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How the use of computerized crime mapping was affected by characteristics of law enforcement agencies in 2007

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How the use of computerized crime mapping was affected by characteristics of law

enforcement agencies in 2007

by

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in partial fulfillment of the requirements for the degree of

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ABSTRACT

With the development of Human Computer Interaction (HCI), law enforcement agencies, especially police departments, use computers and information systems to assist them in doing crime analysis and criminal justice research. Previous studies about factors affecting adoption and early usage of several HCI technologies have helped criminal justice researchers to understand how and why certain law enforcement agencies use those technologies while others do not. The goal of this study is to investigate factors that affect the usage of computerized crime technology. It relies on statistics of the Bureau of Justice Statistics (BJS). The BJS conducts surveys every three or four years to obtain a national representative sample of state and local law enforcement agencies. In this research, I examined the surveys, which had been distributed in 2007. The data were analyzed to identify a relationship between different variables of law enforcement agencies that address the usage factors of computerized crime mapping. Based on the existing literature and research, this paper builds a theoretical model that relies on the path analysis method to describe the dependencies among the endogenous variables and exogenous variables. This model is the foundation of the proposed hypotheses. The correlation analysis, path analysis, and regression analysis were used to test the independent variables' predictive powers. The results of this research underpin a suggestion to utilize computerized crime mapping; law enforcement agencies should focus on increasing number of full-time paid employees, providing academy training, assigning patrol officers to specific areas/beats, and updating technology frequently to support the analysis of community problems.

CHAPTER 1

INTRODUCTION

Along with the rapid development of computer-related technologies, many

organizations have adopted and used different technologies to support their decision-making

processes and data analysis. The technology that is addressed in this thesis is computerized

crime mapping in order to support crime analysis. Geographical information has been made

very convenient for people to access since as more geographical instruments and

technologies have been developed which comply with organizations' requirements.

According to National Institute of Justice (NIJ), geography plays an important role in crime

(National Institute of Justice, 2013). Crime analysis, according to Boba, is the qualitative

and quantitative study of crime and law enforcement information in combination with socio-

demographic and spatial factors to apprehend criminals, prevent crime, reduce disorder, and

evaluate organizational procedures (Boba, 2001). Crime mapping is a way to do crime

analysis. NIJ defines crime mapping as a technology to combine geographic data with police

report data, in order to display the information on a map to analyze where, how and why

crime occurs. There can be many possible applications and benefits of a crime mapping

system to a law enforcement agency, including tactical analysis, strategic planning and

intelligence dissemination (Ratcliffe, 2000). Geographic data plays a decisive role.

According to National Institute of Justice (NIJ), geography is one major factor in the

occurance of crime (National Institute of Justice, 2013). Chainey and Ratcliffe argue, the

field of crime mapping is a progressive blend of practical criminal justic issues with the

research field of Geographical Information Systems (GIS) (Chainey & Ratcliffe, 2005). GIS

has been pervasively used in contempary life, including in-car navigation, retail store site

location, customer targeting, risk management, construction, weather forecasting, utilities

management, and military planning (Chainey & Ratcliffe, 2005). For crime mapping, GIS

can be utilized to recognize patterns of criminal activity that would not be apparent through

more traditional means and enhance the police's perception of recent and historical crime

distributions (Ratcliffe & McCullagh, 2001).

A typical crime mapping interface is shown in Figure 1. It shows the distribution of

homicide in Washington DC from November 2004 through November 2006, with three

different methods of homicide – Guns, Knife, and Other. It is apparent that guns are used

more than the two other ways to commit homicide in Washington D.C. area. Police officers

can do a cluster analysis to see where the intensity of guns homicide has its peak.
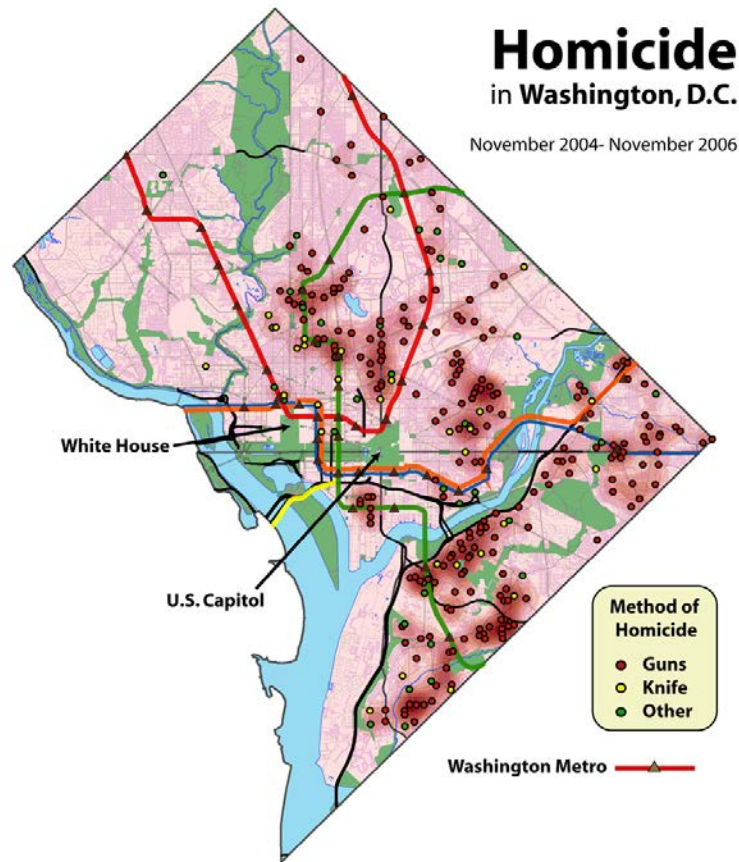
Figure 1 Crime Map Example

The use of crime mapping in policing has a long history, as it has been adopted widely since the desktop computers' advent facilitates mapping in a large scale (Chamard, 2006). The history of crime mapping can be traced back to 1829, when Adriano Balbi and Andre Michel Guerry created maps to reflect the relationship between violent property crimes and educational levels (Dent, 2000). Gradually, crime mapping's visual differences have been developed from country to country. Until the early 1900s, when sociologists at the Chicago School started to use a choropleth map to address male delinquents in Chicago, crime mapping was accepted as a useful tool to study crime (Chamard, 2006). From the

initial recognition of its usefulness until the late 1990s, most of the created maps were used for tactical, strategic, or internal administrative purpose (Wartell, 2003). Nowadays,computerized crime mapping is widely used in law enforcement agencies along with desktop computers.

Computerized crime mapping is the usage of modern information processing technology to combine GIS data, digital maps, and crime data to facilitate the understanding of spreading of crime. According to Mamalian et al., it enables law enforcement agencies to analyze and correlate data sources to create a detailed snapshot of crime incidents and related factors within a community or other geographical area (Mamalian, LaVigne, & Groff, 1999). It is a versatile tool for crime investigation officers to understand the spreading of crime (Bowers & Hirschfield, 2001). It has already been applied to different crime types, including drug incidents (Olligschlaeger, 1998), environmental crimes (Chainey & Ratcliffe, 2005), burglary (Chainey & Ratcliffe, 2005), gang violence (Kennedy, Braga, & Piehl,1998), burglary repeat victimisation (Johnson, Bowers, & Hirschfield, 1997), residential burglaries (Casady, 2003), and serial robberies (Hill, 2003).

In 2000, Ratcliffe suggested a theoretical model with three essential inputs for a crime analysis system – GIS data, crime data, and digital maps (Ratcliffe, 2000). Law enforcement agencies can follow two main paths based on these three inputs – serial crime investigation and high-volume crime analysis. In order to provide police officers access to current geo-spatial information about the occurrence of crime, the Division of State Police (DPS) developed GIS based crime mapping and analysis capability which is available

enterprise-wide for state and local law enforcement agencies and patrol officers (Leipnik & Albert, 2003). The system is called Real-Time Crime Reporting (RTCR), it was available over the state's intranet . With ongoing usage, the DPS discovered that the more users and stakehoders accept and use the RTCR systerm, the more successful it assist in crime analysis.

Today, we can identify five ages of GIS development – Pioneer Age (mid-1950 – early 1970s), Research and Development Age (early 1970s – 1980s), Implementation and Vendor Age (1980s – 1990s), Client Applications Age (1990s), Local and Global Network Age (1990s – present) (Foresman, 1998).

Intially, there were problems in using crime mapping technologies. As one important crime mapping technology, GIS had organizational and management problems, which were reason for the problems of crime mapping technology (Openshaw, Cross, Charlton, & Brunsdon, 1990). According to Openshaw et al., lack of experience in GIS had caused a problem as users' normally work and learn in parallel so that it becomes inefficient to advance crime mapping in a large scale. Another problem of generating usage of crime mapping is due to the extreme labor-intensity when mapping with gigantic mainframe computers (Harries, 1999). The itensity of labor and the related costs made it diffcult for law enforcement agencies to afford computerized crime mapping tools. It was not solved until desktop computers became widely used in the mid-1980s to early 1990s (Chamard, 2006). During the summer of 1988, a crime analysis officer used an original map and subsequent follow-up maps on microcomputer screens to assist Patrol officers Barry Eichner and Edward Carfora of the District 25 to arrest offenders (Maltz, Gordon, & Friedman, 1990).

The reductions of the costs for computer technology, improved operating systems, electronic storage media, and advancements in computer software had a wide and significant impact in introducing computerized crime mapping technology to policing and crime reduction (Chainey & Ratcliffe, 2005). This development led to a famous computerized crime mapping project, which was funded by NIJ starting in November 1986 and continued for three years.

According to Rich, the widespread use of computerized mapping in law enforcement agencies encountered several major obstacles, including expertise, data acquisition costs, and data quality (Rich, 1995). However, further possitive effects prevent these obstacles to negatively affect the increasing usage of computerized crime mapping in law enforcement agencies. Rich suggested that the decreasing costs of personal computers and crime mapping tools, the increasing sophistication of the computerized crime mapping software, the increasing availability of geographic and demographic data, and the need to improve performance while controlling cost have positively influenced the increasing use of computerized crime mapping technology in law enforcement agencies.

CHAPTER 2

LITERATURE BACKGROUND AND THEORETICAL FRAMEWORK

Since the very beginning when law enforcement agencies started to utilize computerized crime mapping much research has addressed computerized crime mapping's development, adaptation, and usage. One goal of this research was to identify internal factors and external factors that caused the increased usage of computerized crime mapping as well as the distribution of this technology.

The increase of crime mappinge usage is reported in several sutdies since 1997. The Bureau of Justice Statistics' Law Enforcement Management and Administrative Statistics (LEMAS) surveys of 1997 and 1999 indicate that the computerized crime mapping technology were adopted and used by law enforcement agencies after 1999. About 49% of the departments with 100 or more police officers claimed to have computerized crime mapping technology capabilities according to the LEMAS survey of 1997. The LEMAS survey of 1999 indicates that 59% of agencies with 100 or more police officers claimed to have used computerized crime mapping technology. Following LEMAS's survey of 1997, the national survey conducted by the Crime Mapping Research Center (CMRC) of the National Institute of Justice were distributed to determine which agencies used GIS, the purpose of usage, and the reasons for refusing it (Mamalian, LaVigne, & Groff, 1997-1998). According to the results of this survey, the adoption rate was lower than reported in the 1997s' LEMAS survey: only 35% of departments with 100 or more police officers used computerized crime mapping technology. Based on this data, Weisburd and Lum conducted

a pilot study to directly examine the adoption of computerzied crime mapping in police

agencies by choosing a random sample of 125 police agencies from the LEMAS 1999 survey

of departments with 100 or more police officers (Weisburd & Lum, 2005). Based on their

results, 62% of the polled departments claimed to have adopted computerized crime mapping

by 2001. Two additional important findings of Weisbrud and Lum are, firstly, the existence

of a direct link between the use of computerized crime mapping and hot spots approaches in

policing, and second, both basic and applied research about crime places and hot spots played

an important role in the process of difusion of computerized crime mapping. Other

researchers conducted studies on the characteristics of crime mapping's diffusion and

adoption. According to Demir, law enforcement agencies that adopt crime mapping

technology are significantly closer to each other spatially (Demir, 2009).

The early adoption of computerized crime mapping also happens in several countries

outside the United States. A browser based mapping application Map-based Analytical

Policing System (MAPS) was released on the New Zealand Police network in late 2000

(Gilmour & Barclay, 2008). In Rio de Janeiro, Brazil, the space-time monitoring of

geographical cells Cells Monitora Espacio Temporal (CEMET) was applied across the entire

state by using ArcGIS and digital maps, to identify crime patterns (Paula Mendes de Miranda

& Ferreira, 2008). In addition, Victoria Police department in Victoria, Australia developed a

tool to simplify the use of MapInfo GIS software by introducing Geographic Intelligence

Unit (GIU), and implement crime mapping at many locations across the state (Mashford,

2008).

In the following, the factors for the adopotion of crime mapping technologies, which are known from literature, are addressed and explained in detail.

Number of Full-time Paid Employees

According to Mamalian et al., among the 261 surveyed departments between 1997 and 1998 by CMRC, larger departments (with more than 100 full-time paid employees) were more likely to use computerized crime mapping technology than smaller departments (with less than 100 full-time paid employees) (Mamalian, LaVigne, & staff of the CMRC, 1999).

Minimum Education Requirement of New Officer Recruits

In this research, we are interested in understanding how the minimum education level of new officers recruits affect the use of computerized crime mapping in law enforcement agencies. Education and training should be differentiated with respect to computerized crime mapping in law enforcement agencies (Leipnik & Albert, 2003). According to Leipnik and Albert, training in GIS/crime mapping usage in higher education institutions is a good investment for the department and for an individual officer (Leipnik & Albert, 2003).

Total Hours of Academy Training Requirement for New Officer Recruits

Different from education requirement, the academy training is actually focusing on GIS software use. Training can ultimately improve the effectiveness of computerized crime mapping technology (Governor's Crime Commission, 2001). It is reported that the lack of training may be a problems that agencies encounter when implementing GIS/crime mapping

technology (Paulsen, 2003). Thus, law enforcement agencies focus on two approaches to obtain training. Firstly, according to Leipnik and Albert, law enforcement agencies embrace vendor- or consultant-provided classes to have new recruits equipped with the required set of skills. Second, law enforcement agencies can hire new officer recruits that already have knowledge in computerized crime mapping technology. In CMRC 1997-1998 survey, 61% of the respondent departments believed that software that requires minimal training would foster the spreading of computerized crime mapping. As a new technology starting from early 1990s, computerized crime mapping technology has been supported by law enforcement agencies in training of police officers. According to LaVigne and Wartell, computerized crime mapping has shown to be an asset in assisting community police departments in problem solving (LaVigne & Wartell, 1998). The NIJ program of CMRC had provided free support, software pacakges, and grants to deploy omputerized crime mapping technology to law enforcement agencies. A range of analytical applications for computerized crime mapping have been used, inlcuding hotspot mapping, ComStat, and geographic profiling (Ratcliffe, 2004). In addition, according to Ratcliffe, training of police managers is a complicated process as they rarely have much free time and have limited space within their training regimes for crime prevention.

Agency Gave Patrol Officers Responsibility for Specific Geographic Areas/Beats

Fixed geographic responsibility allows patrol officers to develop more productive relationships with the community members. They can be more attuned to rising levels of community concerns and fears. They can become effectively responsive to communities needs and concerns (Docobo, 2005). During the late 1990s, the Lincoln Police Department

(L'PD) considered to modify the major operational districts – Team Areas in order to adapt to substantial population growth. At that time, GIS has eased the assembly of new teams for different districts (Casady, 2003).

Technology Upgraded for Analysis of Community Problems

Technology provide the capability to reconfigure boundaries and reassemble data attached to points or geometric areas to generate and analyze data for a particular geographic territory (Wiggins & French, 1991). Kellogg suggested that Community-based Organizations (CBOs), including law enforcement agencies, should seek out to upgrade computer software so that they can provide adequate internet access and GIS software usage (Kellogg, 1999).

Field/Patrol Officers Have Direct Access to GIS/Crime Maping Using In-field Vehicle-mounted or Portable Computers

In many law enforcement departments, GIS has been used along with Global Positioning Systems (GPS) and/or Automatic Vehicle Locator (AVL) systems (Leipnik & Albert, 2003).   According to Leipnik and Albert, several law enforcement agencies integrate GIS on mobile data terminals. For example, the State Police Headquarters in Springfield, Illinois uses laptops with GIS incorporrated to perform analysis in drug interdiction issues, serious accidents issues, drunk driving stops, and other criminal issues. However, there are issues that prohibit the wide use of GIS/crime mapping using in-field vehicle-mounted or portable computers, including geo-referencing issues and geo-coding issues. In Mamalian et

al.'s survey report, the authors indicate that in most of the departments that use crime

mapping, crime analysis staff is primarily responsible for performing computerized queries;

only few patrol officers use crime mapping (Mamalian, LaVigne, & staff of the CMRC,

1999).

CHAPTER 3

HYPOTHESES AND PROPOSED THEORETICAL MODEL

Based on the previous discussion on the development of computerized crime mapping and research on different factors of law enforcement agencies, the following hypotheses are proposed:

H1: Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is associated with the number of actual full-time paid employees.

H2: Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is associated with minimum education requirement of new officer recruits.

H3: Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is associated with total hours of academy training required of new officer recruits.

H4: Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is associated with whether or not agency gave patrol officers responsibility for specific geographic areas/beats.

H5: Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is associated with whether or not agency upgraded technology to support the analysis of community problems.

H6: Whether or not agency uses computerized crime mapping is associated with the number of actual full-time paid employees.

H7: Whether or not agency uses computerized crime mapping is associated with minimum education requirement of new officer recruits.

H8: Whether or not agency uses computerized crime mapping is associated with total hours of academy training required of new officer recruits

H9: Whether or not agency uses computerized crime mapping is associated with whether or not agency gave officers responsibility for specific geographic areas/beats

H10: Whether or not agency uses computerized crime mapping is associated with whether or not agency upgraded technology to support the analysis of community problems.

H11: Whether or not agency uses computerized crime mapping is associated with the type of agency.

H12: Whether or not agency uses computerized crime mapping is associated with whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers

Based on the above hypotheses, the proposed theoretical model is shown in Figure 2:
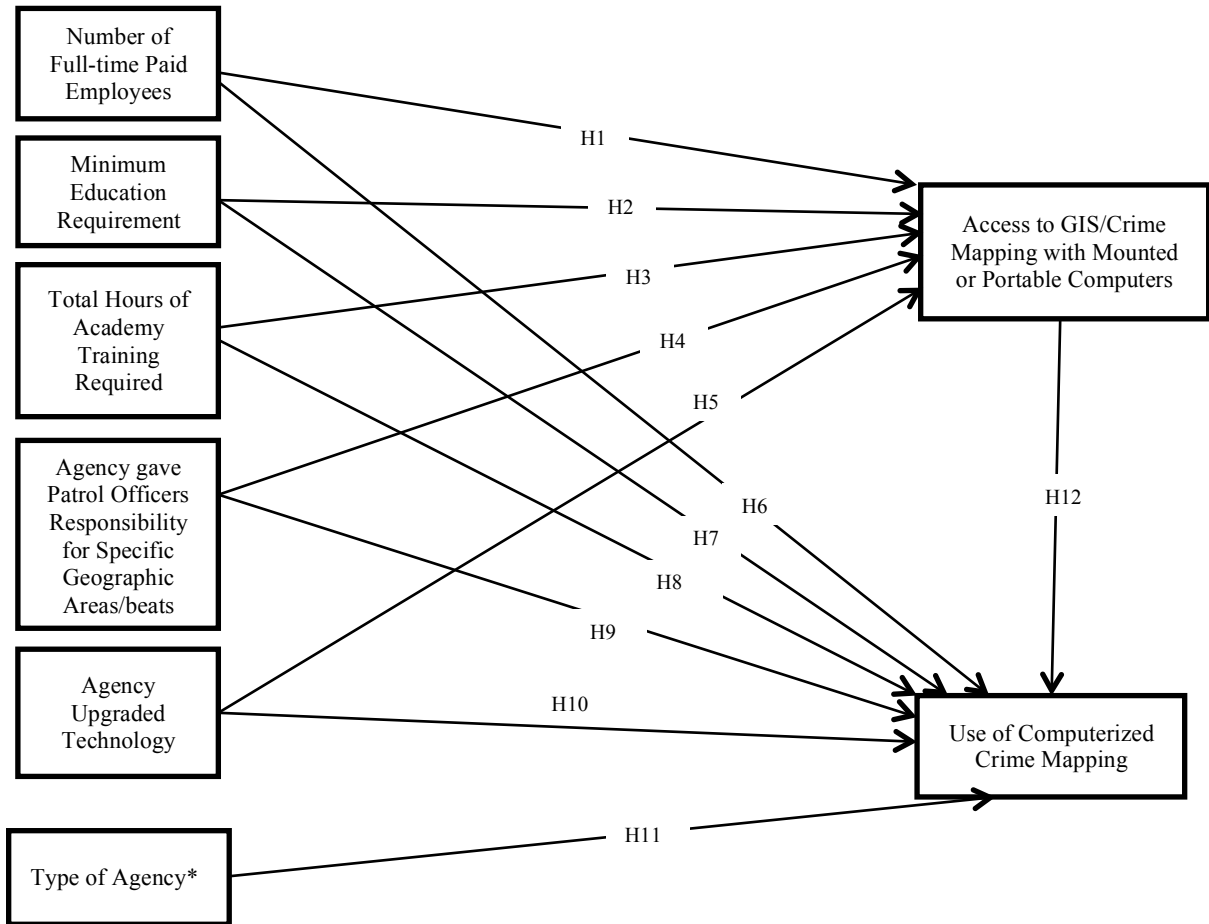
*Sheriff, Local Police, State Law Enforcement Agency

Figure 2 *Proposed Theoretical Model*

CHAPTER 4

METHODOLOGY

Data and Sample

Data Description and Sampling Procedure

To examine the validity and reliability of the above hypotheses, my analysis relies on the Bureau of Justice Statistics (BJS) survey of 2007-2008 conducted as part of the Law Enforcement Management and Administrative Statistics (LEMAS). This survey was conducted using self-enumerted questionnaires and distributed by mail. The original survey sample included 3,224 state and local law enforcement agencies in the United States. According to the sampling procedure description in the codebook, agencies serving special jurisdictions or with special enforcement responsibilities, and sheriff's enforcement without primary law enforcement jurisdiction are all considered out of scope for this survey (United States Department of Justice. Office of Justice Programs. Bureau of Justice Statistics, 2007). After dropping out the law enforcement agencies, which are out of the study scope, the sample size of the survey is 3,095. The final sample includes 950 self-representing (SR) agencies with 100 or more actual full-time paid employees, and 2,145 nonself-representing (NSR) agencies with less than 100 actual full-time paid employees.

Two questionnaires were distributed – one is the 49-item CJ-44L questionnaire and the other one is the 40-item CJ-44S questionnaire. The SR agencies include 591 local police departments, 310 sheriffs' agencies, and 49 state law enforcement agencies. All 950 SR agencies responded to the 49-item CJ-44L questionnaire. The NSR agencies were selected

using a stratified random sample with cells based on the number of actual full-time paid

employees. The NSR sheriffs' offices were selected using a random sample. In summary,

the NSR sample included 1,504 local police departments and 641 sheriffs offices. All 2,145

NSR agencies responded to the 40-item CJ-44S questionnaire.

Weighting

According to the National Longitudinal Survey of Youth, weighting is a way to

ensure the sample is representative of the population of interest and that other objectives are

met (Moore, Pedlow, Krishnamurty, & Wolter, 2000). According to the codebook, the base

weight for all SR agencies is 1. For NSR Sheriffs' officies, the base weight is 4.22. For

NSR local police departments, the base weights are calculated with respect to the number of

the actual full-time paid employees as reported in the 2004 BJS Census of State and Local

Law Enforcement Agencies. Finally, the final weights assoicated with these SR and NSR

agencies are the products of the base weight, a factor that adjusted for changes in the

universe since 2004, and a factor that adjusted for any nonresponding agencies in each cell.

For state law enforcement agencies, the final weight is 1.09. For SR sheriffs' officies, the

final weight is 1.12, and for NSR sheriffs' officies it is 4.90. The final weight for all SR

local police departments is 1.06. The final weight for NSR local police departments with 63-

99 officers is 2.22, with 40-62 officers, 3.54; with 24-39 officers, 5.21; with 14-23 officers,

7.55; with 7-13 officers, 10.97; and for departments with fewer than 7 officers the final

weight is 20.29. The officer-based percentages is the product of the final weight of an

agency and the proportion of all full-time equivalent sworn officers employed by that agency.

Response Rate

According to the codebook, 2,840 agencies completed the questionnaire in 2007 for

an over-all response rate of 91.8%. This includes 879 SR agencies (92.5%) and 1,961 NSR

agencies (91.4%). Local police departments' response rate was 93.9%, sheriffs' offices'

response rate was 87.0%, and state law enforcement agencies' response rate was 91.8%. The

final dataset includes full responses from 827 sheriffs' offices, 1,968 local police

departments, and 45 state law enforcement agencies. It also includes uncompleted responses

to the questionnaire from 21 local police departments and 14 sheriffs' offices.

Operationalization

To test the validity of the hypotheses this paper propose two endogenous variables,

six exogenous variables, and a dummy coding variable. The variables' names and the

abbreviations in the dataset are shown in Table 1:

Table 1. Variables and Values

Variable Type	Variable Names	Values
Endogenous Variable	Whether or not agency uses computerized crime mapping	0: no 1: yes
	Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers	0: no 1: yes 8: NA-valid skip 9: don't know

Table 1. (continued)

Variable Type	Variable Names	Values
Exogenous Variables	Number of actual full-time paid employees	Median: 39.00 Minimum: 0 Maximum: 35,216
	Minimum education requirement of new officer recruits	0: No formal education requirement 1: Four-year college degree required 2: Two-year college degree required 3: Some college but no degree required 4: High school diploma or equivalent required
	Total hours of academy training required of new officer recruits	Median:640.00 Minimum: 0 Maximum: 4,400
	Whether or not agency patrol officers responsibility for specific geographic areas/beats	0: Agency did not give patrol officers responsibility for specific geographic areas/beats 1: Agency gave patrol officers responsibility for specific geographic areas/beats 9999: don't know
	Whether or not agency upgraded technology to support the analysis of community problems	0: Agency did not upgrade technology to support the analysis of community problems 1: Agency upgraded technology to support the analysis of community problems 9: don't know
Dummy Variable	Type of agency	D1: 1, if type of agency is sheriff, 0 otherwise D2: 1, if type of agency is state law enforcement agency, 0 otherwise

As it is shown in Table 1, the level of measurements of *agency uses computerized crime mapping*, *whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers, minimum education requirement of new officer recruits, whether or not patrol officers are given responsibility for specific geographic areas, whether or not agency upgraded technology to support the analysis of*

community problems, and 2 dummy variables are all dominal variables, while *number of actual full-time paid employees and total hours of academy training required of new officer recruits* are continous quantitative variables. This research is going to use the path analysis to discover the causality between the exogenous variables and the endogenous variables.

Missing Values

According to the codebook of this survey, median value imputation or ratio imputation was used when an agency did not response to a numeric item. The median value imputation or ratio imputation used the median value of an item or median value of a ratio reported by other agencies in the same sample cell. However, imputations were not used for categorical items. In this research, I am interested in many categorical items, which have missing values. The missing values of the interested variables are shown as in Table 2:

Table 2. Missing Values of Interested Variables

Variable	Number of Missing Values	Percentage
Minimum education requirement	35	1.2%
Total hours of academy training required	35	1.2%
Whether or not agency gave patrol officers responsibility for specific geographic areas	35	1.2%
Whether or not agency upgraded technology to support the analysis of community problems	35	1.2%
Whether or not agency uses computerized crime mapping	35	1.2%
Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable	37	1.3%

In this dataset, the numbers of missing values of most interested variables are in an accepted range, compared to the large sample size of 2,875. Most of the variables' 35 missing values are due to the fact that the final dataset of LEMAS survey in 2007 includes uncompleted responses to the questionnaire from 21 local police departments and 14 sheriffs' offices.

Don't Know and Valid Skip Values

Similar to missing values, the *don't know* and *valid skip* values also need to be re-coded in order to make the dataset reliable and valid. Table 3 shows the distribution of the *don't know* and *valid skip* values.

Table 3. Don't Know and Valid Skip Values

Variable	Number of Don't Know/Valid Skip Values	Percentage
Whether or not agency gave patrol officers responsibility for specific geographic areas	6	0.2%
Whether or not agency upgraded technology to support the analysis of community problems	6	0.2%
Whether or not agency uses computerized crime mapping	4	0.1%
Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers	751 (Valid Skip) 3 (Don't Know)	26.1% 0.1%

I removed the responses rows which have the *don't know* values, since there are only few of them compared to the large sample size in this dataset.

After I removed the responses rows which have the *don't know* values, for the variable *whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers,* there are 749 valid skipping responses and 2 system missing values. The valid skip responses result from the respondant answer to the previous question "Do any of your agency's field/patrol officers use computers or terminals WHILE IN THE FIELD." If the answer was "no", they needed to skip the question that asked for variable *whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers*. In order to clearly see how the valid skip values are distributed for the 751 cases, I constructed a two-by-two table as shown in Table 4.

Table 4. Cross Tabulation of Two Endogenous Variables

		Field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers			Total
		Field/patrol officers do not have direct access to GIS/crime mapping using in-field computers	Field/patrol officers have direct access to GIS/crime mapping using in-field computers	NA - valid skip	
Agency uses computerized crime mapping	Agency does not use computers for crime mapping	746	94	622	1462
	Agency uses computers for crime mapping	829	410	127	1366
Total		1575	504	749	2828

From Table 4, it is obvious that the reponses for question 42 were validly skipped by 749 agencies. The total number of responses in this crosstabulation table is 2,828, it is because that there were 2 missing values for question *whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers*. Among these 749 agencies, 622 agencies responded that they did not use computerized crime mapping, while 127 agencies responded that they used computerized crime mapping. In other words, even though there were no field/patrol officers in these 127 agencies that used computers or terminals while in the field, these 127 agencies used computerized crime mapping. In addition, as it is shown in Table 5, 94 agencies who did not use computers for crime mapping but field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers.

Therefore, I recorded the 749 valid skip values for variable *whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers* to be 0, which shows that in these 749 law enforcement agencies, field/patrol officers have no direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers as they don't have access to in-field vehicle-mounted or portable computers at all. Finally, I received a sample of 2,830 valid responses.

CHAPTER 5

RESULTS

Descriptive Statistics

Table 5 shows the descriptive statistics of the data; there are no valid skip values and no unknown values, and only two missing values for the variable *Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers*. I retain the missing values because I don't know the reason why the values are missing. The final sample size is 2830, which is sufficient for conducting the data analysis in the following sessions. Both medians of *sheriff* and *state law enforcement agency* are 0. This indicates that most of the respondents in this dataset are *local police* agencies, and this indication is consistent with the median of *type of agency* which is 3, representing *local police*.

Table 5. Descriptive Statistics of Interested Variables

	Valid N	Missing	Median	Range	Min.	Max.
Type of agency	2830	0	3.00	4	1	5
Number of actual full-time paid employees	2830	0	39.00	35,216	0	35,216
Minimum education requirement of new officer recruits	2830	0	4.00	4	0	4
Total hours of academy training required for new officer recruits	2830	0	640.00	4400	0	4400
Whether or not agency gave patrol officers responsibility for specific geographic areas/beats	2830	0	1.00	1	0	1
Whether or not agency upgraded technology to support the analysis of community problems	2830	0	.00	1	0	1
Whether or not agency uses computerized crime mapping	2830	0	.00	1	0	1
Sheriff	2830	0	.00	1	0	1
State law enforcement agency	2830	0	.00	1	0	1
Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers	2828	2	.00	1	0	1

Correlation Analysis

This analysis employed SPSS Amos to apply the path analysis to find the prediction power of the exogenous variables of endogenous variables while the varibale *type of agency* remains controlled. Table 6 displays the unstandardized pearson correlations:

Table 6. Correlations between Endogenous Variables and Exogenous Variables

Variables	1	2	3	4	5	6	7	8	9
1. Number of actual full-time paid employees	-								
2. Minimum education requirement of new officer recruits	-.031	-							
3. Total hours of academy training required of new officer recruits	.157**	.045*	-						
4. Whether or not agency gave patrol officers responsibility for specific geographic areas/beats	.083**	-.063**	.124**	-					
5. Whether or not agency upgraded technology to support the analysis of community problems	.102**	-.087**	.099**	.316**	-				
6. Whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers	.071**	-.045*	.089**	.181**	.207**	-			
7. Whether or not agency uses computerized crime mapping	.146**	-.091	.168**	.357**	.412**	.308**	-		
8. D1 – Sheriff	-.028	.098**	-.158**	-.067**	-.096**	.029	-.117**	-	
9. D2 – State law enforcement agency	.175**	-.014	.170**	-.018	-.027	-.037*	.013	-.081**	-

**. Correlation is significant at the 0.01 level
 *. Correlation is significant at the 0.05 level

According to Table 6, *whether or not agency uses computerized crime mapping* is strongly

positively correlated with *number of actual full-time paid employees, total hours of academy*

training required of new recruits, whether or not agency gave patrol officers responsibility

for specific geographic areas/beats, whether or not agency upgraded technology to support

the analysis of community problems, whether or not field/patrol officers have direct access to

GIS/crime mapping using in-field vehicle-mounted or portable computers, and *two* dummy

variables – *sheriff* and *state law enforcement agency*. The other endogenous variable

whether or not field/patrol officers have direct access to GIS/crime mapping using in-field

vehicle-mounted or portable computers has a strong correlation between *number of actual*

full-time paid employees, total hours of academy training required of new recruits, whether

or not agency gave patrol officers responsibility for specific geographic areas/beats, whether

or not agency upgraded technology to support the analysis of community problems, and *two*

dummy variables – *sheriff* and *state law enforcement agency.* It moderately and negatively

correlates with *minimum education requirement of new officer recruits.* No significant

correlation is found, however, between *whether or not agency uses computerized crime*

mapping and *minimum education requirement of new officer recruits.* No significant

correlations were found between *whether or not field/patrol officers have direct access to*

GIS/crime mapping using in-field vehicle-mounted or portable computers and two dummy

variables *sheriff* and *state law enforcement agency,* either.

In addition, as it is shown in the matrices in Table 6, the correlation between dummy

codes Sheriff (D1) and state law enforcement agency (D2) is -.081 which is less than .7 in

magnitude. The correlations between D1 and other exogenous variables and the correlations

between D2 and other exogenous variables are all less than .7 of magnitude. Therefore, there

is no need to be concerned about collinearity in this case.

Path Analysis

I used IBM SPSS Amos to apply the path analysis based on my proposed model. The

path analysis is based on Ordinary Least Squares (OLS) regression, which requires the

assumption that the error term is normally distributed. In this path analysis, I have two error

terms, each has a path that links it to an endogenous variable, which means each of them is

correlated with one endogenouse variable.

The results of the path analysis indicate that the model fairly fits (p=.000, Chi-

square=36.200, RMSEA=0.0777, TLI=0.635). Based on the cause and effect principle of the

path analysis, my model indicates that exogenous variables cause endogenous variables. To

estimate the magnitude and direction of each path in the model, I calculate an estimation by

executing the model in SPSS Amos software. My model is a recursive model because the

residuals of two endogenous variables are uncorrelated and each endogenous variable is

predicted by the variables that precede it, except that endogenous variable *whether or not*

field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted

or portable computers is not predicted by the dummy variables.

I am interested to discover the effects in this recursive model. Basically, there are

two equations I want to look into. To present the effects, I assign the endogenous variable

whether or not field/patrol officers have direct access to GIS/crime mapping using in-field

vehicle-mounted or portable computers to be Y1, and endogenous variable *whether or not*

agency uses computerized crime mapping to be Y2. In addition, I assign the variable *number*

of full-time paid employees to be X1, *minimum education requirement of new officer recruits*

to be X2, *total hours of academy training required of new officer recruits* to be X3, *whether*

or not agency gave patrol officers responsibility for specific areas/beats to be X4, and

whether or not agency upgraded technology to support the analysis of community problems

to be X5, and two dummy codes *sheriff* and *state law enforcement agency* to be D1 and D2.

The total effects, direct effects, and indirect effects are shown in Table 7:

Table 7. Total Effects, Direct Effects, and Indirect Effects

Response Variable	Explanatory Variable	Total Effect	Direct Effect	Indirect through Y1	Y2
Y1	X1	0.000	0.000		
	X2	-.977	-.977		
	X3	-1.307	-1.307		
	X4	-.002	-.002		
	X5	.426	.426		
	D1	.000	.000		
	D2	.000	.000		
Y2	X1	.000	.000	.000	
	X2	.325	.294	.030	
	X3	.234	.194	.040	
	X4	.000	.000	.000	
	X5	-.030	-.017	-.013	
	D1	-.033	-.033	.000	
	D2	-.061	-.061	.000	
	Y1	-.031	-.031	.000	

According to Table 7, variable X2 and X3 have positive indirect effects on Y2 through mediating variable Y1. X5, however, has a negative indirect effect on Y2 through mediating variable Y1. In addition, Y1 has a negative direct effect on Y2. Y1 does not act as a mediating variable between any exogenous variables and Y2.

Regression Analysis of Dummy Variables

To determine if there is a significant effect due to *type of agency*, I created a linear regression model of the predicted endogenous variable *whether or not agency uses computerized crime mapping* (y) on two dummy codes *sheriff* (D1) and *state law enforcement agency* (D2):

$$y = b_0 + b_1 D1 + b_2 D2$$

The coefficients table is shown in Table 8:

Table 8. Coefficients of Regressing Model with Dummy Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.520	.011		46.401	.000
Sheriff	-.129	.021	-.117	-6.245	.000
Law Enforcement	.013	.075	.003	.180	.857

Based on Table 8, I reject the null hypotheses that $\mu_{D1} = 0$ ($\mu_{\text{local police departments}} = \mu_{\text{sheriff}}$) and fail to reject the null hypothesis that $\mu_{D2} = 0$ ($\mu_{\text{local police departments}} = \mu_{\text{state law enforcement agencies}}$). In other words, type of agency does affect the predicted endogenous variable *whether or not agency uses computerized crime mapping*. There is a higher probability (percentage = 25%)

for local police agencies to use computerized crime mapping than sheriff agencies. But there is not difference between local police departments and state law enforcement agencies in using computerized crime mapping.
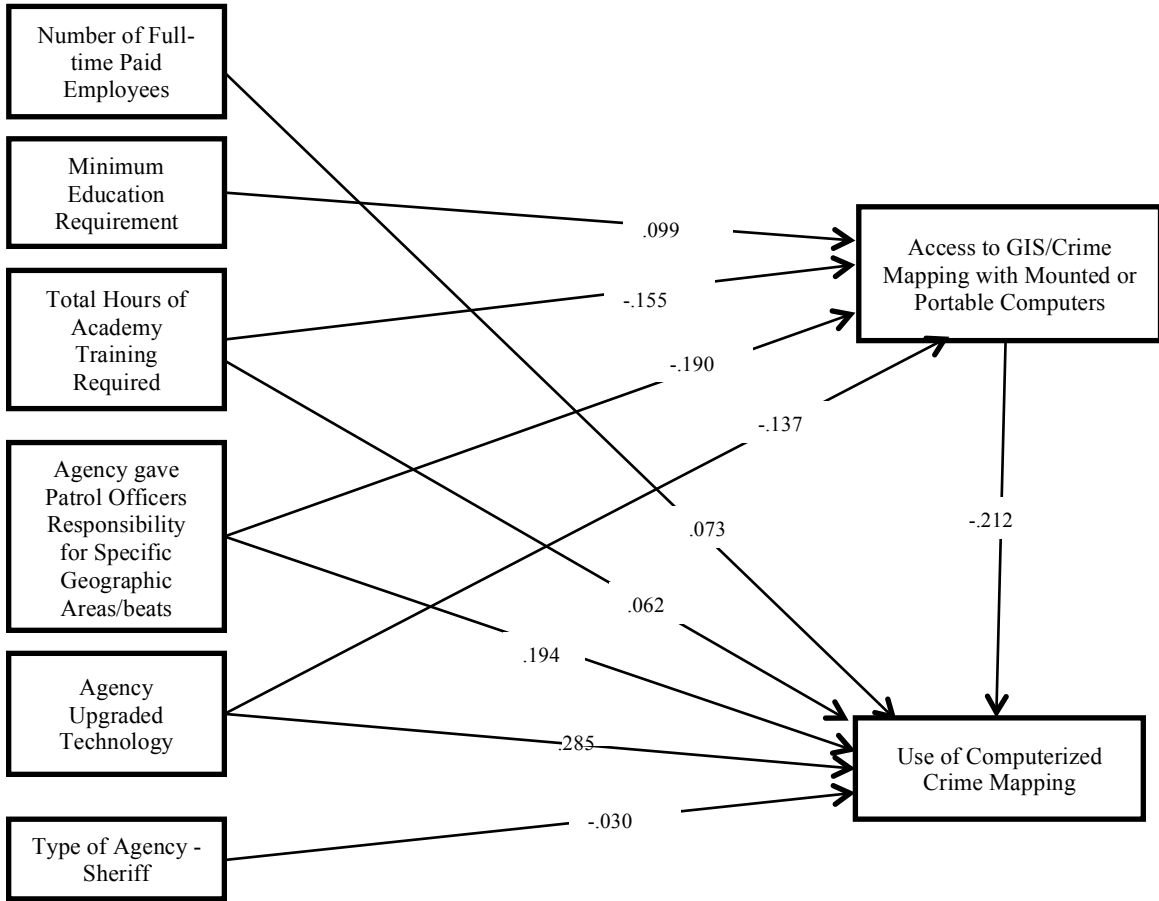
Modified Model

I used the SPSS Amos to run the final path analysis model and got unstandardized regression weights and standardized regression weights shown in Table 9.

Table 9. Regression Weights of the Path Analysis

Path			Unstandardized Estimates	Standardized Estimates	P
Y1	<---	X1	.000	-.035	.052
Y1	<---	X2	.426	.099	***
Y1	<---	X3	-.002	-.155	***
Y1	<---	X4	-1.307	-.190	***
Y1	<---	X5	-.977	-.137	***
Y2	<---	Y1	-.031	-.212	***
Y2	<---	X1	.000	.073	***
Y2	<---	X2	-.017	-.027	.090
Y2	<---	X3	.000	.062	***
Y2	<---	X4	.194	.194	***
Y2	<---	X5	.294	.285	***
Y2	<---	D1	-.033	-.030	.066
Y2	<---	D2	-.061	-.015	.350

As it is shown in the above table, the unstandardized estimates for path X1 -> Y2 and X1 -> Y2 are both 0. After the analysis, Figure 3 presents the new path model with all significant standardized regression weights.

Figure 3 *Modified Model*

CHAPTER 6

DISCUSSION

Computerized crime mapping plays an important role in law enforcement agencies in order to assist in crime analysis and decision making processes. Demographic factors in small law enforcement agencies, including department size, resources to purchase software, and training at local universities and community colleges, has been examined and understood (Chamard, 2004). The goal of this research is to identify the relationship between the use of computerized crime mapping technology and the important characteristics of different types of law enforcement agencies with different sizes in United States in 2007. The findings indicate that specific characteristics are strongly associated with whether or not law enforcement agencies use computerized crime mapping.

The main method of this research is the path analysis. Since there are two dichotomos endogenous variables (value is 0 or 1), the alternative way to investigate the relationships between the intereted variables could be a logistic regression model. In this way, the probabilities of endogenouse variables will be reflected as a function each exogenous variable in this research, including a likelihood function. Therefore, the probability of whether agency uses computerized crime mapping will be predicted by the other endogenouse variable and specific exogenous variables.

In the initial path analysis, H2 is supported, which means that whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is positively associated with minimum education requirement of new

officer recruits. This may because that specific level of education will enable police officers to learn to use GIS/crime mapping using in-field vehicle-mounted or portable computers more easily. H3, H4, and H5 are also supported, indicating that whether or not field/patrol officers have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers is negatively associated with total hours of academy training requirement of new officer recruits, whether or not agency gave patrol officers responsibility for specific geographic areas/beats, and whether or not agency upgraded technology to support the analysis of community problems. In other words, many hours of academy training of new officer recruits do not indicate a high chance of these officers accessing to GIS/crime mapping with in-field vehicle-mounted or portable computers. This maybe due to that academy training in law enforcement agencies is on other topics, instead of in-field computerized crime mapping. Even though agency gives some patrol officers responsibility for specific geographic areas/beats with arrest power, it does not mean that these patrol officers will get access to GIS/crime mapping with in-field vehicle-mounted or portable computers. This may be due to the familiarity of field/patrol officers, with the particular areas/beats so that they do not need in-field computerized crime mapping to understand the occurance of crime in this area. In addition, the more frequently an agency upgrades technology to support the analysis of community problems, the less frequently field/patrol officers will get access to GIS/crime mapping with in-field vehicle-mounted or portable computers. If a law enforcement agency focuses more on the technology upgrade for the analysis of community problems, they will not pay much attention on the upgrade of in-field technology. A reason for this behavior may be a limited budged of an law enforcement agency. Especially smaller agencies may not have the budget to maintain all types of crime

mapping technology. However, H1 is not supported in this modified model. Therefore, whether or not field/patrol officers in a law enforcement agency having access to GIS/crime mapping using in-field vehicle-mounted or portable computers does not depend on the number of actual full-time paid employees. This maybe due to that whether or not field/patrol officers in a law enforcement agencies have direct access to GIS/crime mapping using in-field vehicle-mounted or portable computers depends on how many field/patrol officers there are in this agency and how many areas/beats where field/patrol officers need computerized crime mapping, but has nothing to do with the total number of full-time paid employees in this agency.

H6 is supported which means that whether or not agency uses computerized crime mapping positively depends on the number of full-time paid employees. This finding is consistent with what Chamard found in 2004 that department size was strongly associated with mapping use (Chamard, 2004). H8 is supported indicating that total hours of academy training requirement of new officer recruits is strongly and positively associated with whether or not agency uses computerized crime mapping, which is consistent with what was found by Everett Rogers in terms of diffusion of innovations – persons who become aware of a technology innovation and have some ideas of how it functions help the spread of technology innovation (Rogers, 2003). H9 is also supported indicating that whether or not agency gives patrol officers responsibility for specific geographic areas/beats is strongly and positively associated with agency's use of computerized crime mapping. H10 is supported indicating that agency upgrading technology frequently is strongly and positively associated with agency's use of computerized crime mapping, which is consistent with Chamard's

finding that technical difficulties are one of the reasons why law enforcement agencies undertook computerized crime mapping had discontinued this technology innovation in 2002-2003 (Chamard, 2004). H11 is also supported in my research. Based on the previous regression analysis with the dummy codes and the modified path model, it is found that sheriff agencies negatively affect the usage of computerized crime mapping, local police departments tend to use computerized crime mapping, and state law agency may or may not use computerized crime mapping. H12 is supported, but it means that the use of computerized crime mapping is negatively associated with whether or not field/patrol officers have access to GIS/crime mapping using in-field vehicle-mounted or portable computers. This negative association is reasonable as there were 97 agencies responded that they did not use computerized crime mapping while responded that the field/patrol officers in those agencies had direct access to GIS/crime mapping using in-field computers. This negative association indicates that the more access to GIS/crime mapping using in-field vehicle-mounted or portable computers, the less use of computerized crime mapping occurs in the law enforcement agency. However, H7 is not supported, which means that whether or not agency uses computerized crime mapping has no evident association with the education level of new officer recruits. However, it is obvious when agencies invest in computerized crime mapping technolgy, they immediately invest in the training of people, as training becomes an important factor for agencies.

CHAPTER 7

CONCLUSIONS

Basically, in terms of the contribution of this research based on the findings regarding the influence of different characteristics of law enforcement agencies on the usage of computerized crime mapping technology in 2007, this research touches upon a very crucial issue; these findings indicate possible trend and helpful suggestions to law enforcement agencies in the United States. First of all, there was a trend that larger law enforcement agencies more likely use computerized crime mapping technology. Secondly, sheriff offices tended not to use computerized crime mapping technology, local police agencies showed tendency to use computerized crime mapping technology, and state law enforcement did not consider the usage of this technology. Thirdly, literally, if a law enforcement agency wants to use computerized crime mapping technology, they need to focus on recruiting an appropriate number of actual full-time paid employees, providing a certain amount of academy training, considering giving patrol officers responsibility for specific areas or beats, and upgrading technology to support the analysis of community problems. Fourthly, if law enforcement agencies want to focus on implementing the GIS/crime mapping technology by using in-field vehicle-mounted or portable computers, the most significant factor they need to consider is to hire officers with high-level education.

However, there are some limitations of this research. Since this research relies on the data of 2007, actual data may show a different trend. Even though GIS is the main tool that has been studied by previous researchers, several new computerized crime mapping technologies has been adopted and widely used in different areas of law enforcement.

Therefore, future research can explore new computerized crime mapping technologies and discover the depth and breadth of the adoption and usage. Another limitation of this research is the studied data: the relationship between characteristics of law enforcement agencies and their use of computerized crime mapping is based on a static time analysis instead of a static crime analysis. Future research can be conducted to analyze how computerzied crime mapping technology can be used to analyze data on a longitudinal basis, pertaining the specific characteristics of law enforcment agencies. Based on the above findings in this research, future work can focus on the research to investigate the negative association between the field/patrol officers' direct access to computerized crime mapping using in-field vehicle-mounted or portable computers and the agency's use of computerized crime mapping. Future work can examine why there were 97 agencies in 2007 BJS survey responded that they did not use computerized crime mapping while answered that the field/patrol officers in those agencies had direct access to GIS/crime mapping using in-field computers. Another interesting future work can address the reasons why minimum education requirement of new officer recruits, academy training requirement of new officer recruits, and the responsibility of patrol officers for specific geographic areas/beats negatively associate with field/patrol officers' direct access to GIS/crime mapping with vehicle-mounted or portable computers. Future studies can investigate the relationship between investment / adoption and trainings.

Moreover, future work can be conducted to examine and validate the associations of interested factors with the usage of computerized crime mapping technology in a specific type of agency. In addition, the future work can investigate specific factors that affect

computerized crime mapping usage in specific crime pattern. Furthermore, the relationship between complexity of computerized crime mapping usage and specific characteristics of law enforcement agencies needs to be established. With the development of mobile devices, research can be conducted on the mobile device based computerized crime mapping technology and investigate what characteristics or factors affect the usage of mobile crime mapping in law enforcement agencies.

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APPENDIX A

FORM CJ-44L 2007 SURVEY OF STATE AND LAW ENFORCEMENT AGENCIES

All 950 SR agencies received the 49-item CJ-44L questionnaire.

ID NUMBER

OMB No. 1121-0240: Approval Expires 11/30/2010

RETURN TO: Police Executive Research Forum 1120 Connecticut Ave., NW Suite 930 Washington, DC 20036	FORM CJ-44L 2007 SURVEY OF STATE AND LOCAL LAW ENFORCEMENT AGENCIES Law Enforcement Management and Administrative Statistics U.S. Department of Justice, Bureau of Justice Statistics

IMPORTANT: Please read the instructions below prior to completing this questionnaire.

■ There are three ways to submit this survey:
  1) Complete the survey online at http://survey.policeforum.org/LEMASCJ44L.pdf
     If you choose to complete the survey via the Internet, you will be prompted to enter your USER NAME and PASSWORD, which are included on the cover letter accompanying this questionnaire. You will also have to enter your ID NUMBER on the first page of the survey, which is located at the top right of this page. Without entering your agency's USER NAME, PASSWORD, and ID NUMBER, you will not be able to complete the survey online. The USER NAME and PASSWORD provide a secure location to submit your survey.
  2) Mail the survey to PERF using the enclosed postage-paid envelope.
  3) Fax the survey to PERF at 202-466-7826.

■ Please retain a copy of the completed survey for your records.

■ Please use either blue or black ink and print as neatly as possible using only CAPITAL letters.

■ **Do not leave any items blank.**
  ○ If the answer to a question is not available or is unknown, write "DK" (don't know) in the space provided.
  ○ If the question is not applicable, write "NA" in the space provided.
  ○ If the answer to a question is none or zero, write "0" in the space provided.
  ○ When exact numeric answers are not available, provide estimates.

■ Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

■ If you have any questions or need assistance in completing the questionnaire, please contact Bruce Kubu of the Police Executive Research Forum (PERF) by phone at 202-454-8308 or by email at bkubu@policeforum.org. If you have general comments or suggestions for improving the survey, please contact Brian Reaves of the Bureau of Justice Statistics by phone at 202-616-3287 or by email at Brian.Reaves@usdoj.gov.

Burden Statement

Federal agencies may not conduct or sponsor an information collection, and a person is not required to respond to a collection of information, unless it displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average three hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate, or any other aspects of this collection of information, including suggestions for reducing this burden, to the Director, Bureau of Justice Statistics, 810 Seventh Street, NW, Washington, DC 20531. The Omnibus Crime Control and Safe Streets Act of 1968, as amended (42 USC 3732), authorizes this information collection. Although this survey is voluntary, we urgently need your cooperation to make the results comprehensive, accurate, and timely. We greatly appreciate your assistance.

INFORMATION SUPPLIED BY:

NAME

TITLE

AGENCY

TELEPHONE ( ) – EXT.

FAX NUMBER ( ) –

EMAIL

4632197136

SECTION I - DESCRIPTIVE INFORMATION

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

1. **Enter the number of AUTHORIZED full-time paid agency positions and ACTUAL full-time and part-time paid agency employees as of September 30, 2007.** Full-time employees are those regularly scheduled for 35 or more hours per week. If none, enter '0.'

	AUTHORIZED full-time paid positions	ACTUAL paid agency employees	
		Full-time	Part-time
a. Sworn personnel with general arrest powers			
b. Officers/deputies with limited or no arrest powers (e.g., jail or court officers in some agencies)	✕		
c. Non-sworn employees	✕		
d. TOTAL (sum of lines 'a' through 'c')	✕		

2. **As of September 30, 2007, how many reserve/auxiliary officers did your agency have?** If none, enter '0.'

		Full-time	Part-time
Reserve/auxiliary officers	Sworn		
	Non-sworn		

3. **As of September 30, 2007, how many FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2) did your agency have assigned to the following multi-agency task forces?** Personnel may be counted more than once. If none, enter '0.'

Multi-agency task force	Assigned full-time	Assigned part-time
a. Gangs		
b. Drugs		
c. Anti-terrorism		
d. Human trafficking		

4. **Of the total number of FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2), enter the number of each of the following:** (Personnel may be counted more than once. If none, enter '0.')

a.	Uniformed officers with REGULARLY ASSIGNED DUTIES that include responding to citizen calls/requests for service	
b.	Community Policing Officers, Community Relations Officers, or other sworn personnel specifically designated to engage in community policing activities	
c.	School Resource Officers, School Liaison Officers, or other sworn personnel whose primary duties are related to school safety (exclude crossing guards)	

5. **Enter the total number of FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2) who performed the following duties as their PRIMARY job responsibility.** Count each officer only once. If none, enter '0.'

Number

a. Patrol duties ....

b. Investigative duties (e.g., detectives) ..

c. Jail-related duties ....

d. Court security duties ....

e. Process serving duties ....

6. **Enter your agency's total operating budget for the 12-month period that includes September 30, 2007.** If data are not available, provide an estimate and mark (■) the box below. Include jails administered by your agency. Do NOT include building construction costs or major equipment purchases.

$ ☐☐,☐☐☐,☐☐☐,☐☐☐

Please mark here if this figure is an estimation....☐

7. **Enter the total estimated value of money, goods, and property received by your agency from an asset forfeiture program during calendar year 2006.** If no money, goods or property were received, enter '0.'

a. Drug forfeiture program .... $ ☐☐☐,☐☐☐,☐☐☐

b. Gambling forfeiture program ... $ ☐☐☐,☐☐☐,☐☐☐

c. Other forfeiture program(s) .... $ ☐☐☐,☐☐☐,☐☐☐

Please mark here if any of these figures are an estimation...☐

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SECTION II - PERSONNEL

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

8a. Indicate your agency's minimum education requirement which new (non-lateral) officer recruits must have at hiring or within two years of hiring. Mark (■) only one response.

☐ Four-year college degree required

☐ Two-year college degree required

☐ Some college but no degree required

☐ High school diploma or equivalent required

☐ No formal education requirement - SKIP to Question 9

b. Does your agency allow any exemption(s) to this minimum education requirement policy?

☐ Yes   ☐ No

9. Which of the following screening techniques are used by your agency in selecting new officer recruits?

Background/record checks

Background investigation....................................☐ Yes   ☐ No

Credit history check...☐ Yes   ☐ No

Criminal history check.......................................☐ Yes   ☐ No

Driving record check..☐ Yes   ☐ No

Personal attributes

Personal interview..☐ Yes   ☐ No

Personality inventory..☐ Yes   ☐ No

Polygraph exam..☐ Yes   ☐ No

Psychological evaluation....................................☐ Yes   ☐ No

Voice stress analyzer...☐ Yes   ☐ No

Written aptitude test...☐ Yes   ☐ No

Community relations skills

Analytical/problem-solving ability assessment..☐ Yes   ☐ No

Assessment of understanding of diverse cultural populations...☐ Yes   ☐ No

Mediation/conflict management skills assessment..☐ Yes   ☐ No

Second language test..☐ Yes   ☐ No

Volunteer/community service history check......☐ Yes   ☐ No

Physical attributes

Drug test..☐ Yes   ☐ No

Medical exam...☐ Yes   ☐ No

Physical agility/fitness test................................☐ Yes   ☐ No

10. How many total hours of ACADEMY training and FIELD training (e.g., with FTO) are required of your agency's new (non-lateral) officer recruits? Include law enforcement training only. Include both State/POST training requirements AND agency training requirements. If no training of that type is required, enter '0.'

Academy Training	Field Training
Total hours of training.... ☐,☐☐☐	☐,☐☐☐

11. On average, how many hours of IN-SERVICE training are required annually for your agency's NON-PROBATIONARY field/patrol officers? Include law enforcement training only. If no training of that type is required, enter '0.'

Average annual hours per officer

Total hours of training................ ☐☐☐

12. Enter the number of FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2) by RACE and GENDER for the pay period that included September 30, 2007. If none, enter '0.'

Race

a. White, not of Hispanic origin   ☐☐,☐☐☐

b. Black or African American, not of Hispanic origin   ☐☐,☐☐☐

c. Hispanic or Latino   ☐☐,☐☐☐

d. American Indian or Alaska Native   ☐☐,☐☐☐

e. Asian   ☐☐,☐☐☐

f. Native Hawaiian or other Pacific Islander   ☐☐,☐☐☐

g. Two or more races   ☐☐,☐☐☐

h. No information available   ☐☐,☐☐☐

i. Total (sum of lines 'a' through 'h')   ☐☐,☐☐☐

Gender

a. Male   ☐☐,☐☐☐

b. Female   ☐☐,☐☐☐

c. Total (sum of lines 'a' and 'b')   ☐☐,☐☐☐

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13. Enter the number of FULL-TIME agency personnel who were certified as bilingual as of September 30, 2007. If none, enter '0.'

a. Sworn personnel.................. ☐☐ , ☐☐☐

b. Non-sworn personnel.......... ☐☐ , ☐☐☐

14. During the 12-month period ending September 30, 2007, did your agency use any of the following for language interpretation services?

Sworn personnel................. ☐ Yes ☐ No

Non-sworn personnel........... ☐ Yes ☐ No

Volunteers.......................... ☐ Yes ☐ No

Private contractors............... ☐ Yes ☐ No

Other (please specify).......... ☐ Yes ☐ No

☐

15. Does your agency authorize or provide any of the following for sworn personnel?

a. Education incentive pay.............. ☐ Yes ☐ No

b. Hazardous duty pay..................... ☐ Yes ☐ No

c. Merit/performance pay................ ☐ Yes ☐ No

d. Shift differential pay................... ☐ Yes ☐ No

e. Special skills proficiency pay...... ☐ Yes ☐ No

f. Bilingual ability pay.................... ☐ Yes ☐ No

g. Tuition reimbursement................ ☐ Yes ☐ No

h. Military service pay.................... ☐ Yes ☐ No

i. Collective bargaining rights........ ☐ Yes ☐ No

j. Residential incentive pay............. ☐ Yes ☐ No

16. Enter the salary schedule for the following FULL-TIME SWORN positions as of September 30, 2007. If a position does not exist on a full-time basis in your agency, enter 'NA.'

	Base ANNUAL salary	
	Minimum	Maximum
a. Chief executive (chief, director, sheriff, etc.)		
b. Sergeant or equivalent first-line supervisor		
c. Entry-level officer or deputy (post-academy)		

SECTION III - OPERATIONS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

17. Does your agency participate in an operational 9-1-1 emergency telephone system (i.e., your agency's units can be dispatched as a result of a call to 9-1-1)? Mark (■) only one response.

☐ Yes - Enhanced 9-1-1 system

☐ Yes - Basic 9-1-1 system

☐ No - SKIP to Question 19

18. Does your agency's 9-1-1 system have the following capabilities for incoming calls from wireless/cellular phones?

Can display phone number of wireless caller.... ☐ Yes ☐ No

Can display *exact* location of wireless caller.... ☐ Yes ☐ No

Can display *general* location of wireless caller. ☐ Yes ☐ No

19. During the 12-month period ending September 30, 2007, did your agency use the following types of patrol on a REGULARLY SCHEDULED basis?

Automobile.. ☐ Yes ☐ No

Motorcycle.. ☐ Yes ☐ No

Foot.. ☐ Yes ☐ No

Aviation.. ☐ Yes ☐ No

Marine.. ☐ Yes ☐ No

Horse.. ☐ Yes ☐ No

Bicycle... ☐ Yes ☐ No

Human transporter (e.g., Segway).......... ☐ Yes ☐ No

Other (please specify)............................ ☐ Yes ☐ No

☐

SECTION IV - COMMUNITY POLICING

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

20. During the 12-month period ending September 30, 2007, what proportion of agency personnel received at least eight hours of community policing training (problem solving, SARA, community partnerships, etc.)? Mark (■) one choice per line. If your agency did not conduct training for a particular type of employee, please mark 'None.' If your agency did not have a particular type of employee for the specified time period, please mark 'NA.'

	All	Half or more	Less than half	None	NA
New officer recruits	☐	☐	☐	☐	☐
In-service sworn personnel	☐	☐	☐	☐	

21. During the 12-month period ending September 30, 2007, which of the following did your agency do? Mark (■) all that apply.

☐ Maintained an agency mission statement that included a community policing component

☐ Actively encouraged patrol officers to engage in SARA-type problem-solving projects on their beats
  If YES, please specify the number of patrol officers as of September 30, 2007: ☐☐☐☐

☐ Conducted a citizen police academy

☐ Maintained or created a formal, written community policing plan

☐ Gave patrol officers responsibility for specific geographic areas/beats
  If YES, please specify the number of patrol officers as of September 30, 2007: ☐☐☐☐

☐ Included collaborative problem-solving projects in the evaluation criteria of patrol officers

☐ Upgraded technology to support the analysis of community problems

☐ Partnered with citizen groups and included their feedback in the development of neighborhood or community policing strategies

☐ Conducted or sponsored a survey of citizens on crime, fear of crime, or satisfaction with police services

☐ Maintained a community policing unit with full-time personnel

☐ None of the above

22. During the 12-month period ending September 30, 2007, did your agency have a problem-solving partnership or written agreement with any of the following?

Advocacy groups...☐ Yes ☐ No

Business groups...☐ Yes ☐ No

Faith-based organizations...............................☐ Yes ☐ No

Local government agencies (non-law enforcement)...☐ Yes ☐ No

Other local law enforcement agencies............☐ Yes ☐ No

Neighborhood associations.............................☐ Yes ☐ No

Senior citizen groups......................................☐ Yes ☐ No

School groups..☐ Yes ☐ No

Youth service organizations............................☐ Yes ☐ No

23. During the 12-month period ending September 30, 2007, did your agency use technology in any of the following ways to improve contact between citizens and police?

Agency's email address was marketed to citizens...☐ Yes ☐ No

Agency's website included methods for citizens to ask questions and/or provide feedback...☐ Yes ☐ No

Agency's website provided citizens with direct access to crime maps.......................................☐ Yes ☐ No

Agency's website provided citizens with direct access to crime statistics................................☐ Yes ☐ No

Agency hosted a listserv or other electronic means to distribute news and updates.............☐ Yes ☐ No

Reverse 9-1-1 system used for emergency community notification...................................☐ Yes ☐ No

System used for non-emergency mass community notification...................................☐ Yes ☐ No

3-1-1 system available to handle police non-emergency calls.......................................☐ Yes ☐ No

Electronic crime reporting was available........☐ Yes ☐ No

Citizens received crime reports via email.......☐ Yes ☐ No

Other (please specify)....................................☐ Yes ☐ No

ID NUMBER

SECTION V - EMERGENCY PREPAREDNESS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

24. Does your agency have a written plan that specifies actions to be taken in the event of terrorist attacks? (Include emergency operation plans that would be applicable to such an attack.)

☐ Yes ☐ No

25. Do the public safety agencies operating in or nearby your jurisdiction (including your agency) use a shared radio network infrastructure that achieves interoperability?

☐ Yes ☐ No

26. In which of the following terrorism preparedness activities did your agency engage during the period ending September 30, 2007?

Partnership with culturally diverse communities..☐ Yes ☐ No

Public anti-fear campaign...................................☐ Yes ☐ No

Dissemination of information to increase citizen preparedness...☐ Yes ☐ No

Community meetings on homeland security/preparedness..☐ Yes ☐ No

Increased sworn officer presence at critical areas...☐ Yes ☐ No

Emergency preparedness exercises.....................☐ Yes ☐ No

Other (please specify)...☐ Yes ☐ No

27. Of the total number of actual FULL-TIME personnel, how many are intelligence personnel with primary duties related to terrorist activities? If none, enter '0.'

	Sworn	Non-sworn
Intelligence personnel with primary duties related to terrorist activities.......		

SECTION VI - EQUIPMENT

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

28a. Which types of sidearms are authorized for use by your agency's field/patrol officers? Mark (■) all that apply.

On-duty weapons

Semiautomatic:	Primary sidearm	Backup sidearm
10mm......................	☐	☐
9mm........................	☐	☐
.45...........................	☐	☐
.40...........................	☐	☐
.357.........................	☐	☐
.380.........................	☐	☐
Other caliber..........	☐	☐
Any semiautomatic, as long as they qualify....................	☐	☐
Revolver.................	☐	☐

No backup sidearm is authorized....................☐

b. Which types of secondary firearms systems does your agency issue to patrol officers or authorize for their use? Mark (■) all that apply.

☐ Assault weapon (e.g., AR-15)

☐ Shotgun

☐ Carbine

☐ Rifle

☐ Other (please specify)

☐ Not applicable--no secondary firearms systems authorized

29. Are your agency's uniformed field/patrol officers REQUIRED to wear protective body armor while in the field? Mark (■) only one response.

☐ Yes, all the time

☐ Yes, in some circumstances (e.g., serving warrants)

☐ No

30. Enter the number of animals regularly maintained by your agency for use in activities related to law enforcement. If none, enter '0.'

Dogs [ ][ ][ ]   **Horses** [ ][ ][ ]

31. Which of the following types of less-than-lethal weapons or actions are authorized for use by your agency's field/patrol officers? Exclude weapons used only by tactical units.

a. Impact devices

Traditional baton.. ☐ Yes ☐ No

PR-24 baton... ☐ Yes ☐ No

Collapsible baton....................................... ☐ Yes ☐ No

Soft projectile (e.g., bean-bag)................... ☐ Yes ☐ No

Blackjack/slapjack...................................... ☐ Yes ☐ No

Rubber bullet... ☐ Yes ☐ No

Other impact device (please specify)......... ☐ Yes ☐ No

b. Chemical agents

OC (pepper spray/foam)............................ ☐ Yes ☐ No

Other chemical agent (please specify)....... ☐ Yes ☐ No

c. Other weapons/actions

Conducted energy device (e.g., stun gun, Taser, Stinger)... ☐ Yes ☐ No

Hold or neck restraint (e.g., carotid hold).. ☐ Yes ☐ No

Other weapon/action (please specify)........ ☐ Yes ☐ No

32. As of September 30, 2007, did your agency use any of the following technologies on a regular basis? Mark (■) all that apply.

Digital imaging

Fingerprints (e.g., AFIS).... ☐ Facial recognition.................... ☐

Mug shots.......................... ☐ Digital photography................. ☐

Suspect composites............. ☐ None of the listed digital imaging technologies............... ☐

Night vision/electro-optic

Infrared (thermal) imagers............................. ☐ Night vision goggles/binoculars................... ☐

Image intensifiers............... ☐ License plate readers............... ☐

Laser range finders............. ☐ None of the listed night vision/ electro-optic technologies........ ☐

Vehicle stopping/tracking

Electrical/engine disruption☐ Tire deflation devices.............. ☐

Stolen vehicle tracking (e.g., LoJack)..................... ☐ None of the listed vehicle stopping/tracking technologies ☐

33. Enter the total number of motorized vehicles operated by your agency as of September 30, 2007. Include owned, rented, leased and confiscated vehicles that your agency uses. If none, enter '0.'

Marked cars... ☐☐ , ☐☐☐

Other marked vehicles (SUV, truck, van, etc.).. ☐☐ , ☐☐☐

Unmarked cars.. ☐☐ , ☐☐☐

Other unmarked vehicles (SUV, truck, van, etc.)... ☐☐ , ☐☐☐

Fixed-wing aircraft................................. ☐☐ , ☐☐☐

Helicopters.. ☐☐ , ☐☐☐

Boats... ☐☐ , ☐☐☐

Motorcycles.. ☐☐ , ☐☐☐

34a. Does your agency allow officers to take marked vehicles home?

☐ Yes ☐ No - SKIP to Question 35a

b. Does your agency allow officers to drive marked vehicles for personal use during off-duty hours?

☐ Yes ☐ No

c. Does your agency allow officers to drive marked vehicles outside of the jurisdiction during off-duty hours?

☐ Yes ☐ No

35a. During the 12-month period ending September 30, 2007, did your agency operate video cameras on a regular basis?

☐ Yes ☐ No - SKIP to Question 36

b. Enter the number of video cameras operated by your agency as of September 30, 2007. If none, enter '0.'

In patrol cars... ☐ , ☐☐☐

Fixed-site surveillance in public areas...... ☐ , ☐☐☐

Mobile surveillance................................. ☐ , ☐☐☐

36. During the 12-month period ending September 30, 2007, did your agency operate gunshot detection sensors on a regular basis?

☐ Yes If YES, how many?

☐ No ↳ ☐ , ☐☐☐

ID NUMBER [   ]

SECTION VII - COMPUTERS AND INFORMATION SYSTEMS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

37. Does your agency use computers for any of the following functions? Mark (■) all that apply.

- ☐ Analysis of community problems
- ☐ Automated booking
- ☐ Crime analysis
- ☐ Crime mapping
- ☐ Crime investigations
- ☐ Dispatch (CAD)
- ☐ Fleet management
- ☐ Hotspot identification
- ☐ In-field communications
- ☐ In-field report writing
- ☐ Intelligence gathering
- ☐ Inter-agency information sharing
- ☐ Internet access
- ☐ Personnel records
- ☐ Records management
- ☐ Resource allocation
- ☐ NONE of the listed functions

38. Does your agency maintain its own computerized files with any of the following information? Mark (■) all that apply.

- ☐ Alarms
- ☐ Arrests
- ☐ Biometric data for use with facial recognition system
- ☐ Calls for service
- ☐ Citizen complaints against officers/agency
- ☐ Fingerprints
- ☐ Gangs
- ☐ Incident reports
- ☐ Illegal attempts to purchase firearms
- ☐ Intelligence related to potential terrorist activity
- ☐ Pawn shop data
- ☐ Protection orders
- ☐ Stolen property
- ☐ Summonses
- ☐ Traffic citations
- ☐ Traffic stops
- ☐ Use of force incidents
- ☐ Warrants
- ☐ NONE of the listed files

39. Do any of your agency's field/patrol officers use computers or terminals WHILE IN THE FIELD?

☐ Yes ☐ No -- SKIP to Question 41

↳ **If YES, how many of the following types of computers/terminals are available for use by your agency's field/patrol officers WHILE IN THE FIELD?** If none, enter '0.'

Permanent vehicle-mounted computers/terminals: ☐☐,☐☐☐

Portable computers/terminals used with vehicle docking stations: ☐☐,☐☐☐

Portable computers/terminals NOT used with vehicle docking stations: ☐☐,☐☐☐

40. Do any of your agency's field/patrol officers have direct access to the following types of information using IN-FIELD vehicle-mounted or portable computers?

Motor vehicle records........☐ Yes	☐ No
Driving records.................☐ Yes	☐ No
Criminal history records.....☐ Yes	☐ No
Warrants...........................☐ Yes	☐ No
Protection orders................☐ Yes	☐ No
Inter-agency information system................................☐ Yes	☐ No
Address history (e.g., repeat calls for service)......☐ Yes	☐ No
Internet access...................☐ Yes	☐ No
GIS/crime mapping............☐ Yes	☐ No
Other (please specify)........☐ Yes	☐ No

[   ]

41. How are data from criminal incident reports PRIMARILY transmitted to your agency's central information system? Mark (■) only one response.

- ☐ Paper report
- ☐ Voice (cellphone, telephone, recording, radio)
- ☐ Computer/data device
- ☐ Other (please specify) [   ]
- ☐ Not applicable - agency does not handle such reports

42. Does your agency own or have access to an Automated Fingerprint Identification System (AFIS) that includes a file of digitized prints? Mark (■) all that apply.

- ☐ Agency is exclusive/shared owner of an AFIS system
- ☐ Agency has access to a remote AFIS system
- ☐ Agency has access to AFIS through another agency
- ☐ None of the above

43. Does your agency have an operational computer-based personnel performance monitoring/assessment system (e.g., Early Warning or Early Intervention System) for monitoring or responding to problematic officer behavior patterns?

☐ Yes ☐ No

ID NUMBER ☐

SECTION VIII - SPECIAL PROBLEMS/TASKS

***Unless otherwise noted, please answer all questions
using September 30, 2007, as a reference.***

44. How does your agency address the following problems/tasks? Mark (■) the appropriate box for each problem/task listed below. Mark only one box per line.

Type of problem/task	(1) Agency HAS specialized unit with personnel assigned **FULL-TIME** to address this problem/task	Agency DOES NOT HAVE a specialized unit with full-time personnel		
		(2) Agency has designated personnel to address this problem/task	(3) Agency addresses this problem/task, but does not have designated personnel	(4) Agency does not formally address this problem/task
a. Auto theft	☐	☐	☐	☐
b. Bias/hate crime	☐	☐	☐	☐
c. Bomb/explosive disposal	☐	☐	☐	☐
d. Child abuse/ endangerment	☐	☐	☐	☐
e. Community crime prevention	☐	☐	☐	☐
f. Crime analysis	☐	☐	☐	☐
g. Cybercrime	☐	☐	☐	☐
h. Domestic violence	☐	☐	☐	☐
i. Drug education in schools	☐	☐	☐	☐
j. Financial crimes	☐	☐	☐	☐
k. Drug enforcement	☐	☐	☐	☐
l. Gangs	☐	☐	☐	☐
m. Impaired drivers (DUI/DWI)	☐	☐	☐	☐
n. Internal affairs	☐	☐	☐	☐
o. Juvenile crime	☐	☐	☐	☐
p. Methamphetamine labs	☐	☐	☐	☐
q. Missing children	☐	☐	☐	☐
r. Repeat offenders	☐	☐	☐	☐
s. Research and planning	☐	☐	☐	☐
t. School safety	☐	☐	☐	☐
u. Terrorism/homeland security	☐	☐	☐	☐
v. Victim assistance	☐	☐	☐	☐

SECTION IX - POLICIES AND PROCEDURES

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

45. Does your agency have written policy or procedural directives on the following?

Officer conduct

a. Use of deadly force/firearm discharge........☐ Yes ☐ No

b. Use of less-than-lethal force.......................☐ Yes ☐ No

c. Code of conduct and appearance................☐ Yes ☐ No

d. Off-duty employment..................................☐ Yes ☐ No

e. Maximum work hours allowed...................☐ Yes ☐ No

f. Off-duty conduct..☐ Yes ☐ No

g. Interacting with the media..........................☐ Yes ☐ No

h. Employee counseling assistance.................☐ Yes ☐ No

Dealing with special populations/situations

i. Mentally ill persons....................................☐ Yes ☐ No

j. Homeless persons.......................................☐ Yes ☐ No

k. Domestic disputes......................................☐ Yes ☐ No

l. Juveniles..☐ Yes ☐ No

m. Persons with limited English proficiency....☐ Yes ☐ No

Procedural

n. Collection of information on in-custody deaths..☐ Yes ☐ No

o. Racial profiling..☐ Yes ☐ No

p. Citizen complaints.....................................☐ Yes ☐ No

q. Checking of immigration status by patrol officers...☐ Yes ☐ No

46. Which of the following best describes your agency's written policy for pursuit driving? Mark (■) only one response.

☐ Prohibition (prohibits all pursuits)

☐ Discouragement (discourages all pursuits)

☐ Judgmental (leaves decisions to officer's discretion, such as type of offense, speed, etc.)

☐ Restrictive (restricts decisions of officers to specific criteria)

☐ Other (please specify) _____

☐ Agency does not have a written policy pertaining to pursuit driving

47. Enter the current dispositions for all formal citizen complaints received during 2006 regarding use of force. If none, enter '0.'

a. **Sustained** (Sufficient evidence to justify disciplinary action against the officer(s)) ☐☐ , ☐☐☐

b. **Other disposition** (e.g., unfounded, exonerated, not sustained, withdrawn) ☐☐ , ☐☐☐

c. **Pending** (Final disposition of the allegation has not been made) ☐☐ , ☐☐☐

d. **TOTAL** use of force complaints received (sum of lines 'a' through 'c') ☐☐ , ☐☐☐

48a. Is there a civilian complaint review board/agency in your jurisdiction that reviews use of force complaints against officers in your agency?

☐ Yes   ☐ No - SKIP to Question 49

b. Does this civilian review board/agency have independent investigative authority with subpoena powers?

☐ Yes   ☐ No

49. Does your agency have a written policy requiring that citizen complaints about use of force receive separate investigation outside the chain of command where the accused officer is assigned?

☐ Yes   ☐ No

Please retain a copy of the completed survey for your records.

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APPENDIX B

FORM CJ-44S 2007 SURVEY OF STATE AND LAW ENFORCEMENT AGENCIES

All 2,145 NSR agencies received the 40-item CJ-44S questionnaire.

ID NUMBER

OMB No. 1121-0240: Approval Expires 11/30/2010

RETURN TO: Police Executive Research Forum 1120 Connecticut Ave., NW Suite 930 Washington, DC 20036	FORM CJ-44S 2007 SURVEY OF STATE AND LOCAL LAW ENFORCEMENT AGENCIES Law Enforcement Management and Administrative Statistics U.S. Department of Justice, Bureau of Justice Statistics

IMPORTANT: Please read the instructions below prior to completing this questionnaire.

■ There are three ways to submit this survey:

1) Complete the survey online at http://survey.policeforum.org/LEMASCJ44S.pdf
If you choose to complete the survey via the Internet, you will be prompted to enter your USER NAME and PASSWORD, which are included on the cover letter accompanying this questionnaire. You will also have to enter your ID NUMBER on the first page of the survey, which is located at the top right of this page. Without entering your agency's USER NAME, PASSWORD, and ID NUMBER, you will not be able to complete the survey online. The USER NAME and PASSWORD provide a secure location to submit your survey.

2) Mail the survey to PERF using the enclosed postage-paid envelope.

3) Fax the survey to PERF at 202-466-7826.

■ Please retain a copy of the completed survey for your records.

■ Please use either blue or black ink and print as neatly as possible using only CAPITAL letters.

■ **Do not leave any items blank.**

   ○ If the answer to a question is not available or is unknown, write "DK" (don't know) in the space provided.

   ○ If the question is not applicable, write "NA" in the space provided.

   ○ If the answer to a question is none or zero, write "0" in the space provided.

   ○ When exact numeric answers are not available, provide estimates.

■ Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

■ If you have any questions or need assistance in completing the questionnaire, please contact Bruce Kubu of the Police Executive Research Forum (PERF) by phone at 202-454-8308 or by email at bkubu@policeforum.org. If you have general comments or suggestions for improving the survey, please contact Brian Reaves of the Bureau of Justice Statistics by phone at 202-616-3287 or by email at Brian.Reaves@usdoj.gov.

Burden Statement

Federal agencies may not conduct or sponsor an information collection, and a person is not required to respond to a collection of information, unless it displays a currently valid OMB Control Number. Public reporting burden for this collection of information is estimated to average three hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate, or any other aspects of this collection of information, including suggestions for reducing this burden, to the Director, Bureau of Justice Statistics, 810 Seventh Street, NW, Washington, DC 20531. The Omnibus Crime Control and Safe Streets Act of 1968, as amended (42 USC 3732), authorizes this information collection. Although this survey is voluntary, we urgently need your cooperation to make the results comprehensive, accurate, and timely. We greatly appreciate your assistance.

INFORMATION SUPPLIED BY:

NAME

TITLE

AGENCY

TELEPHONE ( ) – **EXT.**

FAX NUMBER ( ) –

EMAIL

7183510050

ID NUMBER [ ]

SECTION I - DESCRIPTIVE INFORMATION

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

1. **Enter the number of AUTHORIZED full-time paid agency positions and ACTUAL full-time and part-time paid agency employees as of September 30, 2007.** Full-time employees are those regularly scheduled for 35 or more hours per week. If none, enter '0.'

		AUTHORIZED full-time paid positions	ACTUAL paid agency employees	
			Full-time	Part-time
a.	Sworn personnel with general arrest powers			
b.	Officers/deputies with limited or no arrest powers (e.g., jail or court officers in some agencies)	☒		
c.	Non-sworn employees	☒		
d.	TOTAL (sum of lines 'a' through 'c')	☒		

2. **As of September 30, 2007, how many reserve/auxiliary officers did your agency have?** If none, enter '0.'

		Full-time	Part-time
Reserve/auxiliary officers	Sworn		
	Non-sworn		

3. **As of September 30, 2007, how many FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2) did your agency have assigned to the following multi-agency task forces?** Personnel may be counted more than once. If none, enter '0.'

Multi-agency task force	Assigned full-time	Assigned part-time
a. Gangs		
b. Drugs		
c. Anti-terrorism		
d. Human trafficking		

4. **Of the total number of FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2), enter the number of each of the following:** (Personnel may be counted more than once. If none, enter '0.')

a.	Uniformed officers with REGULARLY ASSIGNED DUTIES that include responding to citizen calls/requests for service	[ ],[ ]
b.	Community Policing Officers, Community Relations Officers, or other sworn personnel specifically designated to engage in community policing activities	[ ],[ ]
c.	School Resource Officers, School Liaison Officers, or other sworn personnel whose primary duties are related to school safety (exclude crossing guards)	[ ],[ ]

5. **Enter your agency's total operating budget for the 12-month period that includes September 30, 2007.** If data are not available, provide an estimate and mark (■) the box below. Include jails administered by your agency. Do NOT include building construction costs or major equipment purchases.

$ [ ],[ ],[ ],[ ]

Please mark here if this figure is an estimation....☐

6. **Enter the total estimated value of money, goods, and property received by your agency from an asset forfeiture program during calendar year 2006.** If no money, goods or property were received, enter '0.'

a. Drug forfeiture program .... $ [ ],[ ],[ ]

b. Gambling forfeiture program ... $ [ ],[ ],[ ]

c. Other forfeiture program(s) .... $ [ ],[ ],[ ]

Please mark here if any of these figures are an estimation...☐

ID NUMBER [   ]

SECTION II - PERSONNEL

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

7a. Indicate your agency's minimum education requirement which new (non-lateral) officer recruits must have at hiring or within two years of hiring. Mark (■) only one response.

☐ Four-year college degree required

☐ Two-year college degree required

☐ Some college but no degree required

☐ High school diploma or equivalent required

☐ No formal education requirement - SKIP to Question 8

b. Does your agency allow any exemption(s) to this minimum education requirement policy?

☐ Yes ☐ No

8. Which of the following screening techniques are used by your agency in selecting new officer recruits?

Background/record checks

Background investigation....................................☐ Yes ☐ No

Credit history check...☐ Yes ☐ No

Criminal history check.......................................☐ Yes ☐ No

Driving record check..☐ Yes ☐ No

Personal attributes

Personal interview...☐ Yes ☐ No

Personality inventory...☐ Yes ☐ No

Polygraph exam..☐ Yes ☐ No

Psychological evaluation....................................☐ Yes ☐ No

Voice stress analyzer...☐ Yes ☐ No

Written aptitude test..☐ Yes ☐ No

Community relations skills

Analytical/problem-solving ability assessment...☐ Yes ☐ No

Assessment of understanding of diverse cultural populations..☐ Yes ☐ No

Mediation/conflict management skills assessment...☐ Yes ☐ No

Second language test..☐ Yes ☐ No

Volunteer/community service history check......☐ Yes ☐ No

Physical attributes

Drug test..☐ Yes ☐ No

Medical exam...☐ Yes ☐ No

Physical agility/fitness test................................☐ Yes ☐ No

9. How many total hours of ACADEMY training and FIELD training (e.g., with FTO) are required of your agency's new (non-lateral) officer recruits? Include law enforcement training only. Include both State/POST training requirements AND agency training requirements. If no training of that type is required, enter '0.'

	Academy Training	Field Training
Total hours of training....	[ ],[ ][ ][ ]	[ ],[ ][ ][ ]

10. On average, how many hours of IN-SERVICE training are required annually for your agency's NON-PROBATIONARY field/patrol officers? Include law enforcement training only. If no training of that type is required, enter '0.'

Average annual hours per officer

Total hours of training................ [ ][ ][ ]

11. Enter the number of FULL-TIME SWORN personnel with general arrest powers (as entered in 1a, column 2) by RACE and GENDER for the pay period that included September 30, 2007. If none, enter '0.'

Race

a. White, not of Hispanic origin [ ][ ],[ ][ ][ ]

b. Black or African American, not of Hispanic origin [ ][ ],[ ][ ][ ]

c. Hispanic or Latino [ ][ ],[ ][ ][ ]

d. American Indian or Alaska Native [ ][ ],[ ][ ][ ]

e. Asian [ ][ ],[ ][ ][ ]

f. Native Hawaiian or other Pacific Islander [ ][ ],[ ][ ][ ]

g. Two or more races [ ][ ],[ ][ ][ ]

h. No information available [ ][ ],[ ][ ][ ]

i. Total (sum of lines 'a' through 'h') [ ][ ],[ ][ ][ ]

Gender

a. Male [ ][ ],[ ][ ][ ]

b. Female [ ][ ],[ ][ ][ ]

c. Total (sum of lines 'a' and 'b') [ ][ ],[ ][ ][ ]

12. Does your agency authorize or provide any of the following for sworn personnel?

a. Education incentive pay.............. ☐ Yes ☐ No

b. Hazardous duty pay.................... ☐ Yes ☐ No

c. Merit/performance pay............... ☐ Yes ☐ No

d. Shift differential pay................... ☐ Yes ☐ No

e. Special skills proficiency pay...... ☐ Yes ☐ No

f. Bilingual ability pay.................... ☐ Yes ☐ No

g. Tuition reimbursement................ ☐ Yes ☐ No

h. Military service pay.................... ☐ Yes ☐ No

i. Collective bargaining rights........ ☐ Yes ☐ No

j. Residential incentive pay............ ☐ Yes ☐ No

13. Enter the salary schedule for the following FULL-TIME SWORN positions as of September 30, 2007. If a position does not exist on a full-time basis in your agency, enter 'NA.'

		Base ANNUAL salary	
		Minimum	Maximum
a.	Chief executive (chief, director, sheriff, etc.)		
b.	Sergeant or equivalent first-line supervisor		
c.	Entry-level officer or deputy (post-academy)		

ID NUMBER [   ]

SECTION III - OPERATIONS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

14. Does your agency participate in an operational 9-1-1 emergency telephone system (i.e., your agency's units can be dispatched as a result of a call to 9-1-1)? Mark (■) only one response.

☐ Yes - Enhanced 9-1-1 system

☐ Yes - Basic 9-1-1 system

☐ No - SKIP to Question 16

15. Does your agency's 9-1-1 system have the following capabilities for incoming calls from wireless/cellular phones?

Can display phone number of wireless caller.... ☐ Yes ☐ No

Can display *exact* location of wireless caller.... ☐ Yes ☐ No

Can display *general* location of wireless caller. ☐ Yes ☐ No

16. During the 12-month period ending September 30, 2007, did your agency use the following types of patrol on a REGULARLY SCHEDULED basis?

Automobile.. ☐ Yes ☐ No

Motorcycle.. ☐ Yes ☐ No

Foot.. ☐ Yes ☐ No

Aviation.. ☐ Yes ☐ No

Marine.. ☐ Yes ☐ No

Horse.. ☐ Yes ☐ No

Bicycle.. ☐ Yes ☐ No

Human transporter (e.g., Segway).......... ☐ Yes ☐ No

Other (please specify)............................ ☐ Yes ☐ No

SECTION IV - COMMUNITY POLICING

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

17. During the 12-month period ending September 30, 2007, what proportion of agency personnel received at least eight hours of community policing training (problem solving, SARA, community partnerships, etc.)? Mark (■) one choice per line. If your agency did not conduct training for a particular type of employee, please mark 'None.' If your agency did not have a particular type of employee for the specified time period, please mark 'NA.'

	All	Half or more	Less than half	None	NA
New officer recruits	☐	☐	☐	☐	☐
In-service sworn personnel	☐	☐	☐	☐	

18. During the 12-month period ending September 30, 2007, which of the following did your agency do? Mark (■) all that apply.

☐ Maintained an agency mission statement that included a community policing component

☐ Actively encouraged patrol officers to engage in SARA-type problem-solving projects on their beats

If YES, please specify the number of patrol officers as of September 30, 2007: ☐☐☐☐

☐ Conducted a citizen police academy

☐ Maintained or created a formal, written community policing plan

☐ Gave patrol officers responsibility for specific geographic areas/beats

If YES, please specify the number of patrol officers as of September 30, 2007: ☐☐☐☐

☐ Included collaborative problem-solving projects in the evaluation criteria of patrol officers

☐ Upgraded technology to support the analysis of community problems

☐ Partnered with citizen groups and included their feedback in the development of neighborhood or community policing strategies

☐ Conducted or sponsored a survey of citizens on crime, fear of crime, or satisfaction with police services

☐ Maintained a community policing unit with full-time personnel

☐ None of the above

SECTION V - EMERGENCY PREPAREDNESS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

19. Does your agency have a written plan that specifies actions to be taken in the event of terrorist attacks? (Include emergency operation plans that would be applicable to such an attack.)

☐ Yes ☐ No

20. Do the public safety agencies operating in or nearby your jurisdiction (including your agency) use a shared radio network infrastructure that achieves interoperability?

☐ Yes ☐ No

21. In which of the following terrorism preparedness activities did your agency engage during the period ending September 30, 2007?

Partnership with culturally diverse communities	☐ Yes	☐ No
Public anti-fear campaign	☐ Yes	☐ No
Dissemination of information to increase citizen preparedness	☐ Yes	☐ No
Community meetings on homeland security/preparedness	☐ Yes	☐ No
Increased sworn officer presence at critical areas	☐ Yes	☐ No
Emergency preparedness exercises	☐ Yes	☐ No
Other (please specify)	☐ Yes	☐ No

22. Of the total number of actual FULL-TIME personnel, how many are intelligence personnel with primary duties related to terrorist activities? If none, enter '0.'

	Sworn	Non-sworn
Intelligence personnel with primary duties related to terrorist activities	☐☐☐	☐☐☐

ID NUMBER [   ]

SECTION VI - EQUIPMENT

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

23. Which types of sidearms are authorized for use by your agency's field/patrol officers? Mark (■) all that apply.

On-duty weapons

	Primary sidearm		Backup sidearm	
Semiautomatic	☐ Yes	☐ No	☐ Yes	☐ No
Revolver	☐ Yes	☐ No	☐ Yes	☐ No

24. Are your agency's uniformed field/patrol officers REQUIRED to wear protective body armor while in the field? Mark (■) only one response.

☐ Yes, all the time

☐ Yes, in some circumstances (e.g., serving warrants)

☐ No

25. Enter the number of animals regularly maintained by your agency for use in activities related to law enforcement. If none, enter '0.'

Dogs [   ]   Horses [   ]

26. Which of the following types of less-than-lethal weapons or actions are authorized for use by your agency's field/patrol officers? Exclude weapons used only by tactical units.

a. Impact devices

Traditional baton ....☐ Yes   ☐ No
PR-24 baton ....☐ Yes   ☐ No
Collapsible baton ....☐ Yes   ☐ No
Soft projectile (e.g., bean-bag) ....☐ Yes   ☐ No
Blackjack/slapjack ....☐ Yes   ☐ No
Rubber bullet ....☐ Yes   ☐ No
Other impact device (please specify) ....☐ Yes   ☐ No
[   ]

b. Chemical agents

OC (pepper spray/foam) ....☐ Yes   ☐ No
Other chemical agent (please specify) ....☐ Yes   ☐ No
[   ]

c. Other weapons/actions

Conducted energy device (e.g., stun gun, Taser, Stinger) ....☐ Yes   ☐ No
Hold or neck restraint (e.g., carotid hold) .☐ Yes   ☐ No
Other weapon/action (please specify) ....☐ Yes   ☐ No
[   ]

27. Enter the total number of motorized vehicles operated by your agency as of September 30, 2007. Include owned, rented, leased and confiscated vehicles that your agency uses. If none, enter '0.'

Marked cars .... [ ],[   ]
Other marked vehicles (SUV, truck, van, etc.) .... [ ],[   ]
Unmarked cars .... [ ],[   ]
Other unmarked vehicles (SUV, truck, van, etc.) .... [ ],[   ]
Fixed-wing aircraft .... [ ],[   ]
Helicopters .... [ ],[   ]
Boats .... [ ],[   ]
Motorcycles .... [ ],[   ]

28a. Does your agency allow officers to take marked vehicles home?

☐ Yes   ☐ No - SKIP to Question 29a

b. Does your agency allow officers to drive marked vehicles for personal use during off-duty hours?

☐ Yes   ☐ No

c. Does your agency allow officers to drive marked vehicles outside of the jurisdiction during off-duty hours?

☐ Yes   ☐ No

29a. During the 12-month period ending September 30, 2007, did your agency operate video cameras on a regular basis?

☐ Yes   ☐ No - SKIP to Question 30

b. Enter the number of video cameras operated by your agency as of September 30, 2007. If none, enter '0.'

In patrol cars .... [ ],[   ]
Fixed-site surveillance in public areas ...... [ ],[   ]
Mobile surveillance .... [ ],[   ]

30. During the 12-month period ending September 30, 2007, did your agency operate gunshot detection sensors on a regular basis?

☐ Yes   If YES, how many?
☐ No   ↳ [ ],[   ]

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ID NUMBER

SECTION VII - COMPUTERS AND INFORMATION SYSTEMS

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

31. Does your agency use computers for any of the following functions? Mark (■) all that apply.

- ☐ Analysis of community problems
- ☐ Automated booking
- ☐ Crime analysis
- ☐ Crime mapping
- ☐ Crime investigations
- ☐ Dispatch (CAD)
- ☐ Fleet management
- ☐ Hotspot identification
- ☐ In-field communications
- ☐ In-field report writing
- ☐ Intelligence gathering
- ☐ Inter-agency information sharing
- ☐ Internet access
- ☐ Personnel records
- ☐ Records management
- ☐ Resource allocation
- ☐ NONE of the listed functions

32. Do any of your agency's field/patrol officers use computers or terminals WHILE IN THE FIELD?

☐ Yes   ☐ No -- SKIP to Question 34

↳ **If YES, how many of the following types of computers/terminals are available for use by your agency's field/patrol officers WHILE IN THE FIELD?** If none, enter '0.'

Permanent vehicle-mounted computers/terminals: ☐☐,☐☐☐

Portable computers/terminals used with vehicle docking stations: ☐☐,☐☐☐

Portable computers/terminals NOT used with vehicle docking stations: ☐☐,☐☐☐

33. Do any of your agency's field/patrol officers have direct access to the following types of information using IN-FIELD vehicle-mounted or portable computers?

Motor vehicle records	☐ Yes	☐ No
Driving records	☐ Yes	☐ No
Criminal history records	☐ Yes	☐ No
Warrants	☐ Yes	☐ No
Protection orders	☐ Yes	☐ No
Inter-agency information system	☐ Yes	☐ No
Address history (e.g., repeat calls for service)	☐ Yes	☐ No
Internet access	☐ Yes	☐ No
GIS/crime mapping	☐ Yes	☐ No
Other (please specify)	☐ Yes	☐ No

34. How are data from criminal incident reports PRIMARILY transmitted to your agency's central information system? Mark (■) only one response.

- ☐ Paper report
- ☐ Voice (cellphone, telephone, recording, radio)
- ☐ Computer/data device
- ☐ Other (please specify)
- ☐ Not applicable - agency does not handle such reports

35. Does your agency own or have access to an Automated Fingerprint Identification System (AFIS) that includes a file of digitized prints? Mark (■) all that apply.

- ☐ Agency is exclusive/shared owner of an AFIS system
- ☐ Agency has access to a remote AFIS system
- ☐ Agency has access to AFIS through another agency
- ☐ None of the above

SECTION VIII - POLICIES AND PROCEDURES

Unless otherwise noted, please answer all questions using September 30, 2007, as a reference.

36. Does your agency have written policy or procedural directives on the following?

Officer conduct

a. Use of deadly force/firearm discharge........□ Yes □ No

b. Use of less-than-lethal force.......................□ Yes □ No

c. Code of conduct and appearance.................□ Yes □ No

d. Off-duty employment.................................□ Yes □ No

e. Maximum work hours allowed...................□ Yes □ No

f. Off-duty conduct.......................................□ Yes □ No

g. Interacting with the media..........................□ Yes □ No

h. Employee counseling assistance.................□ Yes □ No

Dealing with special populations/situations

i. Mentally ill persons....................................□ Yes □ No

j. Homeless persons.......................................□ Yes □ No

k. Domestic disputes......................................□ Yes □ No

l. Juveniles..□ Yes □ No

m. Persons with limited English proficiency....□ Yes □ No

Procedural

n. Collection of information on in-custody deaths..□ Yes □ No

o. Racial profiling...□ Yes □ No

p. Citizen complaints......................................□ Yes □ No

q. Checking of immigration status by patrol officers...□ Yes □ No

37. Which of the following best describes your agency's written policy for pursuit driving? Mark (■) only one response.

□ Prohibition (prohibits all pursuits)

□ Discouragement (discourages all pursuits)

□ Judgmental (leaves decisions to officer's discretion, such as type of offense, speed, etc.)

□ Restrictive (restricts decisions of officers to specific criteria)

□ Other (please specify)

□ Agency does not have a written policy pertaining to pursuit driving

38. Enter the current dispositions for all formal citizen complaints received during 2006 regarding use of force. If none, enter '0.'

a. **Sustained** (Sufficient evidence to justify disciplinary action against the officer(s))

b. **Other disposition** (e.g., unfounded, exonerated, not sustained, withdrawn)

c. **Pending** (Final disposition of the allegation has not been made)

d. **TOTAL** use of force complaints received (sum of lines 'a' through 'c')

39a. Is there a civilian complaint review board/agency in your jurisdiction that reviews use of force complaints against officers in your agency?

□ Yes □ No - SKIP to Question 40

b. Does this civilian review board/agency have independent investigative authority with subpoena powers?

□ Yes □ No

40. Does your agency have a written policy requiring that citizen complaints about use of force receive separate investigation outside the chain of command where the accused officer is assigned?

□ Yes □ No

Please retain a copy of the completed survey for your records.