployment. For instance, have the volunteers who are subjected to a CED deployment, attempt to comply with common orders such as placing their hands behind their backs.
- Emphasize how to use the initial incapacitation period as an opportunity to gain control of the subject. For instance, demonstrate how to assume the proper position for handcuffing the subject.
- Continue to emphasize the risk to subjects of being placed in a position which impairs respiration after deployment of the CED. During the initial CED training, instructors should demonstrate handcuffing the subject in a manner which does not impair respiration and have cadets demonstrate proficiency. While it is understood that this is emphasized later in the cadet training, consideration should be given to demonstrating it during the initial training.
- Continue to emphasize how to accurately report the circumstances which warrant CED use including describing the actions of the suspect and any warnings given to the suspect.
- Consider providing additional training which closely resembles actual situations faced by officers in the use of CEDs and incorporates different levels of use-of-force and how to transition from one type of use-of-force to another. For instance, add specific scenarios in which the excited delirium may be present and/or the CED is ineffective in controlling the suspect's behavior. It is recommended that the actual calls for service/incident reports and/or complaints be used as the basis for designing the scenarios.
- Continue to emphasize the signs of excited delirium and the proper steps to be taken to lessen the likelihood of serious injury if a CED is used. The training should continue to emphasize the potential danger to a suspect if the suspect is experiencing excited delirium and the need for immediate medical treatment.

- Continue to train on the various roles of officers during a call for service/incident where the CED is deployed. It is suggested that this be part of the scenario based training and that the various roles be given a designation so that officers are able to interchange the roles in the field. The current training films should be reviewed with an emphasis towards moving towards consistency in the message being delivered by HPD policy and training. It is recommended that the time currently being used to explain the workings and history of the CED would better be utilized to address some of the concerns noted in this report.

## Reports

The reports are generally well written, but there are areas of deficiency. There were concerns expressed during the Focus Groups related to reporting requirements surrounding CED use. It is recommended that the report form and process be revised so as to:

- Continue to emphasize that the report should reflect the behavior that warranted the deployment of the CED.
- Provide a drop down menu where appropriate. For example the menu could include a place to indicate whether a verbal warning was given before the initial and subsequent CED use and whether the subject voluntarily complied.
- Once the system allows, require the CED download information (a history of spark testing and deployments since the last download) be incorporated into the initial call for service/incident report.



## PART V

### PROTOTYPE, FUSION & MODELING, LLC GRAPHICAL DEPLOYMENT ANALYSIS

PROTOTYPE, FUSION & MODELING, LLC  
GRAPHICAL DEPLOYMENT ANALYSIS

TABLE OF CONTENTS

	<u>Page</u>
Introduction	150
Background	150
Recommendation	156
 CEDView Operating Manual	
1. Main Window	158
2. Menus	161
3. Panel Menu	163
4. GIS Panel	164
5. Query Panel	165
6. Timeline Panel	169
7. Info Panel	171
8. Example	172

## INTRODUCTION

Prototype, Fusion, & Modeling, LLC (PFM) was invited to take part in the Houston Police Department (HPD) Conducted Energy Device (CED) Program Performance Audit in December of 2007. PFM's role was to assist the audit team by creating a dynamic, interactive, three-dimensional visualization of HPD CED deployments across the greater Houston area. As a result, PFM created the CEDView software to meet these requirements.

Using principles found in the Department of Defense 5000 Series Directive for Concept Exploration the CEDView software was developed both as an analysis tool and presentation aid. The tool has very low system requirements. It will run on machines with Microsoft Windows operating systems dating back to the year 2000. Its interface was designed to be understandable to both computer experts and novices alike. The target audience for the application ranges from government officials to the general public.

## BACKGROUND

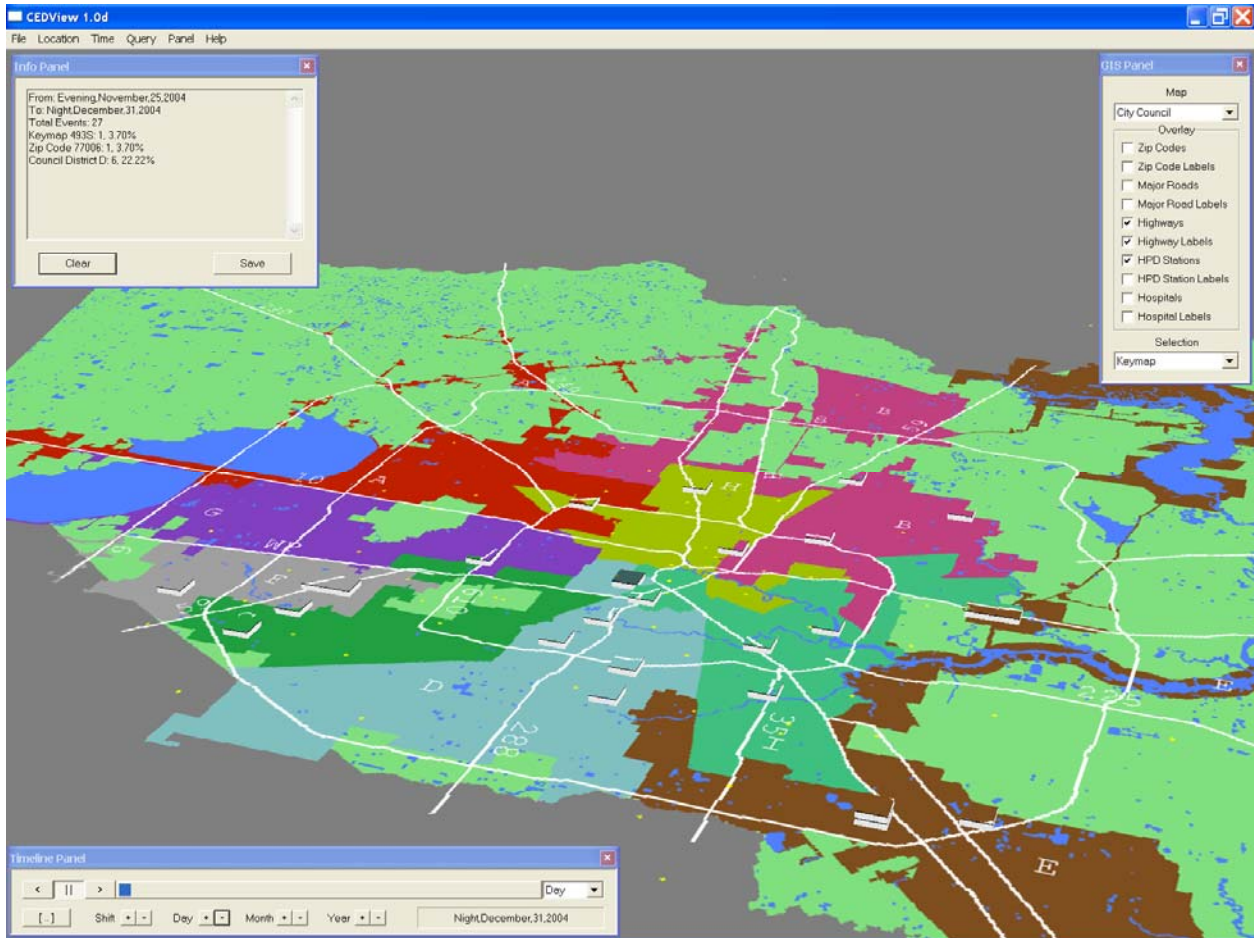
CED deployments took place in all City Council Districts during the Scope period. The chart below summarized the total number of CED deployment by Council District for the periods November and December 2004, 2005, 2006 and January through June 2007.

Council District	Scope Period				Total
	November and December 2004	2005	2006	January through June 2007	
A	3	31	25	18	77
B	5	101	85	42	233
C	2	48	49	21	120
D	7	123	93	37	260
E	4	31	20	10	65
F	3	29	37	16	85
G	3	20	24	13	60
H	4	85	82	26	197
I	4	62	64	22	152
<b>Total</b>	<b>35</b>	<b>530</b>	<b>479</b>	<b>205</b>	<b>1,249</b>

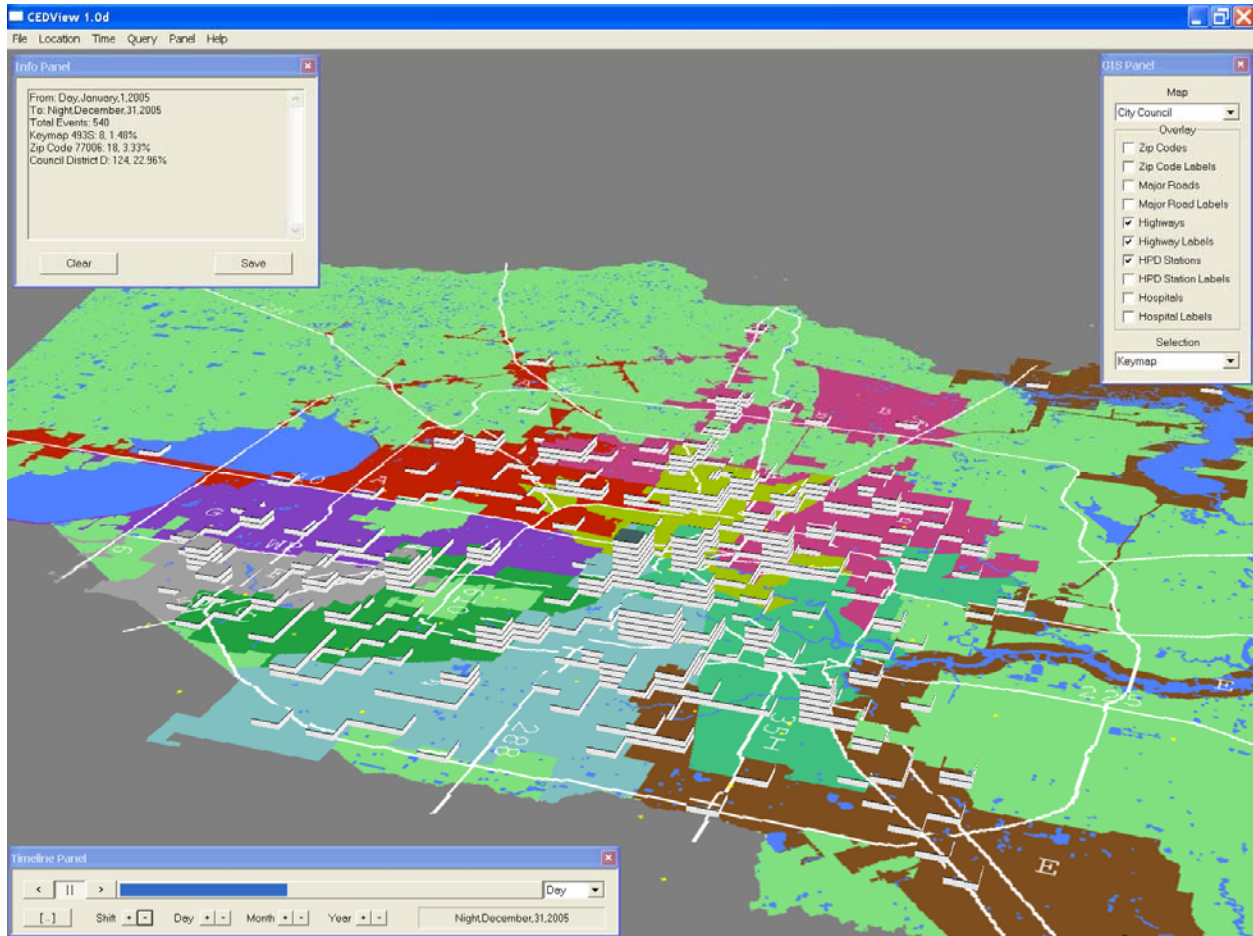
Thirty five of the total 1,284 deployments were not included in the above summary because they did not relate to a suspect. Seventeen of the 35 were coded in HPD's electronic system as a duplicate deployment (ie a deployment by a second officer); another 17 deployments related to animals (i.e. dogs) and one was classified as other.

For graphical representation of the data summarized above see the following:

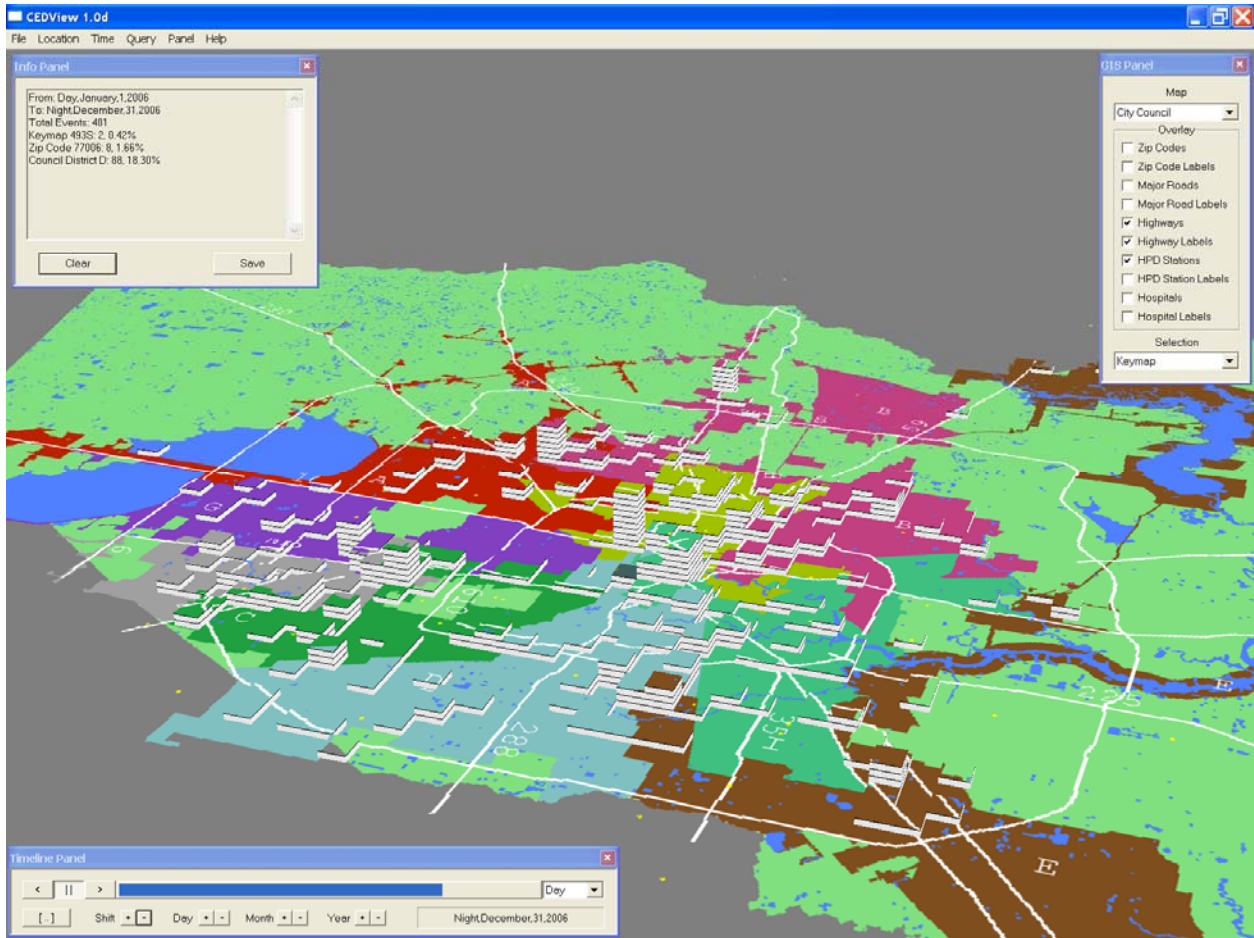
# November and December 2004 CED Deployments By Council District



## 2005 CED Deployments By Council District

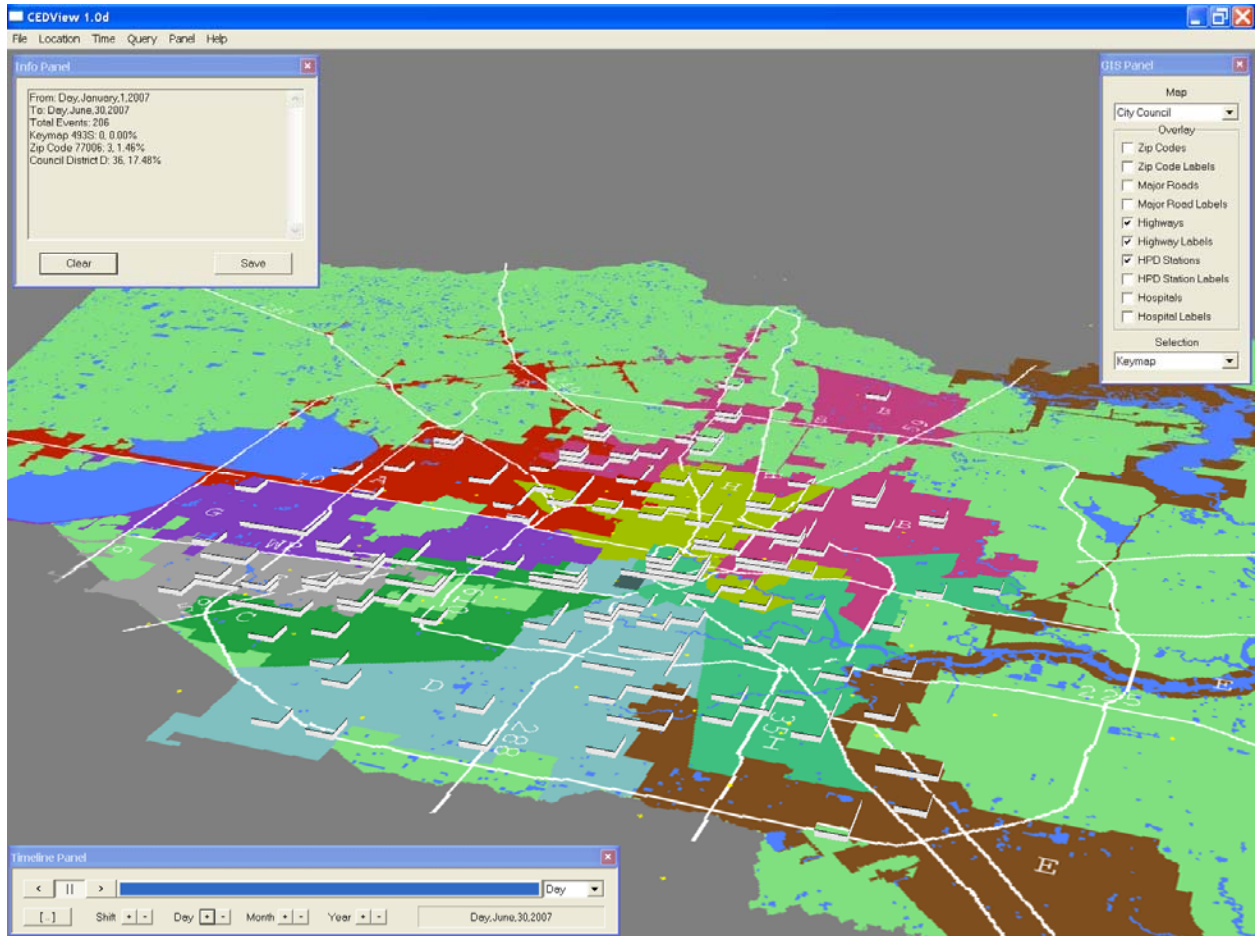


# 2006 CED Deployments By Council District

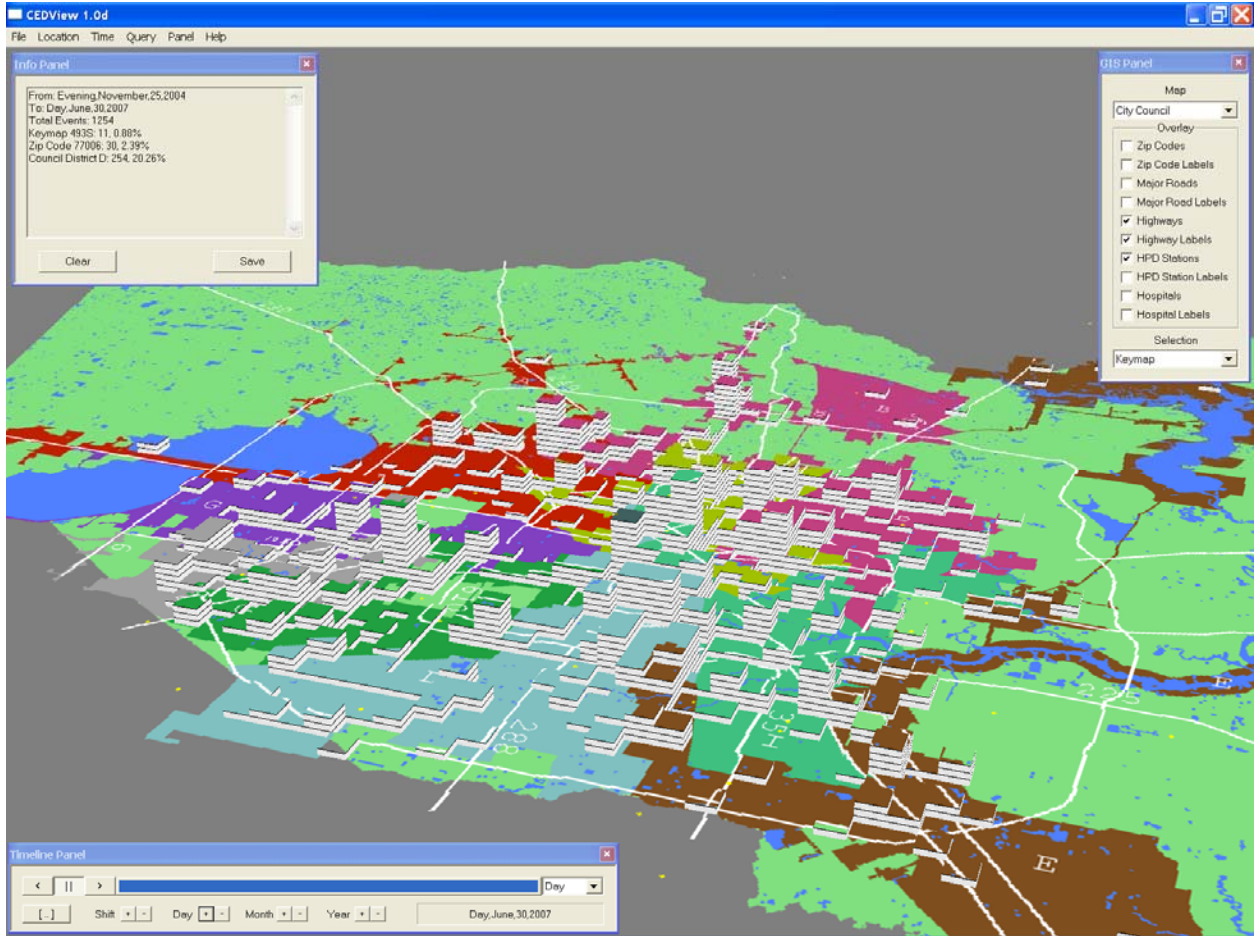




# January through June 2007 CED Deployments By Council District



# November 2004 through June 2007 CED Deployments by Council Districts



The CEDView software includes a database of 1,254 CED events recorded by HPD. The events were selected because they contained geographic information such as key map address, zip code, and/or City Council District. The CED event database is stored in an encrypted format to preserve the sensitive nature of the records. Events in the current CED event database range in time from November 25, 2004 to June 30, 2007. The software can readily incorporate any new additional CED events occurring between January 1, 2000 and December 30, 2031.

Data, not directly generated by PFM, was obtained from a variety of sources. The HPD CED incident data was supplied, under full confidentiality, by the University of Houston Center for Public Policy. Data for the GIS component of the software was obtained from the Harris County Public Infrastructure Department<sup>1</sup>. The Key Map coordinate system utilized by HPD, and found in the CED incident reports, is proprietary data that is defined and maintained by Key Maps, Inc.<sup>2</sup>

## RECOMMENDATION

One issue noted by the PFM team during our analysis of the data was contradictory geographic information appearing in a few of the CED incident reports. For example, the key map address and zip code listed for a single CED deployment in the CED incident report might, in actuality, not coincide geographically. In fact, in a few cases, they were very far apart. Today, software tools capable of resolving geo-coordinates (latitude, longitude) from address information are readily available and are portable such as hand-held GPS devices that determine geo-positioning in real-time.

We recommend that the new system has the functionality of generating geo-coordinates from addresses. Not only could geo-coordinates more accurately pin-point the location of an important scene, the geo-coordinates would also fit into the current scheme HPD uses for locating an incident. A geo-coordinate pair uniquely maps to one key map address, one zip code and one City Council District.

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<sup>1</sup> <http://www.eng.hctx.net/gis/htm>

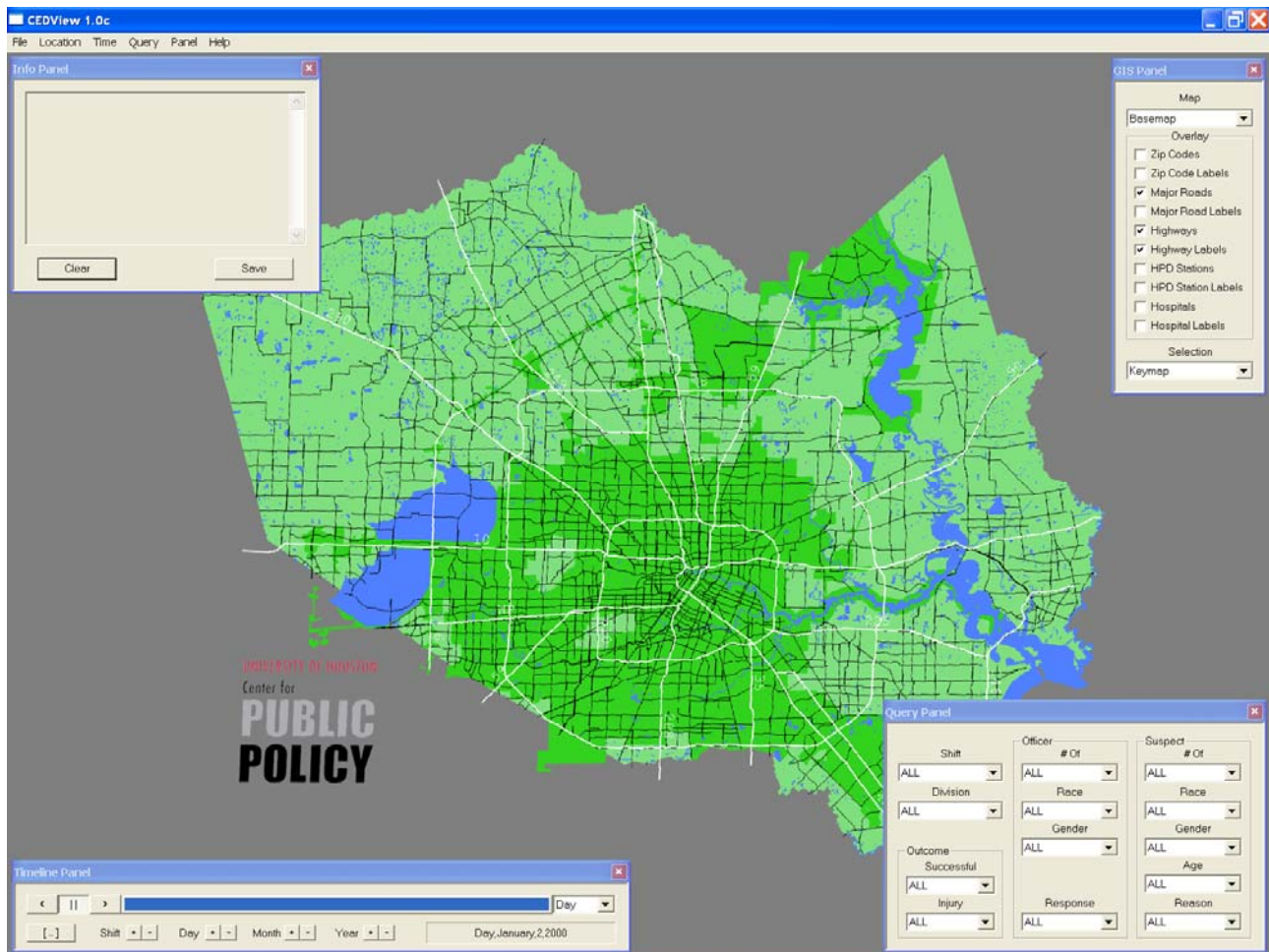
<sup>2</sup> <http://www.keymaps.com>

# CEDVIEW OPERATING MANUAL

## 1. MAIN WINDOW

The *Main Window* is the primary display area for the CEDView application. An image of the *Main Window*, with all of its default contents, is shown in Figure 1 below. A key feature of the Main Window is the interactive map. The map presents the major features of Harris County and the greater City of Houston metropolitan area. Although it appears similar to a traditional two-dimensional map, it is actually a three-dimensional geometric model. Because of the three-dimensional capabilities, CEDView supports a variety of features not possible with traditional flat-map software.

Figure 1 CEDView Main Window



## 1.1 Navigating the CEDView *Main Window*

There are three primary methods of interacting with the CEDView program:

1. *Mouse Commands* used in CEDView are typical of those found in other, well-known, software packages. These commands include: Clicking the mouse buttons, clicking mouse buttons with keyboard keys pressed, and dragging the mouse. Dragging the mouse involves moving the mouse with one of the mouse buttons held down.
2. *Pop-up Panels* are sub-windows that appear inside of the *Main Window*. They can be relocated or hidden from view by the user. These panels serve a multitude of purposes. They can: Change the way the map looks, determine which types of CED events are displayed on the map, adjust the timeline to show CED activity between specific dates, and present detailed numerical information to users that require it.
3. The *Menu Bar* appears in the upper left-hand side of the *Main Window*, directly under the title bar. Items under each menu heading can be revealed by clicking the left mouse button on the heading. To pick a revealed item, click it with the left mouse button.

## 1.2 Map viewing

Map viewing is accomplished through the use of a “virtual camera” which, in many ways, is analogous to a film or video camera. Associated with the camera is a “focal point” at which it always looks. When the application starts, the focal point is at the center of the map. The camera can be positioned and oriented through four primary camera controls as follows:

1. Aiming changes the location of the focal point. To aim the camera, place the mouse over the desired location on the map. Next, click the right mouse button with the control key pressed. The focal point will automatically update to the new location.
2. Zooming allows the camera to move closer to, or further away from, the focal point. To adjust the zoom (range), drag the mouse forwards and backwards with the right mouse button pressed and the shift key held down.
3. Panning allows the camera to rotate horizontally (azimuth) about the focal point. To pan the camera, drag the mouse to the left and right with the right mouse button pressed.
4. Tilting lets the camera rotate vertically (elevation) about the focal point. To tilt the camera, drag the mouse forwards and backwards with the right mouse button pressed.

### 1.3 Key map cells

The map imagery is superimposed on top of a grid of tiles called key map cells. Each cell represents a  $\frac{3}{4}$  mile by  $\frac{3}{4}$  mile area. The Harris County region covers a grid of approximately 84 (east - west) by 66 (north - south) of these cells.

### 1.4 CED incidents

Centered on each cell is a three-dimensional bar, analogous to those seen in two-dimensional bar charts. The grid, collectively, represents a bar graph spatially distributed across Harris County. The height of each bar is determined by the number of CED incidents that occurred geographically inside the cell. Each bar has one or more tick-marks along its sides. These marks indicate the current number of incidents tallied for that cell.

### 1.5 Selection

Users can also get detailed information about CED incidents in a cell via *Selection*. To make a *Selection*, point the mouse at the top of a bar on the map. Then, click the left mouse button while pressing the control key on the keyboard. Key map cells are the smallest selectable area on the map.

### 1.6 Quick reference guide

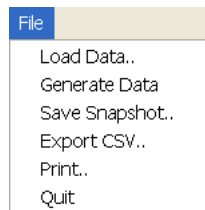
To access an on-line quick-reference guide for viewing and selection controls, choose *About* from the *Help* menu.

## 2. MENUS

### 2.1 File Menu

The *File Menu* allows the user to perform CED database input and output related tasks. Figure 2 has an image of the *File Menu* which has six items:

Figure 2 CED File Menu



### 2.2 Load Data

Selecting *Load Data* brings up an *Open File* dialog box that allows the user to select a CED database to load. The default file, *ced\_0208.ced*, can be found in the data directory of the standard distribution folder. This file is packed and encrypted in a secure format that can only be read by the CEDView software.

### 2.3 Generate Data

Should a CED database be unavailable, the *Generate Data* item can be selected to have the application randomly fabricate a set of representative CED events. This item allows for a demonstration of the software capabilities without requiring the disclosure of sensitive HPD information.

### 2.4 Save Snapshot

The user can capture the current contents of the *Main Window* to a Windows Bitmap image file (BMP) by selecting *Save Snapshot*. In addition to saving the map, all open panels are saved in the capture as well if the video display driver supports it. A panel not needed in the output image file can be closed and hidden from display. The saved bitmap image can be printed, shared via e-mail, or used with other software for further processing/analysis.

### 2.5 Export CSV

*Export CSV* allows the user to save a Comma Separated Value (CSV) file containing an unencrypted, human-readable, report of all records currently loaded into the program. It will export reports for databases loaded with the *Load Data* menu item as well as databases generated with the *Generate Data* menu item.



## 2.6 Print

The *Print* menu item captures exactly the same information as *Save Snapshot* but sends the image directly to a printer instead of to a file. The software will automatically scale the image to the printer resolution. In most cases, however, printing in landscape mode results in a better quality hardcopy.

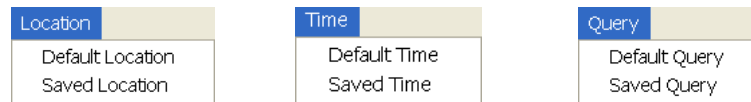
## 2.7 Quit

The program can be terminated at any time via the *Quit* menu item.

### Location, Time, and Query Menus

Figure 3 is an illustration of the *Location Menu*, *Time Menu*, and *Query Menu*. The intent of the three menus is primarily to provide support for a user who is using the tool as a presentation platform. The idea is to have several events of interest ready to be called upon in rapid succession, assisting in situations where a presenter must provide a great deal of information in a short time.

Figure 3 Location Menu, Time Menu, and Query Menu



## 2.8 Location menu

The *Location Menu* allows a user to set the “virtual camera” focal point to a predefined location on the map. Selecting *Default Location* restores the view to the center of Harris County. *Saved Location* is a temporary placeholder for the first user-defined location (currently undefined).

## 2.9 Time menu

The *Time Menu* gives a user the ability to skip forwards or backwards to preset times in the timeline. Choosing *Default Time* resets the current time to the first time in the currently loaded CED incident database. *Saved Time* is a temporary placeholder for the first user-defined time (currently undefined).

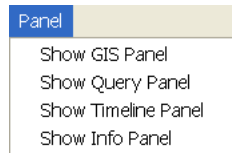
## 2.10 Query menu

The *Query Menu* allows a user to rapidly set the fields of the *Query Panel* to a predetermined query. Picking *Default Query* sets each of the fields in the *Query Panel* to the value ALL, thus returning it to its default state. *Saved Query* is a temporary placeholder for the first user-defined query (currently undefined).

### 3. PANEL MENU

The *Panel Menu* allows the user to show panels that are currently hidden from view. Figure 4 is an image of the *Panel Menu* which has four items.

Figure 4 Panel Menu



By default, all panels except for the *Info Panel* are visible when the program starts. To hide a panel, click the small red box (✖) in the upper right hand corner of the panel.

#### 3.1 Show GIS Panel

To reopen the *GIS Panel* select *Show GIS Panel* from the *Panel Menu*.

#### 3.2 Show Query Panel

To reopen the *Query Panel* select *Show Query Panel* from the *Panel Menu*.

#### 3.3 Show Timeline Panel

To reopen the *Timeline Panel* select *Show Timeline Panel* from the *Panel Menu*.

#### 3.4 Show Info Panel

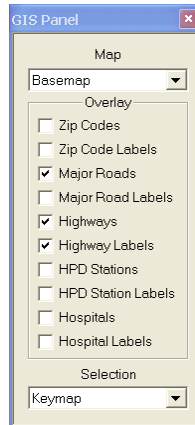
To reopen the *Info Panel* select *Show Info Panel* from the *Panel Menu*, or make a *Selection* with the mouse.

Each panel can be moved around inside the *Main Window*. In many cases, panels must be moved to uncover parts of the map they obscure. To drag a panel, place the mouse over the panel name and move the mouse while holding down the left mouse button. For a layout that works well, place *GIS Panel* in the upper right, the *Query Panel* in the lower right, and the *Timeline Panel* in the lower left of the *Main Window*. Panels will remember their positions when hidden.

## 4. GIS PANEL

The *GIS Panel* allows the user to modify the map displayed in the Main Window. Figure 5 is an image of the *GIS Panel* which consists of three major components: The *Overlay* check-box group, the *Map* drop-down menu button, and the *Selection* drop-down menu button. By default, the panel is configured to show the base-map with major roads, highways, and highway labels displayed.

Figure 5 GIS Panel



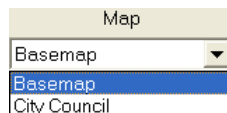
### 4.1 Overlay check-box group

As seen above, the *Overlay* check-box group allows the user to add additional map information to either the base-map or City Council District map. The user can add a feature to the map by clicking the left mouse button on its check-box. Currently supported features include: ZIP codes and ZIP code labels, major roads and their labels, highways and their labels, HPD station locations and their labels, and finally, hospital locations and their labels. The term “label” is synonymous with “name”.

### 4.2 Map drop-down menu button

The *Map* drop-down menu button, shown in Figure 6, allows the user to select between a base-map and a City Council District map. The base-map shows the major topographic features of Harris County. These features include: the county boundary, major bodies of water, and the urban areas of the City of Houston. The City Council District map contains the same features as the base-map, but also includes labeled and color coded Houston City Council Districts.

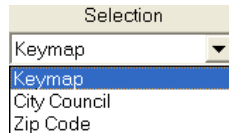
Figure 6 Map drop-down menu button



### 4.3 Selection drop-down menu button

The *Selection* drop-down menu button allows the user to choose the type of highlighting they want to see on the map when a selection is made. The drop-down menu button has three options: Key map, City Council District, and ZIP code. Figure 7 shows the Selection drop-down menu button. When a key map cell, City Council District or ZIP code is selected, it will appear darker on the map.

Figure 7 Selection drop-down menu button



### 4.4 Keymap Selection

A *Key Map* selection highlights only the key map cell selected by the user. Key map is the default highlighting method.

### 4.5 City Council Selection

*City Council District* selections highlight all of the key map cells in the selected City Council District.

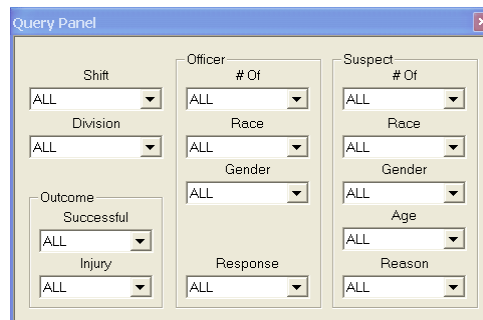
### 4.6 Zip Code Selection

*ZIP Code* selections highlight all of the key map cells in the selected Zip Code.

## 5. QUERY PANEL

The *Query Panel* provides the user with options for selecting which CED events are displayed on the map. An image of the *Query Panel* is illustrated in Figure 8. The *Query Panel* has four major sections: The *Shift* and *Division* drop-down menu buttons, the *Outcome* group, the *Officer* group, and the *Suspect* group.

Figure 8 Query Panel

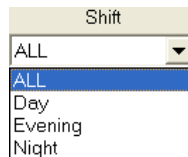


There are several special values than can be selected in the drop-down menu button items of the query panel. A field with value “ALL” will match any value for that field in the database of CED incidents. Its use is to indicate that the user has no particular preference for a field. It is also the default value for all fields in the panel. The value “Dog” is used when a dog or other animal is involved in a CED incident. Fields with a value “Duplicate” imply that a CED event was recorded more than once in the database. This is due to the fact that some events involve multiple officers reporting the deployment of a CED. Finally, the value “Officer” is used when an officer is involved as the suspect in a CED incident.

### 5.1 Shift drop-down menu button

The *Shift* drop-down menu button, shown in Figure 9, allows the user to select CED events based on the shift in which they occurred. It has three possible values: Day, evening and night.

Figure 9 Shift drop-down menu button



### 5.2 Division drop-down menu button

The *Division* drop-down menu button, shown in Figure 10, lets the user restrict displayed events to only those involving officers from one of 19 HPD divisions.

Figure 10 Division drop-down menu button



### 5.3 The Outcome group

The *Outcome* group provides a method for filtering displayed events based on their outcome. The *Outcome* group contains two drop-down menu buttons, depicted in Figure 11

Figure 11 Outcome group drop-down menu buttons



### 5.4 Successful drop-down menu button

Incidents where a CED unit was successfully deployed, or where one was not, can be seen using the *Successful* drop-down menu button.

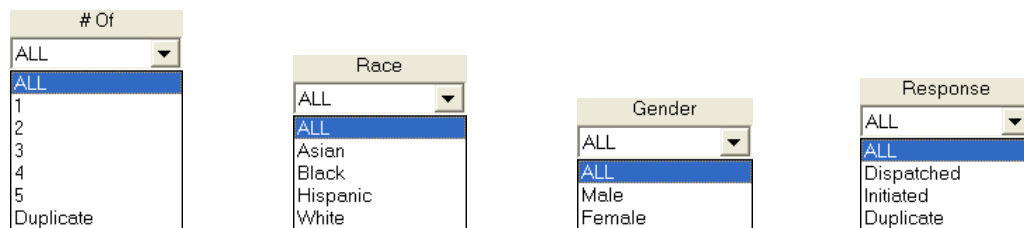
### 5.5 Injury drop-down menu button

The *Injury* drop-down menu button provides a way to view instances where either an officer, suspect, or both sustained injury due to the use of a CED.

### 5.6 The Officer group

The *Officer* group allows a user to display events based on the demographics of the officer(s) involved. The *Officer* group contains four drop-down menu buttons, shown in Figure 12.

Figure 12 Officer group drop-down menu buttons



### 5.7 # Of drop-down menu button

The *# Of* drop-down menu button selects incidents by the total number of officers present at a scene where a CED was used.

### 5.8 Race drop-down menu button

The race of the officers(s) involved in a CED event can be selected via the *Race* drop-down menu button.

## 5.9 Gender drop-down menu button

The *Gender* drop-down menu button filters events based on the gender of the officer(s).

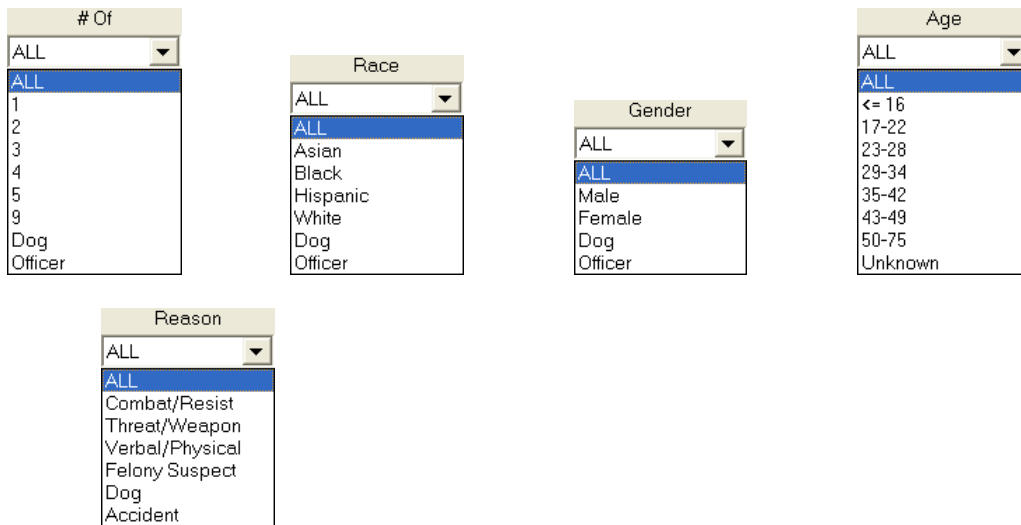
## 5.10 Response drop-down menu button

CED events in which the officer(s) initiated action, was/were dispatched to the scene, or both can be viewed by changing the *Response* dropdown.

## 5.11 The Suspect group

The *Suspect* group offers a way of choosing events to display based on the demographics of the suspect(s) involved. The *Suspect* group consists of five drop-down menu buttons depicted in Figure 13.

Figure 13 Suspect group drop-down menu buttons



The *# Of*, *Race*, and *Gender* drop-down menu buttons serve the same purpose for suspects as they do for officers in the *Officer* group.

## 5.12 Age drop-down menu button

The *Age* drop-down menu button groups suspects involved in CED incidents into one of eight age ranges.

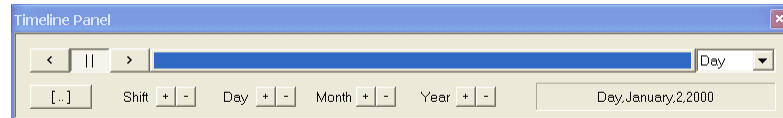
## 5.13 Reason drop-down menu button

The *Reason* drop-down menu button filters incidents based on the reason provided by the officer(s) for deploying CED devices on the suspect(s).

## 6. TIMELINE PANEL

The *Timeline Panel* allows users to dynamically display CED incidents that occur between two specific points in time on the map. These two times are known as the “start time” and the “current time”. By default, the start time is set to the first time present in the database. Figure 14 is an image of the *Timeline Panel*, which has three primary areas of interest: The *Time/Date Display*, the *Tape Deck*, and *Fine-Tuning Controls*.

Figure 14 Timeline Panel



### 6.1 Time/Date display

The *Time/Date Display* is visible in the lower right-hand corner of the *Timeline Panel*. It shows the current date and time the software is using to select CED incidents for display on the map. It has the following format: Shift, month, day, and year. The current date and time are updated by user interaction with the mouse, *Tape Deck* or *Fine-Tuning Controls*. The *Time/Date Display* will rollover if the user attempts to set it to anything beyond the night shift of December 31, 2031. It will also roll-under if the user attempts to set it earlier than the day shift of January 1, 2000.

The user can control forward and reverse playback with the mouse. Dragging the mouse to the left, with the left mouse button down in the main window, controls reverse playback. To drive the timeline forward, drag the mouse to the right in the main window with the left mouse button down.

### 6.2 Tape deck

The *Tape Deck* derives its name from its similarity to an audio/video cassette player. It consists of: a set of three radio-buttons, a *Timeline Indicator* bar, and a variable *Playback Rate* drop-down menu button.

### 6.3 Radio buttons

The three radio-buttons are mutually exclusive and selecting one will de-select either of the other two. By default, the *Pause Button* (⏸) is selected indicating that playback of CED incidents is halted. Click the *Forward Button* (⏩) to play events forwards from the current time. Click the *Reverse Button* (⏪) to play events backwards from the current time.



## 6.4 Timeline indicator bar

The *Timeline Indicator* bar depicts, for the user, where in the timeline the current time/date falls. The user has reached the end of the timeline when the blue bar extends all of the way across its gray container, as shown in Figure 15.

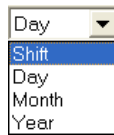
Figure 15 Timeline Indicator bar



## 6.5 Playback rate drop-down menu button

Playback will occur at the rate specified in the *Playback Rate* drop-down menu button depicted in Figure 16. The drop-down has 4 possible rates: Shift, day, month, and year. The default value is day, and can be changed on-the-fly while either forward or reverse playback is occurring. The *Playback Rate* drop-down menu button also sets the playback rate for mouse-controlled playback.

Figure 16 Playback rate drop-down menu button



## 6.6 Fine-tuning controls

The *Fine-Tuning Controls* are provided so that users can make very specific adjustments to the timeline. They consist of a set of: *Increment Buttons* (+), *Decrement Buttons* (-), and a *Range Button* ([-]).

There are four separate increment/decrement button pairs, one for each component of the current time/date. To move the shift, day, month or year forward by one unit, click on the individual *Increment Buttons*. To move them backwards by one unit, click on the appropriate *Decrement Buttons*.

Only CED incidents occurring between the start time and the current time are considered for display on the map. The user can click the *Range Button* to set the start time to the current time indicated in the *Time/Date Display*. When done, only CED events occurring on or after the new start time are considered.

The *Timeline Indicator* bar will turn orange if the user sets the current time to a time earlier than the newly selected start time. To reset the start time to the first time in the database, select *Default Time* from the *Time Menu*.

## 7. INFO PANEL

The *Info Panel* provides detailed information about each selection made by the user. If the panel is not visible when the user makes the selection, it will automatically be displayed. Figure 17 illustrates an image of the panel which has three components: The *Text Area*, the *Clear Button*, and the *Save Button*. Information displayed in the *Text Area* depends on the time/date chosen in the *Timeline Panel* and the specific query options enabled in the *Query Panel*.

Figure 17 Info Panel



### 7.1 Text area

For each selection, a series of lines are printed into the *Text Area*:

1. Two lines specifying the start time and current time of the query.
2. The total number of CED incidents occurring, for that query, Citywide.
3. The selected key map cell, along with its count and its percentage of the Citywide total.
4. Totals for ZIP codes contained in the key map cell, along with their percentages.
5. Tallies for City Council Districts present in the key map cell with their percentages.

Some key map cells contain multiple ZIP codes and/or multiple City Council Districts. As a result, there may or may not be multiple listings for each.

Data from multiple selections are recorded in the *Text Area* in the order the selections were made. When the visible portion fills with text, previous data will scroll out of view. A scrollbar will then appear on the right-hand side of the *Text Area*. To see results from previous selections, drag the scrollbar upwards with the mouse or use the arrow at the top of the scrollbar. Dragging the scrollbar downwards, or clicking the arrow on the bottom of the scrollbar, will bring data from more recent selections back into view. Making another selection will always cause the *Text Area* to jump back to the most recently printed information.

### 7.2 Clear button

The *Clear Button* removes all selection information from the *Text Area*, returning it to its default state.

### 7.3 Save button

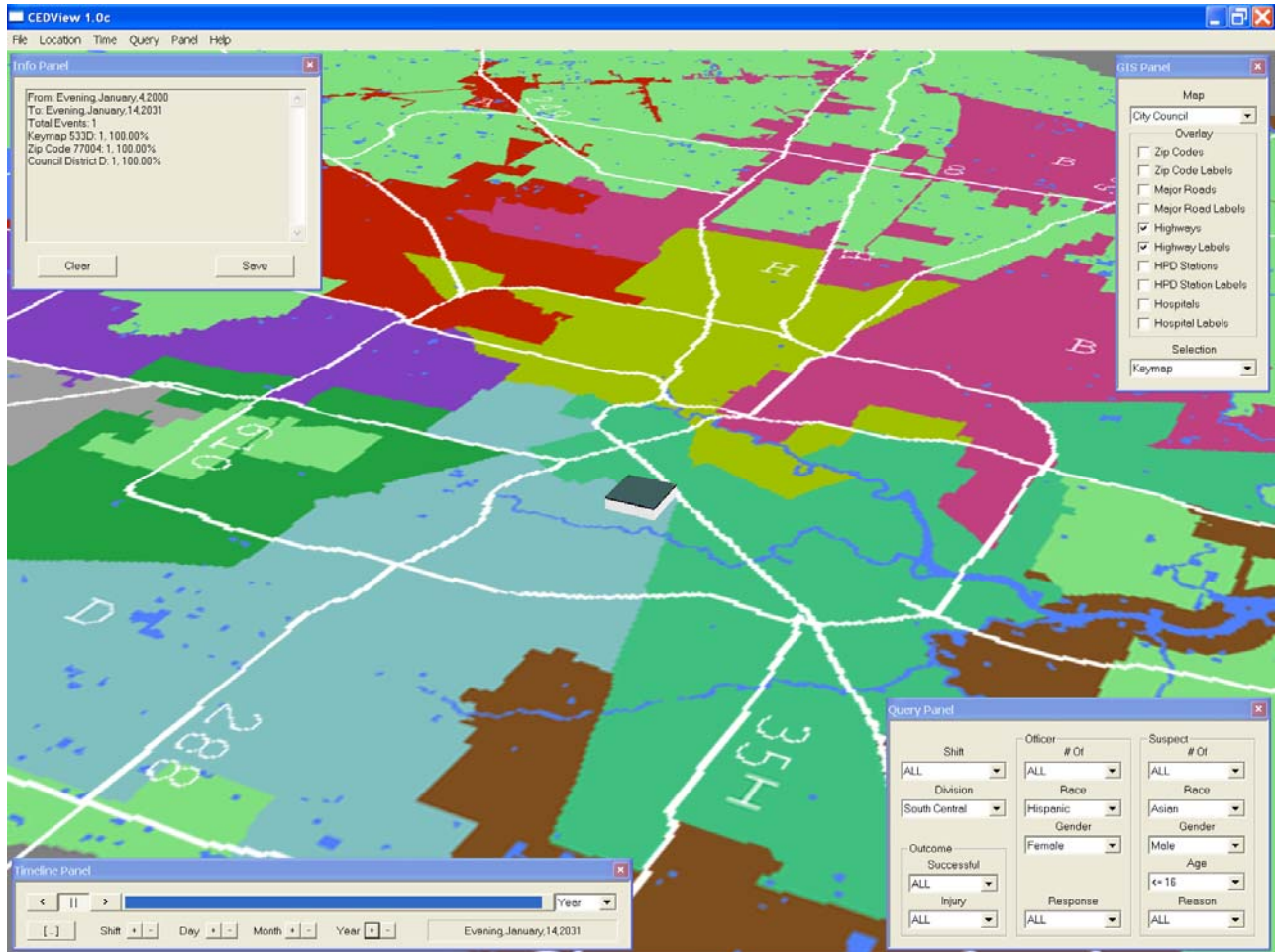
The *Save Button* allows a user to save information currently recorded in the *Text Area* to a file on disk. Both buttons can be used, in combination, to create a simple data file of CED incident details. This file can be printed, shared via e-mail, or used with other software for further processing/analysis.

## 8. EXAMPLE

Below is an example that is provided to illustrate some of the concepts and graphical user interface components previously described in detail. As can be seen in Figure 18:

- The user has taken a 3-point perspective, close-up view centered north of City Council District D inside Loop-610.
- The City Council District map is selected in the *GIS Panel*.
- Highways and highway labels are the only overlay items in use.
- Key map is the current selection mode.
- The current query involves all shifts of the South Central division.
- The user is looking for any events in which a Hispanic, female Officer has deployed a CED on an Asian, male suspect 16 years old or younger.
- The current timeline under consideration ranges from the evening of January 4, 2000 to the evening of January 14, 2031.
- Key map cell 533D has been selected which contains ZIP code 77004 and is part of City Council District D.
- There was only one CED event that matched all of these criteria indicated in the *Info Panel*

Figure 18 Example of output from CEDView software



**PART VI**  
**VIEWS OF RESPONSIBLE OFFICIALS**

# CITY OF HOUSTON

INTER OFFICE CORRESPONDENCE

2008 AUG 28 PM 3:08  
CONTROLLER'S

TO: Annise Parker  
City Controller

FROM: Harold L. Hurtt  
Chief of Police

DATE: August 28, 2008

SUBJECT: **Conductive Energy Device Audit**

In the interest of public safety senior management at the Houston Police Department applaud you for conducting an audit of the department's Conducted Energy Device (CED) program. The review and evaluation of the audit is currently in progress and we will consider the recommendations very seriously. The department will continue to follow the best practices in the law enforcement as they relate to policies, procedures and training. Any major modifications to our CED program in the future will be reported to the City Council Public Safety Committee.

In December 2004, the decision was made to implement Conducted Energy Devices in the Houston Police Department. Although the department used older generation devices prior to December 2004, the current model is the X-26 manufactured by Taser International.

The purpose of this less-lethal technology was to provide Houston Police Officers with additional force options to: assist officers in securing and controlling combative individuals, reduce injuries to officers and suspects during physical confrontations, reduce the potential financial impact of civil litigation in use of force incidents and, in limited situations, provide an alternative option prior to exercising deadly force. The use of CED's has been extremely successful in accomplishing our goals. According to page (5) of the Mir Fox & Rodriguez executive summary, "HPD has been effectively managing the CED program and was generally in compliance with HPD and the City's Policies and Procedures, as well as the related procurement laws."

*Views of Responsible  
Officials*

The Mir Fox & Rodriguez audit examined CED deployments for calendar year 2005, 2006 and January through June of 2007. During this specific audit period, officers from the Houston Police Department responded to 2.8 million calls for police service and arrested 272,885 individuals for various criminal violations. The percentage of criminal suspects who were arrested and involved in a CED event amounted to .47% of the total number of suspects arrested. In other words, an individual being arrested by a Houston Police Officer has a chance of being involved in a CED event less than 1/2 of 1% of the time during an arrest.

Physical confrontations between police officers and suspects occur frequently and potentially pose a significant financial burden on the department and community. In calendar year 2005, the department's worker's compensation cost was \$1,152,195.00 as a result of injuries officers received during physical confrontations with violent suspects. During calendar year 2006, that amount decreased to \$738,082.00. In calendar year 2007, the amount continued to decline and

Page 1 of 2

Note: In paragraph 4 above, page 5 was changed to page 2 during the report binding process.

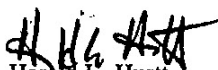
August 28, 2008

totalled \$148,929.00. Since the deployment of CED devices in the Houston Police Department, worker's compensation expenditures have continued to decline. Furthermore, during the same auditing period, no suspect has been seriously injured during an incident where the injury was caused by the CED device. The reduction in injuries and the associated financial cost have been a positive benefit to the department and community.

At the Houston Police Department we view any use of force by its officers as serious and have instituted policies, procedures and training to ensure accountability. Houston Police Officers have conducted themselves very responsibly exercising restraint and excellent judgement during 53 CED incidents where deadly force was clearly justified by state law as well as department policy. During these 53 incidents the suspects were armed with deadly weapons that included but not limited to, firearms, knives and other weapons. Officers successfully resolved these 53 incidents using a less lethal CED instead of deadly force. Furthermore, the department's policies follow the best practices in law enforcement across the country, including the International Association of Chiefs of Police (IACP) and the Police Executive Research Forum (PERF).

In an effort to address community concerns, management at HPD has been diligent in seeking the physiological effects associated with Conducted Energy Devices. A medical review of all published physiological effects available at the time (2008), was gathered by medical doctors from the University of San Diego and presented to the Houston Police Department and the City Council Public Safety Committee. Senior management has also reviewed similar studies conducted by the Wake Forest University Baptist Medical Center study released in 2007 and the National Institute of Justice (NIJ) study published in June 2008. In all studies an expert panel of medical professionals found no conclusive evidence of high risk of death or serious injury from the direct effects of Conducted Energy Devices used against individuals. The studies did recognize high risk groups such as the elderly, children, pregnant women and individuals who may be in a state of excited delirium. Department policy and training give officers the proper guidance and discretion in dealing with high risk groups. According to the studies risk of injuries from CED devices are usually low and result from secondary falls. These injuries are minor scrapes and bruises. We will continue to evaluate all relevant information associated with CED technology. As stated by Mir Fox & Rodriguez, HPD has been effectively managing the CED program.

*Views of Responsible  
Officials*

  
Harold L. Hurt  
Chief of Police

hlh:ces

cc: Michael Moore, Mayor's Office

COP #08-30056