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**Author(s):                   Dr. Cynthia Lum**

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# **TIP LINE TECHNOLOGIES: INTELLIGENCE GATHERING AND ANALYSIS SYSTEMS**

## ***PHASE I FINAL REPORT AND EXECUTIVE SUMMARY***

**July 1, 2005**

**Principal Investigator:  
Dr. Cynthia Lum  
George Mason University  
Administration of Justice Program  
Department of Public and International Affairs  
10900 University Blvd. MSN 4F4  
Manassas, VA 20110  
clum@gmu.edu**

**Project staff for Phase I:  
Project Manager: Brooke Trahan  
Research Assistants: Jenni Weisbrod and Jonathan Bandy**

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# EXECUTIVE SUMMARY

## TIP LINE TECHNOLOGIES: INTELLIGENCE GATHERING AND ANALYSIS SYSTEMS *PHASE I*

*Cynthia Lum, Ph.D.*  
*July, 2005*

### **POLICING, INFORMATION, AND TIP LINES**

In October of 2002, the tri-state area surrounding Washington, D.C. was gripped with fear by what became known as the Montgomery County (Maryland), D.C., and/or Beltway Sniper Case. Two gunmen randomly shot fourteen individuals, killing ten, during a twenty-one day shooting spree. The Sniper Case was perhaps made more dramatic by its timing; only one year prior the United States had experienced the September 11<sup>th</sup> attacks as well as the anthrax contaminations of the Postal Service. At the time, law enforcement agencies were already shifting their focus towards prevention strategies which targeted potential terrorist incidents and other critical events; the sniper attacks added to the growing interest in how to respond to such intense situations.

A central focus of many of these critical incident response strategies has become the role that information plays in the quick and successful resolution of these situations. In particular, police are increasingly interested in how information can be obtained, recorded, stored, processed, analyzed, disseminated, and operationalized to improve police effectiveness in preventing future events. This interest has mirrored

recent paradigm shifts within police practice and research more generally, including problem-oriented and evidence-based deployment strategies that centralize the role of information in deployment, as well as the increased use of crime analysis and information driven management schemes (like NYPD's COMPSTAT). Clearly, the importance and utility of information and intelligence has taken center stage.

For critical incidents more specifically, the use of tip lines remains one of the most powerful tools by which police agencies collect and process information. Tip lines have become a common response technique in critical incidents where the identity and location of suspects (or victims) are often unknown and obtaining leads using traditional investigative techniques may be difficult. In such cases, law enforcement agencies often rely on information garnered from the public to provide clues as to the offender's (or missing person's) whereabouts, or perhaps even the location of the next crime. This solicitation of information through a tip line process can take a variety of forms, including the use of a dedicated phone line or internet website.

The use of tip lines has become more and more popular in recent years, and examples can be easily found. For instance, the New

York City Police Department's NYC Safe Line<sup>1</sup> and the Washington Metropolitan Police Department's Operation TIPP (Terrorist Incident Prevention Program)<sup>2</sup> were specifically created after September 11<sup>th</sup> to collect tips related to terrorism. More well known and established tip lines include Crime Stoppers<sup>3</sup> and America's Most Wanted,<sup>4</sup> which often use television and newspaper mediums to obtain information about a wide range of crimes. Tip lines have also been established on an ad hoc basis in many high profile cases including the sniper attacks, the disappearance of Lacy Peterson, and the recent case involving the kidnapping of Jessica Lunsford.

## **IMPROVING TIP LINE USE AND TECHNOLOGY**

However, despite this seemingly common use of tip lines, these and other information technologies used by the police are recent innovations. The professional era of policing and the advent of the 911 system solidified the police as reactive agents (Kelling and Moore, 1988; Kelling and Wycoff, 2002; Sparrow et al., 1990) who responded to calls for service and then recorded, usually by hand, information about the reported crime (e.g., the victim, offender, and location of the crime). Because cases were seen as individual and distinct, the information collected was rarely aggregated, analyzed, or connected in search of underlying trends or commonalities, nor was the information used to guide prevention efforts. In many ways, tip lines have developed in the same manner. Our research team discovered that the most common use of tip lines by law enforcement is for the police to receive and examine information on a tip-by-tip basis and

respond similarly, using informal prioritization decisions to determine which tips warrant further investigation. Very little (if any) aggregation or analysis is conducted on the information collected, and systematic processes to receive and disseminate tips are rarely used.

As police consider how to more effectively respond to critical incidents through information and intelligence gathering and synthesis, this tip-by-tip system can no longer be viewed as the only (or best) approach to solving crimes given what we know about the effectiveness of more proactive approaches. Combining, analyzing, and processing tips, as well as connecting tip information with other types of information (criminal histories, motor vehicle records, ATM or credit card data) in order to gain further understanding of underlying patterns, trends, and other types of intelligence follows naturally from the proactive, preventative policing model which has been shown to be more effective than its reactive predecessor.

## **THE TIP LINE TECHNOLOGY PROJECT: PHASE I**

In response to the recent emphasis on the usefulness of information and tip lines, as well as the need for improving them, the Department of the Navy's Space and Naval Warfare Systems Command Division (SPAWAR) directed funds allocated by the National Institute of Justice to improve tip line technology. The project team was charged to research, develop, and create practice-informed tip line protocol, processes, technology, and recommendations for improving information

collection, analysis, and operationalization during critical incidents.

The final report that follows details the progress made during the first phase of the project, which was to create all the necessary research and knowledge infrastructure for the development of a tip line protocol and technology. Specifically, during Phase I (January – May, 2005), the following tasks were accomplished by the research team:

- Research existing literature and develop a knowledge base and theoretical context for the justification of improving tip line information technology.
- Conduct a nation-wide random sample survey to assess the state of tip line use in police agencies.
- Develop working relationships with federal and state/local police agencies to garner assistance in understanding law enforcement needs during critical incidents with regard to tip lines, obtaining sample data, creating protocol and technology, and testing technology.
- Conduct site visits and interviews of specific agencies in order to document tip line technology use to better inform the development of protocol and technology in Phase II.
- Broadly research other types of tip line technology products.
- Begin collecting information and ideas on how to incorporate other sources of information into the

operationalization of tip line data including criminal records as well as non-crime data bases.

- Envision a hypothetical situation and protocol to guide our efforts in Phase II.
- Complete an Executive Summary and Final Report for Phase I.

Phase II of this project (June – December, 2005) will be devoted to creating the actual tip line protocol, analyzing sample data in order to anticipate analytic functions needed, researching, assessing, and developing tip line technology, and creating a working protocol and guide for future distribution to law enforcement agencies. Finally, in Phase III, we anticipate testing both the protocol and technology either in simulated or real law enforcement situations with our law enforcement partners. This will allow us to refine and evaluate the protocol and technologies before distribution.

### **SUPPORT FOR THE IMPROVEMENT OF TIP LINE PROTOCOLS, PROCESSES, AND TECHNOLOGY**

To develop a knowledge base for the justification and support for this project, the project team began searching for research that evaluated the effectiveness of improved collection, analysis, and operationalization of information in policing. Evaluation research of crime prevention programs has generally focused on the effects of the programs themselves, and not necessarily on whether the information technology used to facilitate or develop these programs helped achieve that effectiveness. In many

instances, the use, analysis, and exchange of information is either taken for granted as a technical part of a crime prevention program or it is assumed to have little intrinsic value without its associated deployment tactic. For example, a researcher or practitioner may wish to assess whether hot spot policing (directed patrol) is effective in reducing crime in specific areas (for example, see Sherman and Weisburd, 1995). He or she determines that it is the deployment (i.e., hot spot patrol), not the information or information technology (i.e. maps generated by geographic information systems which indicate crime clustering) that helped achieve the outcome sought (crime reduction).

However, in these and other instances, it may be the information and the information technology that is more central in achieving outcomes than is generally acknowledged. Intelligence generated by the processing of information can have a powerful effect on making deployment more efficient, logical, feasible, or politically acceptable. While there is little empirical research that directly connects improvements in information collection, analysis, and technology to police deployment effectiveness; a number of research areas indirectly suggest such a connection. These include problem-oriented policing, evidence-based policing, crime analysis, information technology, and multi-jurisdictional information sharing.

**PROBLEM-ORIENTED POLICING.** The concept of problem-oriented policing, introduced formally by Herman Goldstein (1979; 1990; see also Eck and Spelman, 1987), was most likely the first structured framework to place the use, analysis, and collection of information at the center of an organized police deployment strategy. Goldstein hypothesized that police could be

more effective when structuring deployment around the determination of problems through the analysis, combination, and recognition of the interrelationship between individual crime incidents, rather than pursuing crime control through the more traditional case-by-case, reactive approach. A problem-oriented strategy required that crime information not only had to be systematically gathered, but that the focus of deployment should be on analyzed, or manipulated crime data that revealed deeper community concerns and crime patterns.

Problem-oriented policing is seen as a “promising” crime prevention approach (Sherman et al., 1997; Sherman et al., 2002) and has been supported by empirical research (Braga et al., 1999; Eck and Spelman, 1987; Sherman et al., 1997; Sherman et al., 2002). As information collection and synthesis is a central and integrated component of all stages of problem solving, problem oriented policing provides suggests that improving information collection, analysis, and operationalization through tip lines might also improve police effectiveness.

**EVIDENCE-BASED POLICING.** Another theoretical foundation that centralizes the role of information in effective police practices is evidence-based policing. As Lawrence Sherman initially advocated (Sherman, 1998), “[e]vidence based policing is the use of the best available research on the outcomes of police work to implement guidelines and evaluate agencies, units, and officers (Sherman, 1998:3).” Sherman was not only advocating the use of knowledge from methodologically rigorous evaluations by researchers to guide police decisions, but he was also suggesting that evidence-based policing should involve “ongoing evaluation research about the results each unit is

achieving by applying (or ignoring) basic research in practice” (p. 4). In other words, police should make a regular practice of using all available information in order to make decisions about deployment options and to assess their own productivity.

Like problem-oriented policing, evidence-based policing suggests a new perspective with regard to the use of information in policing that goes beyond examining information related to a specific case for the sole purpose of clearing that case. In evidence-based policing, crime information is combined and analyzed to evaluate both programs and personnel. Thus, information not only contributes to determining better responses, but evidence-based policing also emphasizes the need to collect information for the purpose of guiding decision-making and assessing effectiveness. Like problem-oriented policing, evidence-based policing also indirectly suggests improvements in information collection technologies and more scientifically rigorous analysis are important mechanisms in improving police effectiveness more generally.

**CRIME ANALYSIS.** Problem-oriented and evidence-based policing provide theoretical and conceptual foundations and hypotheses about the role that information, analysis, and related technologies can play in improving the deployment effectiveness of police. However, one increasingly popular practice, the use of crime analysis, has also generated exercises that emphasize how the manipulation and analysis of information may yield important patterns, trends, and clues that would not have been noticed by examining individual cases. The use of crime analysis has become central in such prevention measures as hot spot (or directed) patrol, situational crime prevention, or other problem-oriented policing deployment

strategies where patterns, not individual incidents, are used to drive deployment.

Crime analysis is relevant to this project not only in the context of its use in problem-oriented and evidence-based policing, but also in providing for a component in tip line processes that is underutilized or missing. Throughout Phase I, the project team discovered that the common police approach to the use of tip line information is for officers to record a tip (usually by hand) and then follow up on individual leads using a tip-by-tip investigative approach. Tips are chosen for follow-up based on an informal prioritization system where tips perceived to be important by the reviewer are investigated first. The hope, it seems, is that there will be one tip that will lead to the resolution of the case and that this approach can help locate that single tip. Yet, problem-oriented and evidence-based policing both suggest that important information might also be gleaned from analyzing tips for underlying patterns and trends using a more advanced, non-manual system. Crime analysis techniques can help to facilitate these goals.

**INFORMATION TECHNOLOGIES.**

Information technology, as Manning (2001) describes, “encompasses the means by which data (raw facts as recorded) are transformed into information (data now placed in some context with a purpose), stored, analyzed, and retrieved” (Manning, 2001: 84). More generally, the term refers to systems which collect, store, analyze, transmit, or disseminate data and information (Manning, 1992b; Nogala, 1995). While information technology is often in computerized form, the general term encompasses any information system, including manual ones. For example, in the Sniper case, tips were hand-written on

pieces of paper and then driven or faxed to another location for processing. While this might not be the most optimal use of resources, it is an information system nonetheless. Researchers have suggested that the use of information technology can improve police effectiveness (Faggiani and McLaughlin, 1999; Nunn, 2003; Pierce and Griffith, 2005; Seaskate, 1998).

Law enforcement agencies already use a variety of information technologies that may be relevant to understanding tip line use. The most common is the 911 emergency computer aided dispatch system (CAD), which records information about calls citizens make to the police and helps disseminate calls to appropriate personnel. For tip lines, information technology can replace manual functions such as writing tips down on paper, driving/faxing tips from one location to another, triaging or flagging tips for priority, examining tip information, and even disseminating tips for deployment.

**MULTI-JURISDICTIONAL INFORMATION COLLECTION AND SHARING.** Yet another conceptual area that supports the hypothesis that improvements in information collection and analysis can increase the effectiveness of police is multi-jurisdictional information sharing technology and strategies. Most law enforcement agencies have treated information technologies as isolated systems, operating within their own jurisdictions. However, as the sniper incident illustrates, crime is often multi-jurisdictional and agencies have had to adapt to this environment by finding ways to connect, communicate, and share knowledge with one another (Buslik and Maltz, 1997; Department of Justice, 2002; Geddes et al., 1998; International Association of Chiefs of Police, 2000; James and Russo, 2002; Loyka et al., 2005; Taxman and McEwen, 1997).

The need for data and intelligence sharing and coordination is especially relevant in critical incidents. Law enforcement agencies can go from a low level of activity into a critical incident with very little warning, and often must be immediately prepared to collaborate with other agencies (Ashley, 2003). Here, events and/or suspect movement regularly extend across boundaries, which may require a multi-jurisdictional information collection approach (Taxman and Bouffard, 2000).

Multi-jurisdiction information sharing and collaboration has been viewed as a promising crime reduction strategy (see e.g., Taxman et al., 2002). Information collection processes like tip lines that operate easily across jurisdictions and that facilitate multi-jurisdictional information collection and cooperation may prove helpful in improving police effectiveness in dealing with critical incidents.

## **CURRENT TIP LINE USE AND TECHNOLOGY IN THE UNITED STATES – A SURVEY**

While the existing literature creates a theoretical and practical background and justification for the project, the project staff also sought to more specifically understand the current state of tip line use in the United States.. In many ways, the extent of tip line use in the United States is elusive knowledge. Tip lines can be formal or informal, set up on an ad hoc basis for specific incidents, be established over a longer period of time, used for specific or general incidents, or may be integrated into already existing information systems, such as computer aided dispatch (911) systems.

To assess the needs of law enforcement agencies with regard to tip line technologies and protocols, an empirical understanding of tip lines was sought.

We first approached this systematic understanding by surveying 100 randomly chosen U.S. police agencies from the 2000 Law Enforcement Management and Administration Survey, asking each agency questions regarding their use of tip lines. In total, our broad review of tip line cases and agency use of tip line processes revealed a number of interesting findings:

- Tip lines are common and widely used but vary in process and type of usage. It appeared that most tip lines were used for more serious crimes and events.
- Most tip lines are telephone tip lines where information is manually recorded and examined using a tip-by-tip approach.
- Tips are underutilized. Tips are usually prioritized using non-systematic, informal schemes and then examined individually. Information from tips is rarely (if ever) aggregated or analyzed.
- While the vast majority of agencies use or want to use tip lines, most agencies responded that they are not prepared to handle an increase in the volume of tips if a critical incident occurred, and do not have any protocol to guide them in the event of a critical incident.
- Agencies were unsure or unaware of the effectiveness of their tip line for deployment purposes.

It appears that despite the interest and use of tip lines, the tip lines, as well as the information garnered from the public, are under-utilized and unsystematic. Although these results are still preliminary, these findings support the need to develop tip line protocol, processes, and technologies.

### THREE SPECIFIC CASE STUDIES

The project team also examined three specific cases through multiple site visits to gain a better understanding of how tip lines were operationalized, what types of information were collected, and how tips were processed. To do this, three law enforcement partners, the Montgomery County Police Department in Maryland (the lead agency during the Sniper Case), the New York City Police Department, and the Federal Bureau of Investigation assisted us during numerous site visits by describing their tip line processes in both specific and general cases. These case studies are described in detail in the final report, but a number of key lessons learned were discovered that will inform protocol and technology development during Phase II:

**1. The public is an essential and crucial information supplier.** In critical incidents, the public remains one of the most important sources of information. The volume of tips indicates the willingness of the public to provide large amounts of information to the police as well as the importance of the police to receive, process, and disseminate potentially critical pieces of information.

**2. Proactive planning is essential.** The sniper case illustrates the need for proactive

planning, including the development of tip line protocol as well as the technology needed for tip line processes. Proactive planning includes determining what types of information to collect, who might be solicited for services, where command centers might be set up, and where and what kinds of equipment will be obtained. Although every case may present unique challenges to the law enforcement agencies involved, it is clear that proactive planning can reduce a number of problems that may arise.

### **3. The increase in call volume is the primary challenge and obstacle in setting up a tip line for a critical incident.**

Existing hotlines or general use tip lines may be inadequate in responding to these types of events, especially in handling the massive increase in call volume that most likely will occur. Because of these early challenges with call volume, it is very possible that a large amount of information may be lost during the initial set up of a tip line system for a critical incident. However, early information may prove crucial to the quicker resolution of a case. Tip line protocol should also be able to capture tips that are called into the 911 system.

### **4. The more automated the system, the more efficiently and effectively tips can be garnered and utilized.**

Many of the processes that the three agencies engaged in to collect, process, and operationalize tips could be accomplished by an automated system. For example, as tips are received by telephone, automatically entering them into an already existing database or computerized form with set fields can provide the police with immediate data that can be prioritized, analyzed, or dispersed. Further, having a web-interface for individuals to enter tips into a pre-set format

can also dramatically reduce the busy signal problem. This eliminates the need to drive or fax tips around, and information will be easily available to police officers and command, no matter their physical location. Automated forms can be duplicated online, eliminating the need for those with internet access to call in tips over the phone. This could also enable tip line call receivers to take more calls.

### **5. Tip line processes do not just include collecting, recording, prioritizing, and disseminating tips. Analysis is an important, yet often ignored function.**

Analysis involves the systematic manipulation of data to discern patterns, trends, and important information that can be used for deployment. Absent from the tip line process described above was the analysis of tips. Analysis of thousands of tips at any time requires that data are automated into a system which can conduct the analysis, or be transferred into another program that can conduct the analysis. Law enforcement tends to interpret the term “analysis” to mean the prioritizing and perusal of tips for follow-up. Here, we specifically suggest that other types of analyses need to be undertaken, including geographic mapping of the location of tips, as well as trend and pattern analysis of the content of tips. Because of the large number of individuals recording data, it is difficult, if not nearly impossible, for these individuals to see overall trends that emerge from the calls in aggregate.

### **6. Deployment on tips should not be constrained to a tip-by-tip approach.**

Analysis of tip line information can reveal patterns, relationships, and intelligence that pushes police to extend deployment options beyond a tip-by-tip approach. For example, geographic analysis shortly after a critical

event (for example, a shooting) of locations of vehicle sightings might assist in the deployment of road blocks, as well as in guiding police toward targets. Similarly, examining commonalities of intelligence across different databases might lead agencies to better target their search efforts.

In summary, the three detailed case studies confirmed our general survey findings. Tip line technology and processes seem to overwhelmingly emphasize case management over intelligence analysis and operate on a tip-by-tip basis. Although the validity and importance of individual tips is not meant to be discounted, problem-oriented and evidence-based policing as well as experience from crime analysis and the use of information technologies have illustrated that valuable intelligence can be garnered by further analyzing information received. The tip-by-tip case management approach is indicative of the reactive, professional model of policing and does not take advantage of the benefits of systematic data collection and analysis.

These findings will be invaluable to this project. In particular, the development of protocol, guidelines, and technology during Phase II will try to improve on many of these existing processes as well as provide law enforcement with specific guidelines before, during, and after critical incidents. We also plan to continue our partnerships with MCPD, NYPD, and the FBI in developing meaningful tools for these and other practitioners. Additionally, our findings on other tip line technologies such as computer aided dispatch, Crime Stoppers, the AMBER Alert system, and information technologies used by the Defense Advanced Research Projects Agency also will help guide this research.

## **ENVISIONING A HYPOTHETICAL PROTOCOL FOR A CRITICAL EVENT**

The overall findings from this first stage of this project suggest that tip line technology and information is underutilized and underdeveloped, and does not meet the needs of law enforcement agencies in its current form. Guidelines and protocols for the preparation for, and response to, critical incidents using tip lines are needed, as well as more systematic approaches to collect, analyze, operationalize, and disseminate intelligence received from tips. Given these findings, we envisioned a hypothetical, theoretically optimal situation to help structure the overall goals and stages of this project, and place it in a meaningful context. This hypothetical situation is outlined below to set the context for our current and future deliverables.

**1. Agencies conduct pre-incident preparation activities.** Police departments often prepare for many incidents in advance, from responding to “everyday” incidents to critical, yet rare events. While the project itself is a testament to proactive preparation for future events, preparation may also include assessing an agency’s needs, obtaining hardware and software (or knowing where to obtain it if a situation arises), developing contacts outside of the agency, and training personnel. In our final protocol workbook (created in Phase II and finalized in Phase III), we plan to create guides for these preparation activities.

**2. The incident occurs or there is a potential for an incident to occur.** Initially, a protocol was envisioned to be useful in critical incidents similar to the Sniper Case – a “high intensity” event which

generates widespread fear or concern and which requires a speedy resolution. However, our findings regarding the theoretical support for the use of information in proactive police efforts, the results from our general survey of a random sample of United States police agencies, as well as the more detailed interviews of the FBI, NYPD, and the MCPD, all indicate that such protocol and technology could be useful in a variety of settings and situations, including high intensity events, general applications, and/or high-profile crimes.

### **3. The tip line protocol is operationalized.**

Once an incident occurs, an operational protocol is useful in defining and directing the process of implementing the tip line. Lessons learned from the case studies detailed in this report on the Sniper incident, NYPD's NYC Safe Line, as well as general experiences of the FBI, show that a number of major obstacles exist when a large volume of information regarding an event floods police telephone lines or 911 systems. These experiences suggest that a tip line protocol needs to describe how to integrate the tip line into a command center; how to obtain and operationalize physical equipment (computers, phones, internet tip lines, system integration, or adaptation), how to determine what personnel will operate the tip line and how to quickly train and deploy them, what types of information technology systems will be used to quickly and efficiently receive tips, how and where the tip line will be publicized, and what special assistance police should seek from other groups and communities. A number of questions arise during this stage, including what are the needs and requirements for operationalization, how feasible is deployment, how will publication and outreach take place, and what types of tip lines will be used. The operationalization of

the protocol must also be feasible, user-friendly, and require minimal training and set-up.

### **4. Data is collected/retrieved and automated.**

In the best case scenario, data is collected through tip lines and immediately automated. As is the case with many existing tip lines, the collection technology involves hand-written information on pieces of paper. While the operationalization and set up of the tip line protocol is itself a major undertaking, the protocol must also involve a strategy to collect, retrieve, and automate tips more efficiently. There are a number of options for the collection of tips, the most common being via phone, internet, or email. Data collected via the internet can be immediately loaded into a database with the assistance of a web interface. Phone tips may have to be manually entered into a database system by the call taker.

### **5. Analysis is continuously conducted during data retrieval.**

The project team also envisions an automated data collection system that would allow for continuous analysis of data during retrieval. This is a key vision of this project – to provide a technology which can conduct continuous and immediate analysis while information is received. An example of this that could have been useful during the Sniper incident is the immediate geocoding and mapping of the location of suspect vehicle sightings immediately after a shooting. Mapping the location of reported sightings as they are called in may better pinpoint the movement of suspect vehicles in order to direct road blocks. A software system that allows for user friendly data entry and analytic options is the most optimal, efficient approach. Analytic outputs must be sophisticated but at the same time easy to interpret, understand,

and operationalize by lay individuals. This project envisions the term “analysis” to move beyond the reading and triaging of tips. Analysis should also include finding underlying patterns and clues within large amounts of seemingly routine or unimportant tips.

Types of analysis that may prove useful include:

- Descriptive or count statistics
- Patterns of descriptions
- Common tags/vehicles
- Key word analysis of descriptions
- Statistical analysis
- Geographic analysis
- Modus operandi analysis
- Grouping and other queries

**6. Integration of other data sources into analysis.** One important aspect of any information technology system is the integration of other sources of information to supplement and enhance the original tips. In the sniper case, the suspects were present in a number of other information systems, including motor vehicle registration, the ATF’s firearms database, and Baltimore City Police Department’s information system. This project envisions a protocol that directs law enforcement toward multiple information sources so that information can be cross-referenced. While it is impossible to integrate other databases into a single information technology used by a local police agency, it is possible to create protocol within a tip line system that includes requests for the search of other data sources. For example, when running an analysis on common information about vehicles, prompts and contact information to search motor vehicle databases will be given with specific suggestions on data retrieval.

Thus, the incorporation of other data sources is an important vision of this protocol.

### **7. Continual application and operationalization of analytic results.**

This project envisions the protocol and technology to be designed with the ability to conduct analysis at any time during the collection of data, facilitating the immediate and continual application of analytic results. This includes protocol for operationalizing these analytic results in the field. A common approach taken by law enforcement agencies at present is to disseminate the most promising individual tips into the field for follow up. This project will explore other options, specifically, whether it may be useful to follow up on patterns and trends of tips, not only individual ones, and how might these analytic results be operationalized into deployment strategies.

**8. Resolution and assessment.** Assessment of tip line protocol as it relates to both the resolution of the situation and the ease of operation is an important part of this project and of the protocol and technology more generally. The goal of the protocol is to improve the speed of resolution, ease of operationalization, analysis and application, use of all available information and technologies toward resolution, integration of other sources of information into resolution, and cooperation between law enforcement agencies and analytic and information sources. In Phase III, we anticipate a testing stage in which we modify the protocol and technology to address concerns and issues that arise during implementation. Within written protocols, we will also suggest methods by which the protocol and technology might be evaluated.

## WHERE DO WE GO FROM HERE? PHASE II GOALS

Given our findings from Phase I, four general goals of developing tip line protocol and technology will be pursued in developing protocols and technologies during Phase II of this project (June – December, 2005). First, the operation of the protocol must be feasible, with user-friendly technology that requires minimal training and set-up. Secondly, analytic outputs must be sophisticated but at the same time easy to interpret, understand, and operationalize by law enforcement. Analysis will be an integrated part of the protocol and technology developed. Furthermore, goals cannot be over-reaching (e.g., we do not plan to create a system which integrates available information from all possible sources). And finally, the primary goal is to improve intelligence gathering, analysis, and operation for use in the resolution of multiple problems.

To accomplish these goals, the following tasks will be performed during phase II:

- Develop a protocol workbook (which will be tested in Phase III) informed by the project findings to assist law enforcement in their preparation and response to incidents using tip line technology.
- Determine, create, and test collection interfaces for telephone, internet, and email tip lines.
- Review and conduct cost-benefit and market analysis of multiple technology systems that can accommodate law enforcement

needs with regard to tip line processes.

- Test different types of analysis on sample data (geographic, statistical, pattern, modus operandi, trend) as well as search strategies (key word, SQLs) to determine types of analysis that might be useful. Also, determine how these analytic functions can be incorporated into information technology.
- Continue information sharing sub-project by creating guides for the final protocol workbook as well as incorporate guides into technology. These guides will suggest to agencies multiple databases by which to connect to (e.g., motor vehicle, local and federal law enforcement, telephone, credit card and bank companies, and other sources of information).
- Secure test cases for Phase III.
- Complete an executive summary and final report for Phase II.

## ENDNOTES

<sup>1</sup> See <http://www.nyc.gov/html/nypd/>.

<sup>2</sup> See <http://mpdc.dc.gov/mpdc/cwp/view,a,1238,q,555159.asp>.

<sup>3</sup> See <http://www.crimestoppers.org/>.

<sup>4</sup> See <http://www.amw.com/>.

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### **TO CONTACT THE PRINCIPAL INVESTIGATOR:**

Dr. Cynthia Lum  
George Mason University  
Administration of Justice Program  
Department of Public and International Affairs  
10900 University Blvd., MSN 4F4  
Manassas, VA 20110  
[clum@gmu.edu](mailto:clum@gmu.edu)

*The complete report is available from the author.*

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# **FINAL REPORT**

## **TIP LINE TECHNOLOGIES:**

### **INTELLIGENCE GATHERING AND ANALYSIS SYSTEMS**

#### *PHASE I*

## **1 INTRODUCTION**

### **1.1 TIP LINES, INFORMATION, AND POLICING**

In October of 2002, the tri-state area surrounding Washington, D.C. was gripped with fear by what became known as the Montgomery County (Maryland), D.C., and/or Beltway Sniper Case. Two gunmen randomly shot fourteen individuals, killing ten, during a twenty-one day shooting spree. Although the event was clearly an aberration from the everyday business of law enforcement, this case has become an important learning experience for many policing agencies – another crisis which can lead to changes in police practice (Weisburd and Lum, 2005). The Sniper Case was perhaps made more dramatic by its timing; only one year prior the United States had experienced the September 11<sup>th</sup> attacks as well as the anthrax contaminations of the Postal Service. At the time, law enforcement agencies were already shifting their focus towards prevention strategies which targeted potential terrorist and other critical events, and the sniper attacks added to the growing interest in how to respond to such highly intense situations.

At least two formal attempts to document and discuss the lessons learned in the Sniper Case were undertaken; one by the University of Maryland through a symposium of police executives from the Washington, D.C. tri-state area,<sup>1</sup> and the other by the Police Executive Research Foundation (see Murphy and Wexler, 2004). These discussions have had common themes – how multiple agencies can work more efficiently and effectively with each other, how to protect communities and respond to widespread fear, and how to best investigate and respond to critical incidents. The goals of these and other similar discussions are the same: to determine how law enforcement can best resolve these types of cases as quickly as possible (i.e., capturing of a suspect) and to prevent a similar situation from occurring in the future.

One central theme of these discussions, and the focus of the current project, is the role that information can play in improving law enforcement success during such critical incidents. An essential deployment concern has been how agencies can obtain, record, store, process, analyze, disseminate, and operationalize information and intelligence towards the ultimate goal of resolving critical incidents quickly and effectively. For critical incidents more specifically, the use of tip lines remains one of the most powerful tools by which police agencies collect and process information. Tip lines have become an increasingly common response technique in critical incidents where the identity and location of suspects (or victims) are often unknown and obtaining leads using traditional investigative techniques may be difficult. In such cases, law enforcement agencies often rely on information garnered from the public to provide clues as to

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<sup>1</sup> The Symposium took place at the University of Maryland, College Park on May 9, 2003, and was organized by the Department of Criminology and Criminal Justice, Police Research Group.

the offender's (or missing person's) whereabouts, or perhaps even the location of the next crime. This solicitation of information through a tip line process can take a variety of forms, including the use of a dedicated phone line or internet website.

The use of tip lines has become more and more popular in recent years, and examples can be easily found. For instance, the New York City Police Department's NYC Safe Line<sup>2</sup> and the Washington Metropolitan Police Department's Operation TIPP (Terrorist Incident Prevention Program)<sup>3</sup> were specifically created after September 11<sup>th</sup> to collect tips related to terrorism. More well known and older tip lines include Crime Stoppers<sup>4</sup> and America's Most Wanted,<sup>5</sup> which often use television and newspaper mediums to obtain information about a wide range of crimes. Tip lines have also been established on an ad hoc basis in many high profile cases including the sniper attacks, the disappearance of Lacy Peterson, and the recent case involving the kidnapping of Jessica Lunsford.

However, despite this seemingly common use of tip lines, these and other information technologies used by the police are recent innovations. In spite of the emphasis placed on information collection and tip lines by law enforcement, only recently have law enforcement scholarship and practice experienced a movement towards thinking about the wide variety of applications that information can have in facilitating effective deployment. The professional era of policing and the advent of the 911 system solidified the police as reactive agents (Kelling and Moore, 1988; Kelling and Wycoff, 2002; Sparrow et al., 1990) who responded to calls for service and then recorded, usually by hand, information about the reported crime (e.g., the victim, offender, and location of the crime). Because cases were seen as individual and distinct, the information collected was rarely aggregated, analyzed, or connected in search of underlying trends or commonalities, nor was the information used to guide prevention efforts.

This reactive model of policing, arguably which law enforcement agencies continue to operate within today, placed information in a traditional and passive role; information was seen as unique to a case, collected on a case-by-case basis, and as such was used towards the resolution of that individual case, not towards larger community concerns or problems. We discovered in the course of our research that the limited use of tip line technology mirrors this reactive approach. The common practice of tip line use in highly-intense, critical incidents as well as everyday situations is to receive tips one by one, and examine each on its own merit. This "tip-by-tip" approach follows naturally from the reactive policing model; each tip is viewed as having individual importance, and the prioritization of individual tips is often seen as the "analysis" or the information "system". Very little systematic analysis (if any) is undertaken to obtain more information than provided by individual tips alone.

However, a number of recent developments and crises have led to changes in police thinking and practice, especially concerning the use, analysis, and technologies of information (Weisburd and Lum, 2005). The increase in crime in the 1970s, along with a number of studies suggesting that traditional criminal justice practices may not work in reducing crime (see Kelling et al., 1974; Lipton et al., 1975; Martinson, 1974; Spelman and Brown, 1984), all pushed police towards considering other approaches, in particular more preventative or proactive ones. The preventative approach suggested that law enforcement agents should be more proactive in their

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<sup>2</sup> See <http://www.nyc.gov/html/nypd/>

<sup>3</sup> See <http://mpdc.dc.gov/mpdc/cwp/view,a,1238,q,555159.asp>

<sup>4</sup> See <http://www.crimestoppers.org/>

<sup>5</sup> See <http://www.amw.com/>

patrol and investigative strategies, taking action before crimes occur and deterring would-be offenders. Being proactive required predicting where, when, why, and how crimes would occur in the future, all of which required the collection and analysis of information in ways that extended beyond the case-by-case approach. Furthermore, the community oriented policing movement, which took hold in the 1980s, expanded the role of citizens to function as both consumers and suppliers of crime information and to participate as active partners in crime prevention efforts (see Greene and Mastrofski, 1988; Rosenbaum, 1986; Seagrave, 1996).

While it would be overly optimistic to suggest that law enforcement agencies in the United States have generally adopted these proactive and preventative approaches (indeed the professional, reactive model is still dominant), both rhetoric and thinking about policing have certainly suggested some paradigmatic change. Herman Goldstein's influential work on problem-oriented policing (1979; 1990) as well as a number of empirical tests on crime "hot spots" (see Sherman et al., 1989; Sherman and Weisburd, 1995; Weisburd and Green, 1995), problem oriented policing strategies (Braga et al., 1999) and situational crime prevention (Clarke, 1983; 1992; 1995) have all supported the idea that responding reactively to individual incidents can be an inefficient and ineffective use of police resources. These works assert that it is not only information about an individual case that is important to law enforcement, but that the information derived from the combination or analyses of these incidents is just as crucial in developing effective strategies to reduce and prevent crime. There has also been an increased use of computerized crime mapping and statistical crime analysis (Weisburd and Lum, 2005) as well as new information technologies to help collect and manage large amounts of information.

With regard to tip lines, the tip-by-tip system mentioned above can no longer be viewed as the only (or best) approach in solving crimes given what we know about the effectiveness of more proactive approaches. Combining, analyzing, and processing tips, as well as connecting tips with other types of information (criminal histories, motor vehicle records, ATM or credit card data) in order to gain further understanding of underlying patterns, trends, and other types of intelligence follows naturally from the proactive, preventative policing model. It is on this premise that the project is based.

## 1.2 THE TIP LINE TECHNOLOGY PROJECT

In the context of this recent emphasis on information in law enforcement (also due to a large number of high-profile events), tip line technology has become an important focus of police agencies as a primary data collection tool in both critical incidents and everyday concerns. However, there has been little research or policy development in this area; both federal and local police agencies have adopted or created tip line technologies and processes on a limited, ad hoc basis. To develop a more comprehensive understanding of the utility of tip lines as well as to create practice-informed protocols and technologies to optimize law enforcement agencies' ability in obtaining information from the public during critical incidents, the Department of the Navy's Space and Naval Warfare Systems Command Division (SPAWAR)<sup>6</sup> directed funds allocated by the National Institute of Justice to improve tip line technology. The general goal of this project is to develop operational protocols and the information technologies necessary to

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<sup>6</sup> See <http://enterprise.spawar.navy.mil/> .

facilitate the immediate collection and analysis of information in crucial or “high-intensity” incidents which demand a quick resolution.

The project is divided into three phases over a two-year time period. In Phase I, we assessed both theoretical and practical needs for improving tip line use through a number of activities, including reviewing existing knowledge about information, information technology, tip lines, and information-driven deployment in policing, as well as interviewing and surveying law enforcement officials about their use of tip line technology. During this phase, we determined how tip lines fit into the overall function of law enforcement, what types of crimes, investigations, public relation interests, or administrative purposes they serve, how effective tip line use is in obtaining desired outcomes, and whether tip line technology and protocol can be improved to increase the chances of successful investigations and/or crime prevention efforts. To better inform our protocol and technology development planned for Phase II, we explored in Phase I tip line use in the U.S. through a broad survey as well as examined three specific cases of tip line use. The Phase I deliverables are outlined below.

#### **PHASE I DELIVERABLES**

- Research existing literature and develop a knowledge base and theoretical context for the justification of improving tip line information technology.
- Conduct a nation-wide random sample survey to assess the state of tip line use in police agencies.
- Develop working relationships with federal and state/local police agencies to garner assistance in understanding law enforcement needs during critical incidents with regard to tip lines, obtaining sample data, creating protocol and technology, and testing technology.
- Conduct site visits and interviews of specific agencies in order to document tip line technology use to better inform the development of protocol and technology in Phase II.
- Broadly research other types of tip line technology products.
- Begin collecting information and ideas on how to incorporate other sources of information into the operationalization of tip line data including criminal records as well as non-crime databases.
- Envision a hypothetical situation and protocol to guide our efforts in Phase II.
- Complete an Executive Summary and Final Report for Phase I.

Phase II will be devoted to creating the actual tip line protocol, analyzing sample data in order to anticipate analytic functions needed, and developing the software to be used for this project. More specifically, deliverables during Phase II are:

#### **PHASE II DELIVERABLES**

- Develop a protocol workbook (which will be tested in Phase III) informed by the project findings to assist law enforcement in their preparation and response to incidents using tip line technology.
- Determine, create, and test collection interfaces for telephone, internet, and email tip lines.
- Review and conduct cost-benefit and market analysis of multiple technology systems that can accommodate law enforcement needs with regard to tip line processes.
- Test different types of analysis on sample data (geographic, statistical, pattern, modus operandi, trend) as well as search strategies (key word, SQLs) to determine types of analysis that might be useful. Also, determine how these analytic functions can be incorporated into information technology.
- Continue information sharing sub-project by creating guides for the final protocol workbook as well as incorporate guides into technology. These guides will suggest to agencies multiple databases by which to connect to (e.g., motor vehicle, local and federal law enforcement, telephone, credit card and bank companies, and other sources of information).
- Secure test cases for Phase III.
- Complete an executive summary and final report for Phase II.

Finally, in Phase III we anticipate testing both the protocol and technology either in simulated or real law enforcement situations. Ideally, we hope to develop working groups with our three law enforcement contacts to test protocols and technologies before using them in a real situation. This will allow us to refine and evaluate the protocol and technologies before actual use. During Phase III we will also finalize a protocol workbook for law enforcement to both prepare for and respond to incidents using tip line technology.

This report details the specific activities of Phase I of this project (January through May, 2005), which generally sought to better understand the current state of tip lines in law enforcement, understand their uses in specific cases like the Sniper incident in Montgomery County, Maryland, and to create a foundation for thinking about developing tip line technology and protocols (Phase II). The next section reviews what is known about the use and usefulness of information in policing, exploring both the theoretical and technical support for tip lines.

Sections 3, 4, and 5 report our findings on the current state of tip line use in the U.S., both from knowledge gained by our broad survey of tip line usage as well as from our in-depth interviews. Finally, Section 6 discusses our findings and outlines the next steps for our project.

## **2 SUPPORT FOR TIP LINE TECHNOLOGIES: WHAT DO WE KNOW ABOUT INFORMATION, INFORMATION TECHNOLOGY, AND POLICING?**

Given these goals for this tip line project, we begin by exploring whether improving tip line protocols and related technologies are worthwhile endeavors in theory and in practice for policing. In particular, can the use of improved information technologies help to achieve sought-after outcomes such as the reduction in crime or the resolution of cases? The use of information per se does not necessarily mean better outcomes will be achieved; police have used information in the past often with very little success in either decreasing crime or solving cases. Rather, the critical question is what types and uses of information and information technology can lead to more optimal outcomes for police.

To explore the effectiveness of information technologies and the use of information in policing, a variety of existing knowledge bases are helpful in providing both a theoretical and practical context. We know that evaluation research of police strategies has suggested that preventative, proactive policing approaches work better in reducing crime than those that are reactive (see Eck and Maguire, 2000; Sherman et al., 2002; Skogan and Frydl, 2004). We also know that these preventative approaches require an ability to accurately predict when, where, how, and even why crimes might occur. In turn, accuracy and efficiency in these predictions rely on the use and analysis of information and intelligence from multiple events to gauge and predict future patterns and trends. In theory, these predictions then guide police to the most optimal, effective strategies. From this line of logic, it seems that improving information technologies can have important impacts on crime prevention policy.

However, while these connections between information, prediction, and prevention appear logical (and perhaps because of this), there is little research that theorizes or empirically explores whether the use of information can actually lead to measurable crime prevention or case clearance outcomes. Evaluation research of crime prevention programs has generally focused on the effects of the programs themselves, and not necessarily on whether the information technology used to facilitate or develop these programs helped achieve that effectiveness. In many instances, the use, analysis, and exchange of information is either taken for granted as a technical part of a crime prevention program or it is assumed to have little intrinsic value without the actual deployment. For example, a researcher or practitioner may wish to assess whether hot spot policing (directed patrol) is effective in reducing crime in specific areas (for example, see Braga, 2001; Sherman and Weisburd, 1995). He or she determines that it is the deployment (i.e., hot spot patrol), not the information or information technology (i.e. maps generated by geographic information systems which indicate crime clustering) that helped achieve the

outcome sought (crime reduction). Similarly, the creation of a process to record information about police traffic stops is not viewed as the key to reducing racial profiling among police. Rather, a change in the deployment, a training module or directive, or a direct command from the commissioner may be seen as the reason police change their ways. From a tip line perspective, a tip which leads investigators to the perpetrator is viewed as having helped solve the case, not the tip line protocol, process, or analytic outputs.

However, in these and other instances, it may be the information and the information technology that is more central in achieving outcomes than is generally understood or acknowledged. Intelligence generated by the processing of information can have a powerful effect on making deployment more efficient, logical, feasible, or politically acceptable. For example, Weisburd and Lum (2005) suggest that the diffusion of computerized crime mapping, a geographic information technology used to generate hot spots for directed police deployment, was central in the adoption of that deployment strategy. Manning (1992a), in his discussion of technological development in policing also points out that information technologies drive management and operational decisions for deployment and proactive strategies. And, Weisburd et al. (2003a) in a review of the managerial strategy employed by the New York Police Department (COMPSTAT) details how information and analysis play a central role in the COMPSTAT meetings and the deployment associated with this managerial strategy (see also Kelling and Sousa, 2001).

While the literature is not unified with regard to how the use of information by criminal justice agencies can lead to reductions in crime, there are a number of areas that provide a foundation and justification for why improving information collection, analysis, processing, and use by police may help improve police deployment effectiveness. These include problem-oriented policing, evidence-based policing, crime analysis, information technology, and multi-jurisdictional information collection and sharing.

## **2.1 PROBLEM-ORIENTED POLICING**

The concept of problem-oriented policing, introduced formally by Herman Goldstein (1979; 1990) was most likely the first structured framework to place the use, analysis, and collection of information at the center of an organized police deployment strategy. Goldstein hypothesized that police could be more effective when structuring deployment around the determination of problems through the analysis, combination, and recognition of the interrelationship of individual crime incidents. He argued that police need to look beyond the individual crime incident and determine the relationship between multiple incidents to discern community concerns and underlying causal processes and problems. Goldstein believed that these problems and patterns, not just individual incidents, should drive police decision making. To gain this knowledge about problems, information gathering and analysis must take center-stage in law enforcement functions.

The centrality of information in problem-oriented policing can best be articulated through Eck and Spelman's (1987) acronym "SARA", which describes this problem-oriented process. Respectively, SARA stands for "Scanning", "Analysis", "Response", and "Assessment". Scanning involves both the physical observation of crime-related problems, as well as the search for sources of information from which problems may be derived. Within the problem-oriented

model information can come from a variety of places. Patterns can be discerned from the analysis of large data banks, such as computerized records of crime reports or 911 dispatches, or from citizens and community groups through informal processes such as surveys, tip lines, or community gatherings. The scanning process of problem oriented policing has elements of the older community-oriented policing model (see Kelling and Moore, 1988; Skogan, 2004; Tilley, 2003), in that citizens are viewed as important suppliers of information. Researchers have emphasized that exchanges of information between the public and the police can be helpful to police deployment and function (Bullock et al., 2003; Eck and Tilley, 2002; Spelman and Eck, 1987). While seemingly logical, scanning reflects a radical departure from the reactive or “professional” policing model. The police no longer passively wait to be notified of a crime that has already occurred but instead take an active role in gathering information about problems to anticipate the future occurrence of crimes.

The next step of the SARA model is analysis. Rather than only examining individual cases for autonomous merit, the problem-oriented model emphasizes combining incidents through analyzing and manipulating<sup>7</sup> the information to determine latent patterns and trends not evident from examining an individual incident or even “eye-balling” large amounts of data. Analysis can take a wide variety of forms such as quantitative statistical analysis or ethnographic and contextual analysis (Lum, forthcoming). Although we could not locate a specific study that evaluates whether the analysis of information can lead to the reduction of crime, there are a number of examples which allude to this and which will be discussed in more detail in the section below entitled “Crime Analysis”. Again, this facet of problem-oriented policing sharply departs from the traditional policing model. The importance of analysis suggests that intelligence from individual pieces of information is not completely adequate in understanding or responding to crime problems, and what may be equally (if not more) important is the combination of that information.

The response step of SARA also emphasizes the centrality of information in the problem-oriented approach. Goldstein argued that responses should not be based simply on deployment options that have traditionally been used in the past or on anecdotal information. Again, while this might seem commonsensical, current practice police tends to rely on hunches or tradition to guide deployment and not necessarily on accurate and current information or intelligence (Eck and Spelman, 1987; Manning, 1992a; Sherman, 1998). A problem-oriented response is one specifically tailored to the information which was gathered and analyzed in reference to the problem. Sherman (1998) takes this approach one step further by adding that the chosen response must either have scientific support for effectiveness or be evaluated to determine effectiveness. In a problem-oriented response, the information collected and analyzed is used to guide police decision making, and therefore becomes part of the deployment strategy.

Finally, the centrality of information in police deployment is emphasized in the assessment step of SARA. Assessing the effectiveness of a strategy is also a major departure from the reactive professional model of police. In the reactive model, the legal and procedurally correct arrest of the individual is seen as the successful end to a police deployment process. Thus, police officer productivity is often measured by the number of arrests made or citations

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<sup>7</sup> The term “manipulating” is not intended to have a negative connotation here. Rather, it refers to any rearranging of the data through statistical, analytic, or database processes that provide information on trends within the data. For example, arranging the locations of crimes on a map would be a geographic manipulation of crime incident data.

given. In the problem-oriented model, deployment (and measures of productivity) may go beyond individual arrest strategies. Assessment could involve a determination of whether crime declined in a targeted area, or whether citizens felt safer or more satisfied with police services. The problem-oriented model suggests that when using information to assess the effectiveness of programs, police can be more effective because they will know which programs to retain, modify, or discard.

The problem-oriented policing model emphasizes that when information is used throughout a deployment process, police can be more effective. Thus, effective problem-oriented strategies point to the effectiveness of this information-centric process. The few empirical tests of problem-oriented policing show that there may be promise to this hypothesis. Eck and Spelman (1987) evaluated problem oriented policing in Newport News and found that problem-solving efforts led to declines in burglaries, robberies, and theft. Sherman et al.'s (1995) Kansas City Gun Experiment illustrated how police deployment to targeted problem hot spots could lead to reductions in gun crimes. Additionally, Braga et al. (1999) conducted a randomized experiment evaluating Jersey City's problem-oriented policing strategy and found significant reductions in calls for service and crime incidents as a result of problem-oriented policing.

These studies suggest that problem oriented policing is a promising approach to decreasing crime and that the use of information collection and analysis can be effective (and central) in facilitating this approach. By moving away from the traditional case-by-case approach in the use of crime information, problem-oriented policing emphasizes combining and analyzing information for use in deployment. This also naturally suggests that improving technologies, protocols, and processes that facilitate information collection, analysis, dissemination, and operationalization (like tip lines) also can improve police function. Goldberg (2004) and Sheptycki (2000) also assert that the use of intelligence-led policing strategies and intelligence systems can lead to the more efficient use of resources, although more is needed on the evaluation of this specific technology system (Manning, 2001).

## **2.2 EVIDENCE-BASED POLICING**

Another theoretical foundation that centralizes the role of information in effective police practices is known as evidence-based policing (Sherman, 1998). The term "evidence-based" in the context of any type of practice (policing, medical, psychological, rehabilitative) suggests that decisions about how to best treat individuals, places, or situations, require the use of programs that have been shown to be effective in obtaining desired outcomes (Petrosino et al., 2001; Sherman, 2003; Weisburd et al., 2003b). Program effectiveness is determined by collecting information about desired outcomes of programs and then scientifically testing whether these outcomes are linked to the program. These tests may include randomized controlled experiments, often viewed as the best approach in testing the effectiveness of programs (Boruch et al., 2000; Burtless, 1995; Cook, 2003; Weisburd, 2000; 2001), or other designs which have varying levels of internal and external validity (see Cook and Campbell, 1979).

While much of the emphasis in evidence based policy focuses on what types of scientific tests and evaluations can best determine program effectiveness, inherent in this perspective is the importance of information collection and analysis of outcome measures. As Lawrence Sherman

initially advocated (see Sherman, 1998), “[e]vidence based policing is the use of the best available research on the outcomes of police work to implement guidelines and evaluate agencies, units, and officers (Sherman, 1998:3).” Sherman was not only advocating the use of knowledge from methodologically rigorous evaluations by researchers to guide police decisions, but he was also suggesting that evidence-based policing should involve “ongoing evaluation research about the results each unit is achieving by applying (or ignoring) basic research in practice” (p. 4). In other words, police should make a regular practice of using all available information in order to make decisions about deployment options and to assess their own productivity.

Sherman wrote this influential piece in light of a number of information-based innovations in policing, including computerized crime mapping, COMPSTAT (a managerial and deployment operation used by the New York City Police Department which used crime statistics and computerized mapping to target deployment), and discussions of community- and problem-oriented policing, all which highlighted how the use of information could improve police practice. Generally, Sherman was advocating placing information at a more prestigious and central position in policing, intending it to be used for the assessment of both programs and personnel, as well as to better target police deployment.

Like problem-oriented policing, evidence-based policing suggests a new perspective with regard to the use of information in policing that goes beyond examining information related to a specific crime for the sole purpose of clearing a case. In evidence-based policing, crime information is combined and analyzed to evaluate programs as well as the productivity of personnel. Thus, it not only contributes to determining better responses in the SARA process, but also emphasizes the need to collect information for the purpose of guiding decisions and assessing effectiveness. Like problem-oriented policing, evidence-based policing also indirectly suggests that improvements in information collection technologies and more scientifically rigorous analysis are important mechanisms in improving police effectiveness more generally.

### **2.3 CRIME ANALYSIS**

Problem-oriented and evidence-based policing provide theoretical and conceptual foundations and hypotheses about the role that information, analysis, and related technologies can play in improving the deployment effectiveness of police. However, one increasingly popular practice, the use of crime analysis, has also generated exercises that emphasize how the manipulation and analysis of information may yield important patterns, trends, and clues that would not have been noticed by examining individual cases. Although Lum (forthcoming) suggests that crime analysis is essentially any type of statistical analysis differentiated only by the subject matter, it has emerged as an important and recent policing tool nonetheless (see generally, Block et al., 1995; Goldsmith et al., 2000; Hirschfield and Bowers, 2001; LaVigne and Wartell, 1998; 2000; Weisburd and Lum, 2005; Weisburd and McEwen, 1997). Crime analysis has commonly been used in such prevention measures as hot spot (or directed) patrol, situational crime prevention, or other problem-oriented policing deployment strategies. Additionally, many criminologists have also employed crime analysis to study research questions (see e.g., Cohen and Tita, 1999; Downey, 2003; Messner et al., 1999; Ratcliffe, 2002; Sherman and Weisburd, 1995).

Crime analysis is relevant to this project not only in the context of its use in problem-oriented and evidence-based policing, but also in providing a component in tip line processes that is often underutilized or missing. For example, the common approach we found in police use of tip line information is for officers to record a tip (usually by hand) and then follow up on individual tips using a tip-by-tip investigative approach. Tips are chosen for follow-up based on an informal prioritization system where tips perceived to be important by the reviewer are investigated. The hope, it seems, is that there will be one tip that will lead to the resolution of the case and that this approach can help locate that tip. Yet, problem-oriented and evidence-based policing suggests that important information might also be gleaned from analyzing tips for underlying patterns and trends using a more advanced, non-manual system. Crime analysis techniques have helped to facilitate these goals.

There are a number of crime analysis techniques that might prove useful to integrate into a tip line protocol and technology that are already used to study other types of crime. For example, the location of an individual auto theft may prove useless for the development of preventative strategies to reduce auto thefts. However, a map, which shows all of the recent auto thefts in an area, may help police target certain streets or parking lots that are more prone to theft. A similar analytic manipulation could have been applied to the Sniper Case. As tips were coming in on the possible vehicle location of the snipers immediately following a shooting, these locations could have been mapped to better target road blocks and patrol vehicles. Or, the knowledge that one juvenile delinquent resides in an area may not provide police with enough information to reduce juvenile delinquency in a neighborhood, but a network analysis on co-offending among juvenile delinquents may help to better understand friendship or gang networks that are criminogenic. With regard to the Sniper Case, as Glenn Pierce has asserted,<sup>8</sup> the suspects were also a part of information and relationship networks that could have been analyzed using existing information technologies and databases to at least reduce the geographic or social space in which to target search efforts.

There are many other examples crime analysis that might be useful in obtaining the most information possible from tip data. For example, Ratcliffe (2002) has demonstrated a crime mapping technique that uses police start and end crime times to generate a crime occurrence probability map. In his study of crime hotspots in Sydney, Australia, he showed that these areas often have very different temporal patterns which logically suggest hot spot policing should also be sensitive to time. Warren et al. (1998) analyzed a sample of 108 serial rapists to examine the relationship between demographic, crime scene, criminal history variables, and their distance traveled to offend in order to better determine how and where serial rapes are most likely to occur. Kennedy et al. (1997) used crime analysis and mapping in Boston to uncover the extent of the youth gang problem and reveal gang relationships in high crime neighborhoods. Numerous examples of crime analysis techniques can be found in Block et al.'s (1995) *Crime Analysis Through Computerized Mapping*, Goldsmith et al.'s (2000) *Analyzing Crime Patterns: Frontiers of Practice* and Weisburd and McEwen's (1997) *Crime Mapping and Crime Prevention*, to name a few.

There is also indirect evidence that crime analysis can lead to reductions in crime and improved police efficiency. The strongest examples are presented in hot spot policing where geographic crime analysis has been regularly used to generate the crime hot spots to where

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<sup>8</sup> Personal communication to the principal investigator on February 17, 2005.

police are deployed (Braga, 2001; Sherman et al., 1989; Sherman and Weisburd, 1995). In a recent National Academies of Science panel, the top policing experts in the United States found that hot spot policing was the police practice best supported by evidence of effectiveness (see Skogan and Frydl, 2004). And, Weisburd and Lum (2005) found that the primary reason police agencies gave for adopting crime mapping and analysis was to facilitate hot spot policing. Moser (1995) more directly studied the usefulness of crime mapping in reducing lethal street violence and homicide in Peoria, Illinois. The study found that the use of crime mapping helped increase police presence in dangerous areas and subsequently reduced violence within those areas.

These examples of crime analysis provide practical indications of how the increase in the systematic collection and analysis of information can improve police deployment efforts. With regard to tip lines, these examples of crime analysis suggest that the tip-by-tip approach in using tip data is a limited approach in using information gathered.

## 2.4 INFORMATION TECHNOLOGIES

Information technology, as Manning (2001) describes, “encompasses the means by which data (raw facts as recorded) are transformed into information (data now placed in some context with a purpose), stored, analyzed, and retrieved.” (p. 84) More generally, the term refers to systems which collect, store, analyze, transmit, or disseminate data and information (see also Manning, 1992b; Nogala, 1995). While information technology often is in computerized form, it can encompass any information system, including manual ones. For example, in the Sniper case, tips were hand-writing on pieces of paper and then driven or faxed to another location for processing. While this might not be the most optimal use of resources, it is an information system nonetheless.

While specific tip line information technologies will be discussed in Section 5, policing already uses a variety of information technologies. The most common is the 911 emergency computer aided dispatch system, which records information about calls citizens make to the police and helps disseminate calls to appropriate personnel. Information technology can also be used as a tactical tool for identifying and apprehending criminals, and can enhance community policing efforts (Nunn, 2003). For example, the Integrated Automated Fingerprint Identification System (IAFIS) can identify suspects from various databases in a matter of minutes (Pilant, 1998) and is used in the investigation of cases.

The important question for this project is whether improving information technology can also improve police effectiveness. Pierce and Griffith (2005) and Seaskate (1998) argue that the use of information technologies in law enforcement agencies can improve the efficiency and effectiveness of processing information and performing law enforcement operations. Computers have the capability to improve the mobility of officers, decrease report writing time, and facilitate background checks in the field (Manning, 1992a; Seaskate, 1998). Faggiani and McLaughlin (1999) found that the increased use of the National Incident-Based Reporting System (NIBRS) provided law enforcement more incident-related detail than previously available and allowed for communities to compare crime patterns and enhance policy development and planning.

However, more research on the effectiveness of information technology is needed. For example, while Fetherston (1977) found that computer-aided dispatch (CAD) decreased police response time when a call for service is received, the effects of increased response time on decreasing crime or solving cases is questionable (Spelman and Brown, 1984). Furthermore, the effectiveness of information technologies can also be limited if not managed properly (Associated Public Safety Communications Officers, 1976; Department of Justice, 2002; Hickling-Johnston Limited, 1982). For example, in Dearstyne's (2003) discussion of the Sniper Case, he notes that law enforcement has not been able to make the most of database management because of their inability to access, process, and disseminate information. For tip lines, information technology can replace manual functions such as writing tips down on paper, driving/faxing tips from one location to another, triaging or flagging tips for priority, analyzing tip information, and even disseminating tips for deployment.

## **2.5 MULTI-JURISDICTIONAL INFORMATION COLLECTION AND SHARING**

Yet another conceptual area that supports the hypothesis that improvements in information collection and analysis can increase the effectiveness of police is research on multi-jurisdictional information sharing technology and strategies. Most law enforcement agencies have treated information technologies as isolated systems operating within their own jurisdictions. However, as the sniper incident illustrates, crime is often a multi-jurisdictional problem and agencies have had to adapt to this changing environment by finding ways to connect, communicate, and share knowledge with one another (Buslik and Maltz, 1997; Department of Justice, 2002; Geddes et al., 1998; International Association of Chiefs of Police, 2000; James and Russo, 2002; Loyka et al., 2005; Taxman and McEwen, 1997). The use of multi-jurisdictional information collecting and sharing technologies can help facilitate these endeavors.

The need for data and intelligence sharing and coordination is especially acute in critical incidents. Law enforcement agencies can go from a low level of activity into a critical incident with very little warning, and often must be immediately prepared to collaborate with other agencies (Ashley, 2003). Here, events and/or suspect movement regularly extend across boundaries, which may require a multi-jurisdictional information collection approach (Taxman and Bouffard, 2000). Information collection processes like tip lines that work easily across jurisdictions may prove helpful.

There has been some research which points to the usefulness of systems which accommodate multi-jurisdictional information collection and sharing. Taxman and McEwen (1997) examined interagency work groups that develop and implement crime control policies. These groups were comprised of law enforcement, businesses, community organizations, and non-governmental agencies who worked together using tools such as computerized crime mapping to target crime-prone areas. Through collaboration and sharing information, these workgroups were better able to develop strategic plans and new initiatives to combat the issue at hand. Taxman and McEwen (1997) found in various case studies that work groups could reduce problems such as drug trafficking, social disorder, and prostitution. Taxman et al. (2002) also evaluated a drug treatment model used by HIDTA (High Intensity Drug Trafficking Areas), a

multi-jurisdiction work group which focuses on drug enforcement. Although the study had methodological limitations, they found some promise to a multi-jurisdictional approach.

There are a variety of information sharing systems in existence. One of the most commonly used systems is the National Crime Information Center (NCIC) which was developed in 1967. NCIC is an online computer database system managed by the FBI that contains criminal justice documents and information ranging from wanted persons and criminal histories to information about stolen property. NCIC expands across almost all U.S. jurisdictions and serves as an information sharing tool for federal, state, and local agencies. It has also been suggested to be a useful tool in the resolution of criminal acts (Bureau of Justice Statistics, 2001; Hitt, 2000). Other examples include such systems as COPLINK and NLETS (Correll, 2004; Slaski and Coleman, 2003). COPLINK has been designed to allow diverse police departments to share data seamlessly through an easy-to-use interface (Chen et al., 2003).

Despite the potential of multi-jurisdictional information sharing schemes, information sharing and agency collaboration can be difficult, both within and between agencies (Pierce, 2001). One obstacle to information sharing is the culture of secrecy often found in police agencies, as well as interagency disputes over who receives the credit for a successful investigation (Manning, 1992a). This need for secrecy and control over a case may be a barrier to successful communication between agencies in a multi-jurisdictional case. Ashley (2003) critiques the value of both established and proposed approaches to this problem, and discusses the difficulties in multi-jurisdictional information sharing during critical incidents. Information sharing can also pose unique problems for the security of data.

Knowledge about information sharing further justifies the importance of improving information collection and analysis systems. Tip lines are often used in situations that extend beyond single organizations or geographic locations, and improving these types of data collection may include freeing information from artificial boundaries that might limit its capacity to create effective strategies. In the sniper case, it was later discovered that the suspects appeared in numerous other organizational databases across multiple geographic areas, emphasizing the need for information sharing and multi-jurisdictional information collection. Tip line systems can provide an easy multi-jurisdictional information collection and analysis technology, rather than attempting to integrate existing systems.

## **2.6 CONCLUSION**

While there is little direct evaluation of the effectiveness of information collection, analysis, sharing, and technologies, this review suggests that the use of information can often be central in the effectiveness of police deployment. In particular, the systematic use, combination, and analysis of information can facilitate targeted deployment strategies in a proactive, preventative approach which can lead to promising outcomes. Each of these areas of research and practice move away from the case-by-case (or tip-by-tip) approach in collecting crime information to a more analytic approach by which information is quickly collected, aggregated, and manipulated to obtain underlying patterns or trends for either deployment or evaluative purposes. Current tip line processes that focus on data management (recording of the individual tip and then recording what was done with that individual tip) and that ignore other analytic

approaches and use of the information technologies seem inadequate in terms of obtaining successful outcomes.

Overall, both research and practice suggests that improving information collection, analysis, and dissemination systems can be worthwhile endeavors in achieving outcomes such as crime reduction, case clearance, and crime prevention, especially in the context of problem-oriented and evidence-based policing. As the use of tip lines becomes increasingly popular and widespread, our review points to the importance of improving them. What then is the current state of tip line usage and technologies in the United States and how might they be improved? In the next sections, we describe our findings from our survey and case studies of the current state of tip line use and technology in the United States. Our findings indicate that both a protocol and a technology, as well as a change in law enforcement mentality about the functions and purposes of tip lines are needed to operationalize an effective tip line process for critical events.

### **3 THE CURRENT STATE OF TIP LINE USE AND TECHNOLOGY IN THE U.S.: A BROAD SURVEY**

While the knowledge base described in the previous section creates a theoretical and practical background and justification for the project, we also sought to more specifically understand the current state of the use of tip lines in the United States to better inform our project goals. In many ways, the extent of tip line usage in the United States is elusive knowledge. Tip lines can be formal or informal, created on an ad hoc basis for specific incidents, be established over a longer period of time, used for specific or general incidents, or may be integrated into existing information technologies, such as computer aided dispatch (911) systems. To assess the need of law enforcement agencies with regard to tip line technologies and protocols, an empirical understanding of tip lines in the United States is needed.

We approached this understanding in four ways during this phase of our project. First, we conducted an informal search of newspaper articles through the Lexis Nexis Search engine to obtain examples of the contexts of tip line use. We then randomly sampled 100 U.S. police agencies about their knowledge and utilization of tip line technologies. The results of both of these endeavors are presented in this section. We then analyzed three specific cases of operational tip lines by conducting numerous site visits and interviewing those involved in creating and using tip line processes. This more in-depth analysis of tip line use helped us gain a better understanding of law enforcement protocol and technologies related to tip lines and to assess needs for Phase II projects. Finally, we examined other tip line technologies that we came across in our broad survey that are commonly used by law enforcement agencies.

#### **3.1 EXAMPLES OF TIP LINE USE**

Our informal search of publicized tip lines through newspaper mediums revealed a number of interesting findings. Using the Lexis Nexis Search Engine, we collected information

about publicized tip lines from January 2000 to January 2005 and found articles referencing 191 distinct tip lines. Eighty-five percent of these tip lines were established by state and local law enforcement agencies, 12% were sponsored by non-law enforcement organizations, and 3% by the FBI. As Table 1 indicates, these publicized tip lines were used for a variety of different crimes and situations.

Table 1. Tip line applications (2000 – 2005) as reported in national news sources

<b>Crime Type</b>	<b>N</b>
Homicide	46
Crime Stoppers	26
Burglary/Robbery	17
Drugs	15
School	15
Missing Persons	11
Sexual Assault	11
Arson	10
Assault	6
Terrorism	6
Whistleblower	6
Alcohol	4
Weapons	4
Vandalism	3
Animal Violations	2
Gang	2
Immigration	2
Bomb	1
Election	1
Poison	1
Tax Fraud	1
Traffic	1
<b>Total</b>	<b>191</b>

Detailed below (Table 2) are examples of cases from this search. Although the crime types, agencies, and level of success vary depending on the situation, each example illustrates the importance that police place on obtaining citizen information in hopes of a quick case resolution. However, these examples highlight the difficulty in ascertaining how tip lines were used and whether the tip line process contributed to the successful resolution of the case. Furthermore, these examples illustrate the ad hoc and often unsystematic nature of tip line processes. In many cases, multiple tip lines were established, some by law enforcement authorities and others by private citizens or organizations. Although these descriptions do not provide information on the actual tip line processes (this will be done in Section 4), they do provide a contextual framework about the types of crimes and situations in which tip lines are established.

Table 2. Examples of incidents in which a tip line was used.

Name of Incident	Agency who set up tip line, Agency in charge	Number of Tips	Suspect Name	Suspect Caught?	Time to Capture	Summary
1. North Carolina Abortion Clinic Bombing (1999)	ATF, SAME	UNK*	UNK	No	n/a	On March 13, 1999, an explosion occurred at the Femcare Clinic in Asheville, NC. No injuries occurred because the bomb did not fully detonate. The ATF publicized a tip line where citizens could call to provide information about the case. The ATF will not publicize how many tips they have received or the nature of the information from the calls.
2. Baton Rouge Serial Homicides (1998 – 2003)	Baton Rouge PD, Multi-agency Task Force	Over 24,000	Derrick Todd Lee	Yes	6 years	DNA evidence has linked Derrick Todd Lee to the serial murders of seven women from 1998 to 2003. Lee was convicted of first-degree murder and sentenced to death in December 2004. Prior to his arrest, electronic billboards in the area posted up-to-date information about the murders in the hope that the public would call in tips to the tip line. Over 24,000 leads were followed up on in the case. Once Lee was a suspect in the case and was believed to be in Atlanta, citizens were asked to call the Georgia Bureau of Investigation.
3. Christa Worthington Homicide (2002)	Truro PD, SAME	UNK	Christopher McGowen	YES	3 years	46 year-old fashion writer Christa Worthington was found murdered in her Cape Cod home with her 2 1/2 year-old daughter at her side, unharmed, on January 6, 2002. Friends and family raised \$25,000 for information leading to the conviction of the murderer, and had planned to set up a tip line, but it is unclear whether or not this ever happened. At the same time, the police were asking citizens to call the Massachusetts State Police Detective Unit with tips. This case was a joint effort by Massachusetts State Police, the Truro Police Department, and the Cape and Islands District Attorney's office. Christopher McGowen was arrested for Worthington's murder the week of April 11, 2005.
4. Edward Morris Homicides (2002)	Tillamook County Sheriff, SAME	330	Edward Morris	YES	14 days	Edward Morris murdered his pregnant wife and three children on December 20, 2002. Because he was the primary suspect, his car and license plate number were publicized immediately and numerous tips regarding sightings of the vehicle were recorded. After America's Most Wanted aired the story, about 50 calls came in related to the case. It is unclear how many total calls were made to the tip lines. A tipster reported Morris' whereabouts on January 4th. He was caught on January 4, 2003, convicted, and sentenced to life in prison. The FBI, the Oregon State Police, and the Tillamook County Sheriff's Office were all involved in this case.

5. Jonathan Luna Murder (2003)	FBI, SAME	1000+	UNK	NO	n/a	Jonathan Luna, a federal prosecutor was found dead on December 4, 2003 in a shallow creek in rural Lancaster County near Washington, D.C. He had 36 stab wounds on his body. The FBI is offering a reward for information regarding the case.
6. Laci Peterson Murder (2002)	Modesto PD, SAME	10,000+	Scott Peterson	YES	4 months	Laci Peterson, at eight months pregnant, disappeared on December 24, 2002. Her body was found in the San Francisco Bay on April 18, 2003. Her husband, Scott Peterson, was convicted and sentenced to death. Scott Peterson's family initially set up a tip line, however, the police eventually established their own and asked the family to transfer any calls they received to the police tip line. Authorities have claimed that no credible information was ever received on this tip line.
7. Oklahoma City Bombing (1995)	FBI, SAME	10,000	Timothy McVeigh and Terry Nichols	YES	1 ½ hours	Timothy McVeigh and Terry Nichols bombed the Oklahoma City Federal Building on April 19, 1995, killing 168 people. The FBI established a toll-free tip line immediately after the bombing at the FBI Washington DC field office. Many of the tips received were considered worthless by the FBI and McVeigh was eventually caught in a routine traffic stop. Because other accomplices were sought, the tip line continued to receive tips about possible suspects. Terry Nichols was later found, arrested and convicted on December 23, 1997. It is uncertain if the tip line process contributed to his capture.
8. Olympic Serial Bomber (1996)	FBI, SAME	900+	Eric Rudolph	YES	7 Years	Eric Rudolph, 36, a former soldier, was charged with the 1996 bombing that killed a tourist and injured 111 people at Atlanta's Centennial Olympic Park, the 1997 bombings of an abortion clinic and a gay nightclub in Atlanta that caused property damage but no deaths, and the 1998 Birmingham, Alabama abortion clinic bombing that killed an off-duty police officer. Rudolph was arrested on May 31, 2003. The FBI field office in Norfolk, VA set up a web page to receive tips about the incidents and also received approximately 900 calls on its tip line after the Olympic bombing. It is unclear how many tips were received in relation to the other incidents or whether these tips led to the successful arrest of Rudolph.
9. The Washington, DC Sniper Case (2002)	Montgomery County PD and FBI, SAME	100,000 +	John Allen Muhammad and John Lee Malvo	YES	22 days	On October 2, 2002, two snipers began terrorizing the DC metro area, killing ten people and injuring three. A tip line was set up on Friday, October 4, offering a reward totaling \$500,000. The FBI took over the case seven or eight days later, set up their own tip line at the Washington, DC field office, and used their Rapid Start program to process tips. Over 100,000 tips were called into the system. On October 24, 2002, John Allen Muhammad and John Lee Malvo were arrested in a parking lot off I-70 in Frederick County, MD after a truck driver reported seeing them sleeping in their car.

10. Barnett Slepian Murder (1998)	Local Police, Canadian and US Task Force	UNK	James Kopp	YES	2 ½ years	Abortion doctor, Barnett Slepian, was shot in his home by a sniper on October 23, 1998. This was one in a series of attacks on abortion doctors in both the US and Canada. Investigators set up a 24-hour tip line in the US and in Canada. A year prior to this event, a joint US-Canadian task force was set up to investigate similar incidents believed to be linked. Federal agents were not only looking in the US and Canada, but they had reason to believe the suspect, an anti-abortion activist, James Kopp, had fled to Mexico. \$800,000 in rewards had been offered for information leading to a conviction in this case. Kopp was arrested in France in March of 2001. He was convicted in 2003 for Slepian's murder and sentenced to 25 years to life in prison.
11. Brittany Fish Abduction (2004)	Syracuse PD, SAME	UNK	UNK	NO	n/a	5 year-old Brittany Fish was abducted outside her home on April 24, 2004 and found 21 hours later under a tarp in the parking lot of a business in the neighboring town. Originally, tipsters were urged to call the Syracuse police Criminal Investigation Division. In May, Brittany's case was aired on America's Most Wanted. As tips came in they were ranked to determine which calls should receive attention first. Because numerous tips continued to come in, in June the Syracuse police set up a new 24-hour confidential tip line to take tips solely pertaining to this case.
12. Chandra Levy Homicide (2001)	Washington DC PD, SAME	UNK	UNK	NO	n/a	Chandra Levy, a Washington, DC intern went missing in May 2001. Levy's skeletal remains were found in May 2002 in Rock Creek Park in Northwest Washington DC. No individual has been charged with her murder. The Washington, DC police and the FBI established a tip line for the case, which at first received between 40-50 calls per day. There was also an internet tip system available. Another tip line was established by the Levy family's lawyer.
13. Dru Sjodin Homicide (2003)	Grand Forks PD, SAME	1,400	Alfonso Rodriguez, Jr.	YES	10 days	On November 22, 2003, Dru Sjodin, a 22 year old college student, was abducted in the parking lot as she left the shopping mall where she worked. In the first week, 600 tips were called into the tip line established through the Grand Forks Emergency Operations Center. An internet tip line was used as well. On December 5, 2003 citizens with tips were asked to call their local law enforcement agencies rather than the tip line that had been set up. Sex offender, Alfonso Rodriguez, Jr. was arrested on December 2, 2003 for Sjodin's kidnapping, and later her homicide, even though her body was not found until April 2004.

14. Elizabeth Smart Kidnapping (2002)	Salt Lake City PD, SAME	16,000	Brian Mitchell and Wanda Barzee	YES	9 Months	14 year-old Elizabeth Smart was abducted from her home in Salt Lake City, Utah on June 5, 2002. Tip lines were established by the local police, the FBI and on the internet. Because of the volume of tips received, the police also asked individuals to write down tips and fax them to the police, which were investigated on a tip-by-tip basis. Smart was found alive with her captors on March 12, 2003. The Amber Alert system was also used. Salt Lake Brian David Mitchell and Wanda Eileen Barzee were arrested as suspects in the case and charged with kidnapping, aggravated sexual assault, aggravated burglary, and attempted aggravated kidnapping in the 2002 abduction.
15. Julie Holmquist Homicide (1998)	Kittson County Sheriff, SAME	700+	Curtiss Dale Cedergren	YES	4 Years	Julie Holmquist, 16, disappeared on July 29, 1998 near Hallock, MN. The FBI and the Kittson County Sheriff's Department investigating the case established a tip line. Holmquist's body was found in an abandoned gravel pit about three weeks after she disappeared. In January 2003, Curtiss Dale Cedergren, the suspect in the case committed suicide before capture.
16. Nikolay Soltys Homicides (2001)	Sacramento County Sheriff	UNK	Nikolay Soltys	YES	10 Days	Nikolay Soltys allegedly murdered six members of his family, including his wife and three year old son on August 20, 2001. Four tip lines in total were established, including bilingual tip lines in Russian. Soltys was arrested on August 30, 2001 when his brother called to report he was hiding under a table in their mother's backyard. He gave a full confession; however, he committed suicide in jail on February 13, 2002 before he could be brought to trial.
17. Poison Ricin Letters (2003)	FBI, SAME	UNK	UNK	NO	n/a	A letter laced with the poison ricin was discovered in Greenville, SC on October 15, 2003 and a second letter was discovered on November 6, 2003 in Washington, DC that was mailed from Chattanooga. 325,000 mailings were sent out by the FBI to Tennessee and Georgia residents seeking information regarding the case asking for tips to be sent to the FBI.
18. Howard County, Maryland Homicides (1999)	Howard County PD, SAME	UNK	UNK	NO	n/a	The Howard County Police are offering a reward of \$8,000 to anyone with information relating to seven homicide cases dating from 1999 to 2002. Police have posted fliers in the neighborhoods where the crimes occurred and are urging residents to call the department's violent crime tip line.

\* UNK = unknown

### 3.2 A RANDOM-SAMPLE SURVEY

To provide a more systematic understanding of tip line use in the United States, we surveyed U.S. police agencies and asked each agency questions regarding their use of tip lines. We also hoped to learn about related technologies and cases associated with their tip line processes as well as how police analyzed and used tips. For our study, we chose a random sample of 100 police agencies from the 2000 Law Enforcement Management and Administrative Statistics (LEMAS) Survey of police agencies with 100 or more sworn officers (Bureau of Justice Statistics, 2003). For each police agency chosen, we attempted to make initial contact through telephone calls to the chief executive officer of each agency (e.g., the police chief or commissioner) and then sent a formal letter and survey (Appendix A) to the individual who the chief/commissioner assigned to answer the survey.<sup>9</sup>

The survey was divided into four sections. Section 1 included questions gauging whether agencies have ever used tip lines and whether they used general or incident specific tip lines; the two types of tip lines we anticipated police agencies to have. General-use tip lines were defined as a telephone or internet tip line system made available to the public at all times for the submission of tips. These tip lines could be used for the collection of tips on an everyday basis, or might also be used for specific incidents but remain in continuous operation. Incident-specific tip lines are telephone or internet tip line systems which are set up on an ad hoc basis and made available to the public specifically for the solicitation of tips related to a particular event or situation. The tip line process established for the Sniper Case was an incident-specific tip line<sup>10</sup> while Crime Stoppers is an example of a more general tip line. We also were interested in whether agencies had any written protocols or other guidelines related to tip line usage.

Sections 2 and 3 of the survey asked specific questions related to the nature of general use or incident-specific tip lines for those agencies which used them. In particular, the types of cases tip lines were used for as well as the type of technology used to gather tips (e.g., telephone, email, paper, automated, internet, etc.) were ascertained. We also asked agencies to describe the types of analyses and/or processes that were conducted on received tips and whether tips led to any successful case resolutions. For those agencies without tip lines, we inquired whether they were interested in developing such technologies.

We anticipated our response rate to be low, not only given the commonly-known difficulty of obtaining cooperation from police agencies, but also because we anticipated that tip lines were not widely used by individual police agencies.<sup>11</sup> In many cases, we were referred to the community groups that ran tip lines for multiple agencies. Furthermore, because of the short time period of this first phase of our project, (Phase I was completed in five months, from January 2005 to May of 2005) we knew responses would be limited to those who responded quickly. As of May 2005, we have received 27 responses to our survey.

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<sup>9</sup> The survey was approved through the Northeastern University Institutional Review Board Process, IRB #05-02-11.

<sup>10</sup> During the early stages of the process, an existing tip line was used which was quickly deemed inadequate in handling the volume of tips that individuals were providing. This will be discussed in detail in Section 5.

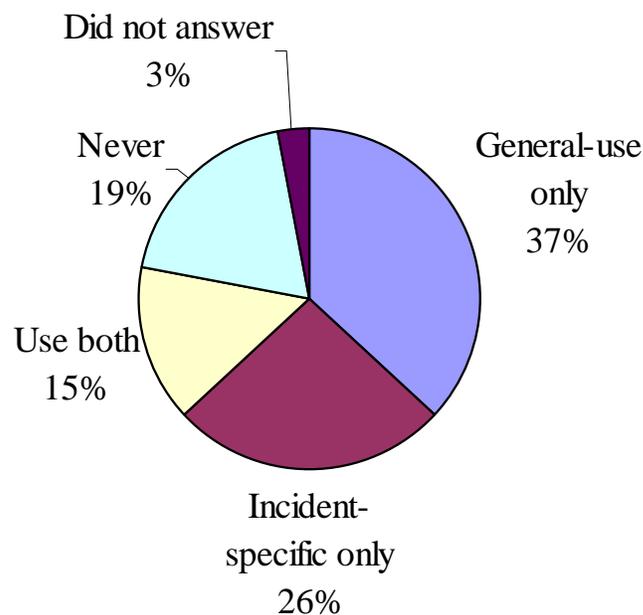
<sup>11</sup> Some agencies told us they would not respond because they did not have a tip line.

### 3.3 SURVEY RESULTS

#### *Tip Line Usage and Operation*

Of the 27 agencies that responded to the survey, 78% claimed to use some type of tip line technology or process. As Figure 1 shows, more agencies seemed to exclusively use general-use tip lines (37%) more than incident specific ones (26%), while 15% of our sample used both.

Figure 1. Distribution of tip line use in our sample (n=27)



Three agencies who had indicated that they did not currently have a tip line planned to implement one in the near future, and one other agency reported that the lack of funding, technology, and personnel were the main impediments in implementing a tip line process. In general, our survey confirmed what we expected – while tip line styles vary, the tip line as a general concept has become regularly used in American police agencies. Additionally, most of the agencies who used tip lines seemed to use them for more serious or “high profile” crimes, including missing persons, homicide, sexual assault, and drug offense cases. Some agencies also used tip lines for cases involving cyber crimes, terrorism, arson, and weapon offenses.

### *Tip Line Systems*

In terms of the tip line information technology, about one half of the agencies collect tips using a telephone system staffed by a sworn or civilian member of the agency and some have voice recording systems to record messages from callers. A small percentage (around 7%) utilizes an email or web-interface system for collecting tips. One agency reported receiving tips through the U.S. Postal Service. When agencies receive tips on general use tip lines, about 37% of agencies hand-write them as a method of recording the information, while about 30% enter them directly into a computer database. (This ratio is similar for incident-specific tip lines as well.) Interestingly, only about 4% of agencies digitally record calls that come into the general use tip line, but 14% of agencies do for specific incidents.

### *Tip Processing*

The majority of agencies who use tip lines for general purposes review tips on a daily basis in the order they are received, and all responding agencies who collect tips reported that they reviewed all tips eventually. About 18% of the agencies that use incident-specific tip lines review tips in the order they were received, 11% ranked the tips for review, and 11% reviewed the tips based on the perceived importance or relevance of the tip. Once tips were reviewed, it appears the most common course of action to follow up on the tip for both general use and incident-specific tips (41% and 33% respectively) is to pass along the tip information to an on-duty officer. In these cases, either a police report is filed or the officer is required to inform the tip line center of the results.

Some agencies review the result and then pass along the information to the appropriate division/unit for investigation, including to collaborating agencies such as the ATF. At one agency, all identifying information about the caller is deleted before the tip is sent to the appropriate agency. About 3% of the agencies that use general tip lines disseminate some of the collected information back to the public, while none of the agencies who use incident-specific tip lines do so. One agency reported that they generate quarterly reports on the status of tips related to cases in order to evaluate the effectiveness of the program.

Although agencies sometimes describe the above processes as “analysis”, our survey revealed that statistical, trend, geographic or pattern-based analysis is rarely (if ever) done on tip information. Some agencies may use databases to cross-check tips with other records but no specific analyses were articulated in the open-ended questions gauging this in our survey.

### *Tip Line Capacity*

During critical incidents, as the Sniper Case will soon illustrate, the volume of tips can increase dramatically. The Montgomery County Police Department had an existing general use tip line in place which, within a few minutes, was deemed unable to handle the increased call volume. To gauge agency perceived preparedness, we asked police departments in our survey whether their tip lines could handle a large increase in the volume of tips entering the system. Of

the agencies that had tip lines, 37% of them claimed that these tip lines have the ability to accommodate a dramatic increase in the volume of tips. Furthermore, 44% responded that they have used their general use tip line as an incident-specific tip line. Our specific case studies indicate that these perceptions are most likely over-estimations of tip line capacity for serious, critical incidents.

We also asked police agencies whether they had written protocols, general orders, or standard operating procedures regarding the use, implementation and/or operation of tip lines. About 44% of the general-use agencies had some protocol for their tip line process while only 19% of the incident-specific users did. This finding also points to the lack of preparedness of agencies that may have to respond to critical events through the use of tip lines. As will be detailed in our examination of specific cases, the lack of a plan or protocol for critical events can lead to a number of problems when a tip line is operationalized at the onset of a critical incident.

### *Tip Line Effectiveness*

With regard to the usefulness of tip-lines, there were mixed comments from respondents. In some of the incident-specific cases the tips did not prove to be useful; rather resources such as DNA testing led to the identification, arrest, and charging of suspects. On the other hand, many agencies claim tip lines are very valuable and lead to numerous arrests for various crimes every year.

## **3.4 CONCLUSION**

In total, our broad review of tip line cases and agency use of tip line processes revealed a number of interesting findings. First, tip line use has become a common strategy employed by law enforcement for both specific incidents as well as general use. However, unlike 911 computer aided dispatch systems, tip lines and the information that is garnered from the public through these lines are under-utilized and unsystematic. Tip line processes generally consist of receiving a tip through a phone or internet system, recording the tip, and then disseminating it for follow-up. Although some agencies call this process “analysis”, it was clear from responses that analysis is rarely, if ever, conducted on tip line data. Police seem to view tip line intelligence from a case-by-case perspective and do not necessarily recognize the possibility or use of developing underlying patterns and trends from the data.

Further, despite the widespread use and support for tip lines, police seem unprepared in using tip lines during critical incidents. The majority of the agencies responded that they could not handle a major increase in call volume in their tip line systems, nor did they have any guidelines or protocols in the event that they would have to use their tip lines for a major incident (or develop an incident-specific tip line). Although these results are still preliminary, these findings are not surprising given what we learned from our specific case studies. It is clear that improvements in the protocol, process, and use of tip lines and their information are needed.

## **4 THE CURRENT STATE OF TIP LINE USE AND TECHNOLOGY IN THE U.S.: THREE SPECIFIC CASE STUDIES**

While the broad surveys in Section 3 provided a general idea of tip line use in the United States, we also sought a more specific understanding to inform our Phase II project goals of developing useful protocols and technologies. Below, three cases are specifically detailed. The first involves comprehensive interviews and discussions with the Montgomery County Police Department in reference to their experience with setting up a tip line for the Sniper Case of 2002. This case represents a critical-incident situation where the operationalization of a tip line (protocol, personnel, technology, and use) was conducted under highly intense conditions; all aspects of the tip line had to be operationalized immediately towards an urgent goal (apprehending suspects/ceasing the shootings and homicides). The second case study is of New York City Police Department's Intelligence Division's terrorism tip line. This tip line was developed for a specific purpose: to collect information from the public about suspicious activity possibly related to terrorism. The final case study is of three different tip line processes used by the Federal Bureau of Investigation.

Throughout each case study, we also highlight "lessons learned". These summarize some of the main findings and important points which emerged from our site visits and interviews that will be used to create protocols and technologies during the second phase of the project.

### **4.1 MONTGOMERY COUNTY POLICE DEPARTMENT: SNIPER CASE OF 2002**

We begin with the Montgomery County Sniper Case as lessons learned by the Principal Investigator while planning the University of Maryland Symposium in 2003 was the primary initiating force behind this project. To better understand these lessons and how they might best be applied to develop tip line protocol, we interviewed nine Montgomery County Police Department officials during our site visits.<sup>12</sup>

Montgomery County Police Department is located in the state of Maryland, and shares the Northwest border of Washington, DC. It is clearly one of the more progressive departments in Maryland and the United States, and its officials were not only open to sharing their lessons learned with us, but also freely critiqued their own tip line process. What follows is an overview of the events of the Sniper Case and how Montgomery County Police Department operationalized their tip line during the event.

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<sup>12</sup> We would especially like to thank the Montgomery Police Department for their assistance and cooperation in this project.

*Description of the beginning days of the incident, including initial tip line set up, early challenges, and the first and second tip lines*

Although it was later discovered that John Allen Muhammad and Lee Boyd Malvo had begun their shooting spree prior to the first shooting in the Washington, DC area, we use the first shooting in Montgomery County on October 2<sup>nd</sup>, 2002 as a starting point for the purposes of this project. On that day, one shooting without injury and another resulting in a fatality occurred, followed by four more shootings during the morning hours of October 3<sup>rd</sup>. Later that same evening, another shooting/murder occurred in Washington DC just over the Maryland-D.C. border.<sup>13</sup> Realizing the significance and seriousness of the event, as well as the widespread fear that was immediately generated across the area, MCPD immediately solicited the public for assistance in providing any information that would help in the investigation. This initial solicitation began the evolution of the tip line process which, as will be described, took a number of forms before the final tip line was put in place for the duration of the investigation.

The initial solicitation of information used an already established hotline that had existed prior to the sniper incident.<sup>14</sup> Interviewed officials remarked that this “first” tip line was quickly deemed inadequate in handling the volume of calls from the public, and on that first day, they established a second telephone-based tip line using Montgomery County’s Health Department tip line telephone system. Within five minutes of advertising the number for the Health Department tip line, it was overloaded with calls resulting in callers receiving busy signals. It was discovered that calls were not being routed properly to multiple phones, which led MCPD to reroute calls into the MCPD Headquarters across multiple phones. However, this solution also proved inadequate, and it was quickly realized there was a need for a dedicated tip line system and process that could handle both the volume of calls and personnel to receive them.

## **LESSONS LEARNED**

1. In critical incidents, the public remains one of the most important sources of information. The volume of tips indicates the willingness of the public to provide large amounts of information to the police as well as the importance of the police to receive, process, and disseminate potentially critical pieces of information.
2. The increase in call volume (and therefore the personnel and equipment needed to respond and record these tips) is the primary challenge and obstacle in setting up a tip line for a critical incident. Existing hotlines or general use tip lines may be inadequate in responding to these types of events, especially in handling the massive increase in call volume that most likely will occur. Because of these early challenges with call volume, it is very possible that a large amount of information may not be collected during the initial set up of a tip line system for a critical incident. However, early information may prove crucial to the quicker resolution of a case.

<sup>13</sup> An interactive map of the location of the shootings can be found at <http://www.washingtonpost.com/wp-srv/metro/daily/oct02/snipershootings.htm>.

<sup>14</sup> It should also be noted that the 911 system received many calls regarding the snipers during the incident.

3. A telephone tip line system will also require routing a single telephone number to multiple phones so that calls will not be directed only to a single telephone.
4. It is useful to know in advance other agencies, departments, or private companies who can assist in providing a system, personnel, and technology (telephones, email systems, etc.) for such an event. Telephone or internet tip lines are not technologies that law enforcement agencies specialize in, and knowing who to call ahead of time is useful knowledge.
5. Another important operational need at the beginning of a critical incident is the ability to advertise in a straightforward and clear manner the best approach for the public to provide information to the police department.
6. While a command center could be set up at a police headquarters, tip line technology requires more than space – it requires a space where multiple computers/telephones and perhaps a server can be operationalized.

#### *Description of the third tip line and eventual transfer to the FBI*

Within less than a day, MCPD began searching for a third tip line solution that would accommodate the personnel and equipment challenges realized within the first few hours of the event. Commanders sought to set up a tip line center at a dedicated location in a facility that could accommodate both personnel and telephone technology. Because no existing space was found at police headquarters, another building was used that was in the process of being converted to their future Emergency Communications Center (ECC). The ECC already had existing telephones and telephone lines in the building which could be operationalized. Thus, on October 3rd, the tip line center was officially moved to the ECC and the third tip line was created.

This tip line was set up in one of the larger rooms at the ECC. One new dedicated telephone number was provided to the public, which was different than the previous phone numbers advertised, and ten to twenty telephones were then connected to this number. Initially, the phone lines had not been set up to route calls to all of the phones and many individuals calling into the tip line received busy signals. This problem was quickly corrected by the Montgomery County telecommunications staff who rerouted the phone lines so calls would come in on all of the available phones in sequential order.

Each phone line also had to be staffed with an individual who could answer the call, write down tips, and make a preliminary determination about the nature and usefulness of tips received (a process to be discussed shortly). The staffing of the telephone tip lines presented an immediate operational challenge to MCPD. Sworn officers were already deployed in the community and available personnel were in short supply. Initially, volunteers were asked to help staff the phones, which led to an influx of people responding from both inside and outside of the police agency. Volunteers also had to be provided with guidance in how to receive and record tips as well as how to answer calls according to the professional standards of the police department. Supervisors soon sought the assistance of retired police and other law enforcement

officials, who they found were more helpful in receiving tips because of their law enforcement experience.

In addition to the challenge of staffing telephone lines, a number of other concerns were voiced by those we interviewed about the physical location of the tip line center. While the room which held the tip line center could physically accommodate the tip lines, a number of individuals we spoke with found the room to be crowded and often too loud to hear and speak to callers. Further, many callers continued to report receiving busy signals with this system. For calls that did come through, each was written down by hand, even if those answering calls did not think the call was important or valid.

### **LESSONS LEARNED**

1. Although MCPD had telephones and lines already established at the ECC, the set up of hardware was still a challenging and vital part of a tip line process. Operational needs included finding space for the call center to be housed, establishing multiple phones and lines to receive calls from a single number, establishing and advertising a different dedicated phone number from previous numbers advertised, soliciting technical support by a telephone company, and capitalizing on telecommunications expertise by the police department, personnel, and supervisors.
2. Essential to the tip line process is the ability to receive tips in a professional, calm manner with the ability to hear callers and record information. The room which housed the phone stations proved too small for this operation. In hindsight, MCPD officials suggest a larger area with multiple stations for telephone lines.
3. The “busy signal” problem suggests that in similar incidents, the number of telephones and associated personnel used in the Sniper case may be inadequate in handling the volume of anticipated tips (later estimated to be over 100,000, which averages to approximately 4,300 calls per day).
4. The set up of telephones only presents part of the difficulties in operationalizing a tip line; finding individuals to staff each line requires determining who the most appropriate people are to employ, whether any expertise is needed, and having enough physical space for individuals to work. Further, basic and quick training regarding professional standards may also be needed (e.g., what types of information should not be shared, how individuals can politely, calmly, and professionally answer the phone).

MCPD realized quickly that this third tip line center would not have the capacity to handle the volume of calls if the case was not resolved soon, and they explored a number of options to expand the tip line center. These options included speaking with IBM as well as America’s Most Wanted (who offered to take over the tip line and staff it for free). After seven or eight days of using this third tip line, MCPD decided to give command of the tip line center to

the FBI (who earlier had already become involved with the case), and the tip line center was moved to the FBI's Washington DC field office. There, a new phone number was established and provided to the public. The FBI initially used ten investigators to take calls 24 hours a day, across two or three shifts per day, and calls from the tip line number were routed directly to the desk station of each investigator. The FBI had an existing tip line process called "RAPID START" (this will be discussed in detail below), a paper-based system in which agents would hand-write information on a form which would be later entered into a records management system.

Although the involvement of the FBI in other operations of the sniper investigation will not be detailed here, a number of important points concerning their tip line process should be mentioned. After four or five days of the incident, Chief Moose of the MCPD formally asked the FBI and the ATF to come into Montgomery County and help set up a joint operations center (JOC). The JOC (see attached Appendix B for the JOC organization chart) was operationalized in a building next to police headquarters, separate from the ECC where the tip line center was housed. Thus, the tip line center and the joint operations center for the sniper investigation were always in two separate places, no matter who was running the tip line.

## **LESSONS LEARNED**

1. Depending on the situation, even a larger tip line operation as described by the third Montgomery County tip line (which was in operation for about seven days) may not be adequate in handling the volume of calls which may be received. There are national resources, such as America's Most Wanted, that may be able to accommodate the large volume of calls in high-intensity situations. As with any multi-jurisdictional incident, this may present political challenges to local police agencies with regards to the involvement of federal agencies, who in this case stepped in to take over the tip line only after shootings began to cross state lines.
2. Tip line processes have to be flexible enough to accommodate potential changes in command, jurisdiction, or situation.
3. During this time, tips also came in through 911 systems, and callers were asked to hang up and call the tip line number. Given the fact that people calling the tip line were often receiving a busy signal, individuals with valuable information may call 911 because they cannot get through to the tip line.
4. Multiple numbers in a short time period can easily confuse the public, also resulting in the loss of information.

### *Processing, analyzing, and following-up on tips*

Throughout the tip line process (including when the FBI took over the tip line center), tips were processed on a tip-by-tip basis. When a call came in during the third tip line process

(the last MCPD tip line before its transfer to the FBI), the individual receiving the call would ask the caller questions which were informally derived by individuals with investigative experience. Examples of questions included “what did you see?” and “why are you calling this in?” There was initially no standardized form with questions to ask the caller, so the quality of the information often varied with the experience of the call taker. Brief, informal training was given to the volunteers on what types of information they should gather from the call taker. All of the tips during the third tip line process (many were lost due to the busy signal problem) were hand written and given to duty supervisors who reviewed each tip and prioritize them. There was no standard protocol for prioritizing tips; rather the supervisors used their law enforcement experience to make informed decisions on the priority of a tip. All tips that were labeled “immediate priority” by the supervisors were faxed to the JOC Information Control desk, and all the others that were labeled “routine” were put into a box and later driven to the JOC for review by the Intelligence Unit.

This actual process did not change to a great extent when the tip line center was moved into the FBI’s field office. When calls came into the FBI tip line number at the Washington DC field office, tips were hand-written onto a pre-set Rapid Start form (see Appendix C), which included a triple-copy carbon form. The Rapid Start form collection information such as the classification, date and time when the tip was received, the event narrative with time and date, and the name of the source, if available. The form also included a section where the agent could prioritize the call, again using informal rules based on the agent’s personal experience. The same form was later used to record who the tip was reviewed by (i.e. which duty supervisor), who it was assigned to, and the disposition of the tip. The information on the forms was eventually entered into a computer database, although this was not always done at the time the tip was received. The Rapid Start computer database is a Microsoft Access based program used by the FBI as case management software. It should be noted that the tips are entered *after* they are hand-written by those taking information from a telephone caller. Handwritten tips were still faxed or driven to the JOC for follow-up as previously described.

Once the immediate priority and routine tips were reviewed by the Intelligence Unit of the JOC and determined to have some value, they were then sent to the Analysis and Records Check Unit for background checks to be conducted on any of the information that was given in the tip that could be useful to the investigation. The tips would be reviewed by the “Investigations Desk” where an investigative supervisor would decide what investigative steps would be taken for each lead. The leads would then be given to an investigating officer for follow up. It should be noted that MCPD realized that there were many duplicate investigations occurring because tips, still in paper form, could not be combined in a systematic manner. After the FBI took over, tips were eventually entered into the Rapid Start database system before investigative assignments were given, which somewhat corrected for this problem.

After tips were investigated by a patrol officer or detective, the disposition would be returned to the JOC and entered into the Rapid Start system. Finally, the Intelligence Unit would review all the Rapid Start information. Once reviewed, and if the supervisors agreed, the tip would either not be examined further or it would be sent to either an investigative unit or tactical team for in-depth follow-up (e.g., monitoring suspects). Other informational databases were also used, such as the National Crime Information Center (NCIC) and ATF firearm databases, to cross-check tip information and provide supplemental information.

**LESSONS LEARNED**

1. According to MCPD officials interviewed, having the tip line center at the JOC may have been a more efficient use of resources. The tips had to be physically transferred to the JOC from other locations, using time consuming processes such as faxing or driving. The faxing and driving of tips also indicates a non-automated system, illustrated by both the MCPD's and FBI's hand-written approach.
2. While caller experience is indeed a benefit in answering calls, it may be just as useful to have set rules to present a more systematic approach in collecting and prioritizing information. If hand-written forms must be used (not recommended by the research team), agencies should create these in advance so that discussions as to the best types of information to collect can be determined. If a computer interface is used to enter tips (recommended by the research team), fields should be anticipated ahead of time to determine what might be the most important pieces of information to collect in the most efficient, timely manner. Montgomery County Police officials also suggested that people with good investigative instincts are needed to take the tips that come in through the tip line. However, they also pointed out that individuals with investigative skills may not necessarily have data entry skills. A practical concern is finding the right mix of skills that can help to receive information quickly and effectively.
3. Automated, systematic tip collection approaches are the most efficient information technologies that can be used. Hand-written processes are not as useful, are more time-consuming, and limit the types of utility that the tips might provide.
4. It should be pointed out that no attempt to statistically analyze tips was made, a common omission found across tip lines in the U.S. Because a large amount of tips are recorded on paper by multiple individuals, it is nearly impossible to determine patterns within the data that might be useful to the investigation. Further, analytic resources, such as university graduate students who specialize in data analysis and database manipulation, could also be tapped for assistance. Another option suggested by MCPD is a database that can automatically make connections between names, addresses, tag numbers, etc. that come into the tip line more than once.
5. An important step in utilizing the tips is the deployment of officers to respond to the tips, and a tip line process and protocol must incorporate this component. A tip-by-tip approach limits the deployment response to individual officer investigation of tips. However, as will be developed in Phase II of this project, multiple approaches to analyzing the tips will suggest a variety of deployment options. For example, the road block deployment option can benefit from quick tip analysis in terms of predicting roadways that have the highest probability of suspect capture and allocating resources accordingly. If a tip-by-tip approach is used, then it may be useful for law enforcement to have a protocol which outlines options to investigate information on tips.
6. Although federal agencies provide key assistance and research in critical incidents, the Rapid Start system indicates that the FBI's tip line system was no more advanced than MCPD's third tip line. It was still a primarily hand-written, telephone tip line system. Also, the computer database where tips were eventually entered was a records management database, not an analytic

tool. In other words (as will be detailed later), the Rapid Start system can log the tip as well as record other actions taken on the individual tip, but cannot conduct multiple types of analyses or searches that may prove useful to the case.

### *Conclusion*

The Sniper Case is an excellent example of the challenges of operationalizing a tip line process in a critical incident. Below are reflections of this process in hindsight. These are not meant to criticize this process, but to recommend, from the lessons learned, alternative approaches.

## **IN HINDSIGHT**

**1. The public is an essential and crucial information supplier.** In critical incidents, the public remains one of the most important sources of information. The volume of tips indicates the willingness of the public to provide copious amounts of information to the police as well as the importance of the police to receive, process, and disseminate potentially critical pieces of information.

**2. Proactive planning is essential.** The sniper case illustrates the need for proactive planning, including the development of tip line protocol as well as the technology needed for tip line processes. Proactive planning includes determining what types of information to collect, who might be solicited for services, where command centers might be set up, and where and what kinds of equipment will be obtained. While every case may present unique challenges to the law enforcement agencies involved, it is clear that proactive planning can reduce a number of problems that may arise. In Phase II, the research team will develop, with the help of our law enforcement partners, a working protocol that will help agencies plan ahead as well as respond to critical incidents with tip line technology. This protocol (and the developed technology) will be tested in Phase III.

**3. The increase in call volume is the primary challenge and obstacle in setting up a tip line for a critical incident.** Existing hotlines or general use tip lines may be inadequate in responding to these types of events, especially in handling the massive increase in call volume that most likely will occur. Because of these early challenges with call volume, it is very possible that a large amount of information may be lost during the initial set up of a tip line system for a critical incident. However, early information may prove crucial to the quicker resolution of a case. Tip line protocol should also be able to capture tips that are called into the 911 system.

**4. The more automated the system, the more efficiently and effectively tips can be garnered and utilized.** Many of the processes that the three agencies engaged in to collect, process, and operationalize tips could be accomplished by an automated system. For example, as tips are

received by telephone, automatically entering them into an already existing database or computerized form with set fields can provide the police with immediate data that can be prioritized, analyzed, or dispersed. Further, having a web-interface for individuals to enter tips into a pre-set format can also dramatically reduce the busy signal problem. This eliminates the need to drive or fax tips around, and information will be easily available to police officers and command, no matter their physical location. Automated forms can be duplicated online, eliminating the need for those with internet access to call in tips over the phone. This could also enable tip line call receivers to take more calls.

**5. Information processing is central to the case and it may be helpful to have the tip line center inside of the main command center.** Although this can be overcome by a completely automated system, it may still be useful to house the tip line center inside of the joint operations center. In this regard, personnel can interact and information can travel quickly. Symbolically, the tips and information generally are seen as a central part of operations, rather than external to deployment, which is supported by underlying theoretical concepts such as problem-oriented or evidence-based policing.

**6. Tip line processes do not just include collecting, recording, prioritizing, and disseminating tips. Analysis is an important, yet often ignored function.** Analysis involves the systematic manipulation of data to discern patterns, trends, and important information that can be used for deployment. Absent from the tip line process described above is the analysis of tips. Analysis of thousands of tips at any time requires that data is automated into a system which can conduct the analysis, or be transferred into another program that can conduct the analysis. Law enforcement tends to interpret the term “analysis” to mean the prioritizing and perusal of tips for follow-up. Here, we specifically suggest that other types of analyses need to be undertaken, including geographic mapping of the location of tips, as well as trend and pattern analysis of the content of tips. Because of the large number of individuals recording data, it is difficult, if not nearly impossible, for these individuals to see overall trends that emerge from the calls in aggregate.

**7. Deployment on tips should not be constrained only to a tip-by-tip approach.** Analysis of tip line information can reveal patterns, relationships, and intelligence that pushes police to extend deployment options beyond a tip-by-tip approach. For example, geographic analysis shortly after a critical event (for example, a shooting) of locations of vehicle sightings might assist in the deployment of road blocks, as well as in guiding police toward targets. Similarly, examining commonalities of intelligence across different data bases might lead agencies to better target their search efforts.

## 4.2 NEW YORK CITY POLICE DEPARTMENT INTELLIGENCE DIVISION: NYC SAFE HOTLINE

A second tip line we reviewed was the anti-terrorism tip line of the New York City Police Department's Intelligence Division called the "New York City Safe Line" (888-NYC-SAFE). This is a telephone based tip line which is staffed 24 hours a day by detectives that work specifically for the counterterrorism section of the Intelligence Division. The general function of the tip line is for everyday use, not necessarily for a specific critical incident. Calls are received through phone lines attached to digital recording equipment and all calls are recorded. While taking each call, detectives enter information into a pre-existing computerized form that is part of a database called the Intelligence Database System (IDS). The form consists of pull down boxes specifically created for use in taking information about terrorist threats. Once entered, information can be searched from within the entire database.

Actions taken on tips depend on the FBI's Joint Terrorism Task Force's (JTTF) decision as to whether they decide to act on a particular tip. The Joint Terrorism Task Force is a network of teams made up of federal, state, and local law enforcement agencies that cooperate and share information to prevent acts of terrorism.<sup>15</sup> The JTTF has first priority in choosing leads from the IDS tips and can take over investigations at any time from the NYPD of any lead. Once the JTTF takes over a lead from a tip, the NYPD marks the case as closed within the IDS and NYPD officials are not updated as to the progress of the case by the JTTF. If the JTTF does not take the lead, the detective that first received the call then assigns the case to an investigative team for follow up. Any information on the lead is then entered into the IDS by the case team. The detective that originally set the lead keeps track of the progress of the investigation and has the ability to take further action as necessary.

Our interviews with the NYPD revealed several valuable aspects of the IDS. According to detectives, the system was user-friendly and required minimal training. The system uses a windows-like environment with pull down menus and point and click options. The information is entered into the system by choosing predetermined options provided in pull down lists. Minimal typing is required by users except to enter in contact information, addresses, and notes. The database is easily searchable both using a free-form search string as well as a matrix function. Finally, information can be added at any point in the investigation by opening the case that was originally created when the lead was received.

The NYPD terrorism tip line process also includes the ability for 911 calls related to terrorism to be viewed by tip line detectives through a program called "PUSH". When a 911 call is received and the text is entered into a computer-aided dispatch system, that text is then searched by the PUSH program for certain flagged keywords. When a certain keyword is entered by a dispatcher, the call text is automatically pushed into the IDS. Although this approach has led to many false positive calls being sent to IDS, it is seen by NYPD as a promising approach to better integrating intelligence gathering systems.

A few negative aspects NYPD reported included a lack of a spell check function for the notes fields, too many search results, and the inability to modify pull down lists or to add other categories. Although the initial software was designed to link directly to a geographic

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<sup>15</sup> The first JTTF was created in 1980; today there are 66 JTTF's around the country as well as a National JTTF that funnels information to all of the local teams. See <http://www.fbi.gov/terrorinfo/counterterrorism/partnership.htm>

information system, this function is not used, nor are there other types of analyses conducted on the data except for the search queries. The Intelligence Division also retains a paper-based back-up system in the event that increases in call volume make it difficult to simultaneously enter tips into the IDS while receiving calls. The volume of calls received varies depending on the Homeland Security terrorism threat level and any relevant media attention on terrorism in the New York area. Detectives report that approximately 100 to 500 calls are received per day.

### **LESSONS LEARNED**

1. NYPD's system reflects a more automated tip line system than the FBI's Rapid Start system and can handle at least a few hundred calls per day. It is uncertain whether the system could respond adequately to an incident such as the Sniper case, but the advantages of this computerized, automated system are clear. Instead of relying on a paper-based hand-written system, automated data entry allows for search capabilities as well as the potential to geocode and map data.
2. In many ways, tip calls are similar to 911 emergency calls. Many 911 callers are not reporting a personal victimization, but rather are reporting suspicious activity that they may observe in their community (for example, drug dealing or loud noises). One important part of the tip line process, whether during a critical incident or an ongoing process to collect tips over time, is the inclusion of tip information that may not directly come through the telephone or internet tip system. The PUSH system collects 911 data and suggests that accommodating this need is possible. Further, the existence of tip lines and 911 systems suggests a need to clearly articulate to citizens which number to call given a certain situation.
3. The use of geographic information systems to analyze crime data has already been shown to be an effective deployment tool. Integrating computerized mapping capabilities into tip line systems so that either the location of the caller or the incident being reported can be mapped may provide important intelligence to guide deployment efforts.

### **4.3 FEDERAL BUREAU OF INVESTIGATION: PYRAMID, RAPID START, AND ICON**

The FBI has a number of information-collection systems related to receiving tips, including the Rapid Start program already discussed. We interviewed personnel related to three systems in particular – Pyramid, Rapid Start, and ICON.

### *Pyramid*

The Pyramid system allows individuals to submit tips online to the FBI and is designed to solicit terrorism-relevant tips. It is an internet-based tip line and case management system developed by Advanced Technology Systems (ATS) and is utilized by agents working in the Strategic Information and Operations Center (SIOC) at FBI Headquarters in Washington, DC.<sup>16</sup> An individual can go directly to an already created FBI website (<https://tips.fbi.gov/>) and enter information onto a web-based interface. The tip goes through a series of servers and then directly to the FBI headquarters onto a database system. To transfer the information from the unclassified web-based system to a classified one, information is then manually transferred by disk from an unclassified to a classified computer. On the form, individuals can provide a variety of information, including their name, contact information, and a narrative of the tip. Additionally, the remote internet provider address of the computer in which the tip is coming in from is recorded.

Once a tip enters the system, it is processed using the traditional tip-by-tip approach already described. Like the MCPD and NYPD systems, tips are deemed “valuable” by informal and formal prioritizing rules that have been created from the experience of agents and supervisors. Keywords and repeat submitters can also be flagged. These tips are then disseminated to an FBI field office to be investigated (if that field office chooses to do so). Pyramid has received 1.9 million tips since September 11<sup>th</sup> and about 2% of tips have generated individual leads. Those we interviewed who operate Pyramid advised that the volume of tips often increases when the Homeland Security threat levels are raised. Successful tips are not tracked through the Pyramid system, although field offices are required to report back to SIOC about the final outcomes of tip leads.

Some analytic functions have been built into the Pyramid system by ATS which are primarily search (SQL) functions. Similar to other tip line processes we have examined, the term “analysis” is interpreted by the unit to mean the reading of each individual tip that comes in as well as the prioritizing of tips deemed important. ATS customized the Pyramid system for the FBI for these purposes, including basic key word queries and other sorting functions, such as determining whether multiple tips have come from a single source. There is also a function that enables the FBI to respond back to the email address of the individual giving the tip to follow up if necessary. However, although the FBI uses Pyramid in a very limited way, it appears that Pyramid has more advanced functions. An employee from ATS is assigned to the FBI for troubleshooting purposes, and also runs more advanced analytic queries off the database when necessary.

ATS describes the Pyramid Knowledge Solution as a:

“...comprehensive law enforcement toolset for investigative case and law enforcement incident management. Built on a fully thin-client browser platform, Pyramid is easy to administer and to operate, and comes complete with full installation, user, administration, and programmer guides.

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<sup>16</sup> Advanced Technology Systems is located at 7915 Jones Branch Drive, McLean, Virginia 22102.

“The Pyramid system supports case, claims, complaint, and incident management, hence, streamlining case management procedures and increasing the efficiency of officers and investigators. It provides organizations with strong search, workflow, electronic customer relationship management (e-CRM), and document management capability. Pyramid can manage information from multiple databases across the agency and help build organizational intelligence. The ability to data mine and link analysis would be very beneficial to a tip line protocol ([www.atsva.com](http://www.atsva.com) or [www.atspublicsafety.com](http://www.atspublicsafety.com)).

“Pyramid is designed to be customized to client specifications. Furthermore, it has a security model that has individual and group controls that can be adjusted to fit the agency. The Pyramid architecture allows for customization without modification to the Pyramid software itself. For example, finger print authentication can be added without modifying the Pyramid software.

“The Pyramid system has the following capabilities:

- Fully thin client, web-based (TCP/IP) – browser-convenient operation.
- XML Web Services (.NET framework)
- Messaging (SMTP linkage to agency mail client)
- CRM (standard correspondence)
- RDBMS (Oracle or SQL Server; covers people, organization, documents, property, events)
- Rule/role-based security
- Workflow (multi-tier; full auditing)
- Full NCIC and NLETS transactions
- NIBRS, GJXDM, and IJIS compliant
- Unique view to data (simultaneous access to structured/un-structured content)
- Supports all image formats
- Standards reports
- Data mining and link analysis options available
- WML Compatible via XML XSLT

“Key Product Features:

- Single user interface with easy to use web browser and web controls like browser queries and auto-completion
- Security features such as integrated authentication and role- and rule-based permissions.
- Workflow tool to manage and track cases, incidents, leads, complaints, and investigations across and organization.
- Unified search engine with simultaneous display of matching electronic document content and relating structured database information.

- Customizable database and process models to meet agency-specific requirements.
- Automatic data posting to information repositories as users perform specific business tasks.
- Standard and customizable electronic forms.”<sup>17</sup>

(Advanced Technology Systems, 2005)

Pyramid is also in operation at other law enforcement organizations including the National Center for Missing and Exploited Children (NCMEC), the National White Collar Crime Center (NW3C) and the National Law Enforcement Telecommunications System (NLETS), to name a few. Additionally, ATS developed two other related products, Pyramid XN2 which provides agencies browser access to the NLETS and the National Crime Information Center (NCIC), and Pyramid XMR which offers message routing.

### *Rapid Start*

As previously discussed, Rapid Start is a telephone-based tip receiving system used by the FBI (it is a separate system from Pyramid). It was implemented prior to the events of September 11<sup>th</sup> but was not used until that morning (the first tip was received around 10:00am). It is a telephone-based tip line system in which agents receive phone calls and hand write tips on a carbon copy paper form. When an incident occurs under FBI jurisdiction (or if the FBI's assistance is requested), the FBI will determine a site that can be used as a command post near the incident. They then contact the local phone company and acquire telephone line access at the command center and proceed to answer calls and write down tips on the Rapid Start forms. Information on the forms is then entered into a case management system and tips are pursued using a traditional tip-by-tip approach.

Important lessons learned from the Rapid Start System have already been highlighted. Because it is a hand-written system, Rapid Start often cannot keep up with the volume of calls during a critical incident. During September 11<sup>th</sup>, for example, call volume was so great that agents could not sort through calls in a timely manner. In Atlanta, only approximately 2% of phone calls coming in were answered. After September 11<sup>th</sup>, two agents would be assigned to one phone, so that the Rapid Start paperwork could be filled out for each call by the call taker while the second agent could receive another call. The tips and information would then be given to data entrants who would enter all the information into the Rapid Start database. Because of the volume of calls, this manual, telephone-based system led to tips not being entered into the Rapid Start case management database for long periods of time. Again, Rapid Start uses informal prioritization tools based on agent perceptions about whether that individual tip seemed important. However, Rapid Start does not conduct any analysis on tips and therefore uses the traditional tip-by-tip approach. It is essentially a case management system and records when a

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<sup>17</sup> Available at [www.atsva.com](http://www.atsva.com).

case is opened or closed, its text and disposition, who it was assigned to, and helps control for duplicates.

### *ICON: Information Control Crises Management System*

Another tip line related system used by the FBI is known as the Information Control Crisis Management System (ICON). ICON is a Microsoft Access database program that was developed internally for use by the FBI. There are two versions of this system: ICON and ICON Plus. The former is the general Microsoft Access database, while the latter uses an Oracle database.

ICON is a portable system that can be used in the field and allows for the sharing of information during an event by inputting various data into a central repository at a command post that can be easily accessed by users. Data that can be uploaded into this system include information about vehicles, suspects or witnesses. This information is uploaded into the appropriate case systems so users are able to look at electronic communications. Certain information can be restricted so it is not visible to all users. Data is sent into an inbox and labeled “immediate”, “priority”, and “routine.” Users can view this information and set leads accordingly. Additionally, queries and searches can be done on records contained in the database or uploaded from other sources, such as from Pyramid, and dispositions of cases are also recorded.

Some problems do exist with ICON’s operations as cited by agents we interviewed. First, it can be easily overpowered by users and malfunction. Secondly, the system is not completely compatible with all other systems, so disjuncture in information can occur. Finally, because the system is not used on a daily basis, maintaining levels of training can be very difficult. It is often months between incidents when the system is used and agents may have to be constantly retrained.

## **LESSONS LEARNED**

1. The FBI has multiple tip line systems each with positive and negative attributes. However, all three systems are essentially case management systems that process cases using a traditional tip-by-tip approach.
2. The positive aspects of the Pyramid system include efficiency and capacity, although the processing, analysis, and dissemination of information from tips still is conducted by a tip-by-tip approach. It may be useful to add forced fields related to information regarding the tip itself so that more analyses might be done on specific aspects and categories of the tips. For example, the address or location of the specific activity might be entered so that geographic analysis might be done of these areas. Or, specific information about a vehicle or a person might be entered using forced fields.

3. In many ways, the ICON system is similar to the Pyramid system and has the added feature of being portable. Portability of a system may prove useful where command centers change frequently or multiple command centers are present.

4. Interestingly, the increase in tip volume occurs *after* Homeland Security raises the terrorist threat level and not before. One might hypothesize that an increase in tips may lead to a raising of the threat level, but it is clear that at least the volume of tips and the tip process do not seem directly connected to the causal process by which levels are raised. This seems counterintuitive to a general tip line process which, like other intelligence systems, should serve as an early warning system for major events in addition to providing analysis and deployment to current incidents.

#### 4.4 CONCLUSION

In summary, the three detailed case studies confirmed our general survey findings. Tip line technology and processes seem to overwhelmingly emphasize case management over intelligence analysis and operate on a tip-by-tip basis. Although the validity of individual tips is not meant to be discounted, problem oriented and evidence based policing as well as findings from crime analysis have illustrated that valuable intelligence can be garnered by further analyzing information received. The tip-by-tip case management approach is indicative of the reactive, professional model of policing and does not take advantage of the benefits of systematic data collection and analysis.

We also were surprised by the manual nature of many of the tip line processes, a finding we discovered at both the local and federal levels. Many processes that could be replaced by quicker, more efficient automated systems were not used, despite their commonality and availability in some of the systems. Furthermore, deployment on tip information also reflected the manual nature of the process. Tips were organized and prioritized based on the informal rules guiding the agent or officer receiving the call, and very little systematic case management was utilized.

These findings will be invaluable for our project. In particular, the development of protocol, guidelines and technology during Phase II will try to improve on many of these processes as well as provide law enforcement with specific guidelines before, during and after critical incidents. We also plan to continue to our partnerships with MCPD, NYPD, and the FBI in developing meaningful tools for these and other practitioners.

## **5 OTHER EXAMPLES OF TIP LINE TECHNOLOGIES**

During our research, we also discovered a number of other tip line technologies that have been used in tip line processes. What follows is a very brief overview of a sample of common information technologies we found. One specific goal of Phase II (see Section 6) will be to analyze these and other technologies more specifically from a cost-benefit standpoint to determine which technologies may prove most useful to incorporate into the final tip line protocol (or if a new one should be developed). Thus, the list here is not comprehensive, but rather lays the groundwork for in-depth research and testing of specific technologies in preparation for Phase II.

### **5.1 COMPUTER AIDED DISPATCH SYSTEMS (911 AND 311)**

Computer aided dispatch systems, also known as CAD systems, 911 or 311 lines, are general police information systems that often receive tips during critical incidents. In many ways, our goals in developing the protocol and technology mirror the development and functions of CAD systems, which makes these systems generally useful in informing the development of tip line technologies. CAD was originally implemented to improve the command, control, and communication functions of law enforcement agencies so they could allocate resources to specific events (Bardfield, 1972; Fetherston, 1977; Schroeder, 1979; Sohn, 1978). For the vast majority of these systems, individuals call into a dispatch center and information about the caller and incident are typed into a database system. Dispatchers then allocate calls to officers or units who then are deployed on a call-by-call basis.

In addition to 911 call lines, some law enforcement agencies have also established “311” lines to reduce the volume of non-emergency calls that enter the 911 system (Solomon and Uchida, 2003). Like tip lines, 311 systems are dedicated information technologies designed to receive information from the public about non-emergencies. 311 lines differ from 911 systems in that they often do not use Automatic Number Identification (ANI) or Automatic Location Identifier (ALI) to identify the geographic location of calls. This anonymity may make some citizens more likely to call into the system, but it also sacrifices data that can be used for problem solving or analysis, and it disallows for call back if the connection is lost or more information is needed. However, 311 systems reflect an important development in obtaining non-emergency information from the public. Mazerolle (2001) found that the implementation of 311 lines decreased calls to 911 systems, and also decreased police time to respond by 11% for all calls.

Although CAD and 311 systems are often not designed to run analysis on information received, there are many cases in which data from these systems have been easily retrieved, downloaded, and analyzed. One need only look at police and criminological research in the last thirty years, which shows not only that CAD information can be retrieved, but also that a range of statistical, geographic, pattern, temporal, and other types of analysis can be done on this information. One program we did find that may be helpful to our project was the U.S. Department of Justice Office of Community Oriented Policing Services (COPS) 311 Technical

Assistance for Start-Ups package. The statistical software developed under this program can generate daily emails to law enforcement officials that outline all calls of a specific nature or it can generate a daily bulletin of calls requiring a response (Chapman et al., 2002). Also previously mentioned was NYPD's "PUSH" system which transfers information from CAD systems to tip line databases.

Computer-aided dispatch systems such as 911 and 311 lines are important to consider in this project for a number of reasons. First, concerns when setting up a tip line can mirror those of a 311 system, including what types of equipment, personnel and protocol will be used in receiving and acting upon incoming calls. Secondly, during critical incidents like the sniper case, a number of tips came through the 911 system that should be included in analyses or investigations. Tip line protocol and technology needs to include this important (and potentially problematic) concern. Finally, in critical events when call volume dramatically increases, 311 systems might be useful as a tip line collection system and may be able to handle an increased volume of calls.

## 5.2 CRIME STOPPERS

Crime Stoppers International ([www.c-s-i.org](http://www.c-s-i.org)) represents a conglomeration of Crime Stoppers programs that act as crime tip line submission systems. These programs are usually operated by non-profit organizations and led by voluntary boards of directors. Crime Stoppers is active in the United States, Australia, Canada, and the United Kingdom. It is a general, telephone-based tip line that receives tips on all types of crime. Crime Stoppers programs are advertised in local newspapers, radio stations, and television stations, and may also use video re-enactments to describe highlights of the case.

The first Crime Stoppers program was developed in Albuquerque, New Mexico in 1976 in response to an unsolved homicide case. The police used the media as a resource to solicit information from the public regarding the case. Crime Stoppers asserts that the case was solved within seventy-two hours due to the influx of tips received. This success led non-profit organizations to develop more Crime Stoppers programs. Currently there are 1,200 Crime Stoppers programs in existence across multiple countries. At the time of this report, Crime Stoppers has claimed credit for the seizure of approximately US\$7 billion in illicit drugs and stolen property, as well as 1,056,082 cleared cases and 579,069 arrests.

Two main incentives exist for individuals to call into a tip line submission system such as Crime Stoppers: anonymity and cash reward. All callers remain anonymous and unrecorded, and there is no way to trace the call. Secondly, rewards are paid to individuals with tips that lead to the arrest and indictment of a suspect who is charged with a felony offense. Although the details about the process by which technology is used by Crime Stoppers programs could not be more specific ascertained, it appears these tip lines use various types of management software to manage tips. These include TipSoft by Anderson Software, and various software products by DBR Group Pty Ltd, Jansen's Software, and Hayward Logic. Calls are received by these organizations and tips are then passed to local law enforcement.

### 5.3 AMBER ALERT SYSTEMS

Another well-known tip line process we encountered is America's Missing: Broadcast Emergency Response, or known in short as Amber Alert, the national emergency alert system for missing children. The Amber Alert system is incident-driven and was created for the purpose of rapid response. Amber Alerts are generated by the law enforcement agency that has jurisdiction over the case. When a child is reported missing, local or state authorities solicit information from the public through the news media or internet.<sup>18</sup> The agency sends an electronic message to television and radio stations, other law enforcement agencies, and in some states toll booth collectors, with information regarding the incident. At the same time, a designated Amber Alert coordinator will report the alert to the National Center for Missing and Exploited Children (NCMEC), who will in turn notify national communication companies (Department of Justice, 2004).

The Amber Alert system will give information such as the child's and/or kidnapper's description (Johnson, 2005) in the hopes of quickly locating either individual. Law enforcement must enter in the description of the child into NCIC as well. If a citizen has any information regarding the missing child, they can directly call their local police department or the NCMEC's hotline (1-800-THE-LOST). While the Department of Justice outlines guidelines for law enforcement, transportation officials, and broadcasters in using Amber Alert, there is no mandated criterion in place establishing a standard operating procedure (Department of Justice, 2004). The Amber Alert system is coordinated across local and state agencies, but is limited in its capacity to operate across state lines (Cannon, 2002).

### 5.4 ENCOMPASS: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Another type of information technology that may be useful in developing tip line protocol and technology are systems similar to the Defense Advanced Research Projects Agency's (DARPA) Enhanced Consequence Management Planning And Support System (ENCOMPASS).<sup>19</sup> ENCOMPASS is crisis management software that provides a tool for law enforcement and emergency response teams to share information during the planning and execution of a coordinated response in the event of a crisis situation. DARPA describes this system as web-based software that collects and distributes data to and from multiple sources. The system has capabilities including computer mapping, tracking, and documentation of the response. Through ENCOMPASS, command centers can manage the response as a whole by directing and coordinating first responder activities (Williams et al., 2002).

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<sup>18</sup> Amber Alerts are available at [www.amberalert.gov](http://www.amberalert.gov) or [www.codeamber.org](http://www.codeamber.org)

<sup>19</sup> See [www.darpa.mil/dso/trans/acm.htm](http://www.darpa.mil/dso/trans/acm.htm).

## 6 CONCLUSION

From January through May of 2005 we conducted both a broad and specific survey of tip line technologies, as well as placed this project into the context of research knowledge on problem-oriented and evidence-based policing, crime analysis, information technology, and multi-jurisdictional information sharing. We also conducted numerous site visits to both local and federal law enforcement agencies in order to better understand needs related to tip line use, protocols, operationalization and effectiveness. Our findings indicate that tip line technology and information is underutilized and underdeveloped, and does not meet the needs of law enforcement agencies in its current form. Guidelines and protocols for preparation for and response to critical incidents using tip lines are needed, as well as more systematic approaches to collect, analyze, operationalize, and disseminate intelligence received from tips.

Although literature was scarce which directly evaluated the effectiveness of tip lines or other information collection technologies in policing, a number of research perspectives support the idea that improving tip line use has both theoretical and practical merit. The movement towards evidence-based policing and the use of increased information and analysis in law enforcement deployment strategies such as problem-oriented policing centralizes the importance of information in improving the crime prevention effects that police can have. Improving tip line protocol and technology falls under the broader goal of improving information collection, processing, analysis, and operationalization/deployment, which has proven to be a useful police goal.

It was also clear from both the broad and specific surveys we conducted on tip line protocols and related technologies that although the concept of the tip line is not uncommon, tip line processes and their technologies are widely under-utilized, employ low levels of technology, and do not use analytic functions. In many cases, tips are hand-written and only informal protocol and guidelines are used for responding to critical incidents. When tip line computerized technologies do exist, they tend to be case-management systems that have limited, if any, analytic capabilities. There is also a common misconception about the term “analysis”, which is often used to describe the informal process by which tips are individually read and assigned to officers for follow-up based on unsystematic prioritization systems. We not only found a lack of analytic capabilities in software used, but also either an ignoring of data analysis or the belief that such analysis only served administrative functions.

In concluding, we outline a hypothetical event and tip line process to guide our efforts in Phase II. The hypothetical vision discusses an “optimal” scenario of tip line use and highlights the lessons learned above. This vision will also help structure the overall goals and stages of this project and place it in a meaningful context. We also discuss our Phase II goals, which will focus on developing the actual tip line protocols and technologies.

## 6.1 ENVISIONING A HYPOTHETICAL EVENT AND TIP LINE PROCESS

### *1. Agencies conduct pre-incident preparation activities*

Police agencies often prepare for many incidents in advance, from responding to “everyday” incidents to critical, rarer events. While the project itself is a testament to proactive preparation for future events, preparation may also include assessing an agencies needs, obtaining hardware and software (or knowing where to obtain it if a situation arises), developing contacts outside of the agency, and training personnel. In our final protocol workbook (created in Phase II and finalized in Phase III), we plan to create guides for these preparation activities.

### *2. The incident occurs or there is a potential for an incident to occur*

Initially, a protocol was envisioned to be useful in critical incidents similar to the sniper case – a “high intensity” event which generates widespread fear or concern and which requires a speedy resolution. However, our findings regarding the theoretical support for the use of information in proactive police efforts, results from our general survey of a random sample of United States police agencies, as well as the more detailed interviews of the FBI, NYPD, and the Montgomery County Police Department, all indicate that such protocol and technology could be useful in a variety of settings and situations. We anticipate the tip line protocol to be applicable for three general categories of need:

High Intensity Events – In the Sniper incident, more than 110,000 tips were collected manually in a period of twenty-one days. A number of needs for the processing of such tips were immediately evident, including the ability to record every tip in the most efficient and inclusive approach possible, a way to quickly process and analyze the tips both for their individual meaning and underlying patterns, the ability to create meaningful information groups of related tips, and the ability to make such tips operational for the quick resolution of these cases. Examples of high intensity cases may include serial crimes like the Montgomery County Sniper incident, the Ohio highway shootings of 2003, an event similar to the Oklahoma City bombing, September 11<sup>th</sup>, or a missing or kidnapped person.

High Profile Events – Tip lines are also useful in high profile events, even when urgency may not necessarily be a priority. Tip lines are valuable because they provide an anonymous, dedicated intelligence gathering system, even for the most minute or seemingly routine piece of information regarding a particular incident. Providing a dedicated tip line serves to prevent the overloading of 911 systems while at the same time providing a cache for the collection of data that may prove useful in assisting law enforcement to solve problems. Examples of high profile events can include large and violent drug markets in an area, “cold” cases (cases which have not been resolved for long periods of time), or missing person cases.

General Applications – Tip lines are also used in general applications such as Crime Stoppers, anonymous drug market tip lines, or tip collection systems for general crime prevention in

schools or communities. While the protocol we propose will be geared toward high-intensity situations in which large amounts of tips are garnered in short periods of time, the technology remains relevant to any situation in which tips are collected, therefore further recommendations of protocols for more general situations will be made. Our review of tip line applications over the past five years indicated there is a wide variety of general uses including crimes of homicide, burglary, robbery, drugs, school crime, sexual assault, arson, alcohol violations, weapon related crimes, gang activity, vandalism, animal abuse, or traffic concerns.

### *3. The tip line protocol is operationalized*

Once an incident occurs, an operational protocol is useful in defining and directing the process of implementing the tip line. Lessons learned from the case studies detailed in this report on the Sniper incident, NYPD's NYC Safe Line, as well as general experiences of the FBI, show that a number of major obstacles exist when a large volume of information regarding an event floods police telephone lines or 911 systems. These experiences suggest that a tip line protocol needs to describe how to integrate the tip line into a command center; how to obtain and operationalize physical equipment (computers, phones, internet tip lines, system integration, or adaptation), how to determine what personnel will operate the tip line and how to quickly train and deploy them, what types of information technology systems will be used to quickly and efficiently receive tips, how and where the tip line will be publicized, and what special assistance police should seek from other groups and communities. A number of questions arise during this stage, including what are the needs and requirements for operationalization, how feasible is deployment, how will publication and outreach take place, and what types of tip lines will be used. The operationalization of the protocol must also be feasible, user-friendly, and require minimal training and set-up.

### *4. Data is collected/retrieved and automated*

In the best case scenario, data is collected through tip lines and immediately automated. As is the case with many existing tip lines, the collection technology involves hand-written information on pieces of paper. While the operationalization and set up of the tip line protocol is itself a major undertaking, the protocol must also involve a strategy to collect, retrieve, and automate tips more efficiently. There are a number of options for the collection of tips, the most common being via phone, internet, or email. Data collected via the internet can be immediately loaded into a database with the assistance of a web interface. Phone tips may have to be manually entered into a database system by the call taker.

### *5. Analysis is continuously conducted during data retrieval*

The project team also envisions an automated data collection system that would allow for continuous analysis of data during retrieval. This is a key vision of this project – to provide a technology which can conduct continuous and immediate analysis while information is received.

An example of this that could have been useful during the Sniper incident is the immediate geocoding and mapping of the location of suspect vehicle sightings immediately after a shooting. Mapping the location of reported sightings as they are called in may better pinpoint the movement of suspect vehicles in order to direct road blocks. A software system that allows for user friendly data entry and analytic options is the most optimal, efficient approach. Analytic outputs must be sophisticated but at the same time easy to interpret, understand, and operationalize by lay individuals. This project envisions the term “analysis” to move beyond the reading and triaging of tips. Analysis should also include finding underlying patterns and clues within large amounts of seemingly routine or unimportant tips.

Types of analysis that may prove useful include:

- Descriptive or count statistics
- Patterns of descriptions
- Common tags/vehicles
- Key word analysis of descriptions
- Statistical analysis
- Geographic analysis
- Modus operandi analysis
- Grouping and other queries

#### *6. Integration of other data sources into analysis*

One important aspect of any information technology system is the integration of other sources of information to supplement and enhance the original tips. In the sniper case, the suspects were present in a number of other information systems, including motor vehicle registration, the ATF’s firearms database, and Baltimore City Police Department’s information system. This project envisions a protocol that directs law enforcement toward multiple information sources so that information can be cross-referenced. While it is impossible to integrate other databases into a single information technology used by a local police agency, it is possible to create protocol within a tip line system that includes requests for the search of other data sources. For example, when running an analysis on common information about vehicles, prompts and contact information to search motor vehicle databases will be given with specific suggestions on data retrieval. Thus, the incorporation of other data sources is an important vision of this protocol.

#### *7. Continual application and operationalization of analytic results*

This project envisions the protocol and technology to be designed with the ability to conduct analysis at any time during the collection of data, facilitating the immediate and continual application of analytic results. This includes protocol for operationalizing these analytic results in the field. A common approach taken by law enforcement agencies at present is to disseminate the most promising individual tips into the field for follow up. This project will explore other options, specifically, whether it may be useful to follow up on patterns and trends

of tips, not only individual ones and how might these analytic results be operationalized into deployment strategies.

### *8. Resolution and assessment*

Assessment of tip line protocol as it relates to both the resolution of the situation and the ease of operation is an important part of this project and of the protocol and technology more generally. The goal of the protocol is to improve the speed of resolution, ease of operationalization, analysis and application, use of all available information and technologies toward resolution, integration of other sources of information into resolution, and cooperation between law enforcement agencies and analytic and information sources. In Phase III, we anticipate a testing stage in which we modify the protocol and technology to address concerns and issues that arise during implementation. Within written protocols, we will also suggest methods by which the protocol and technology might be evaluated.

## **6.2 WHERE DO WE GO FROM HERE?: PHASE II GOALS**

Given our findings from Phase I, four general goals of developing tip line protocol and technology will be pursued in developing protocols and technologies during Phase II of this project (June – December, 2005). First, the operation of the protocol must be feasible, with user-friendly technology that requires minimal training and set-up. Secondly, analytic outputs must be sophisticated but at the same time easy to interpret, understand, and operationalize by law enforcement. Analysis will be an integrated part of the protocol and technology developed. Furthermore, goals cannot be over-reaching (e.g., we do not plan to create a system which integrates available information from all possible sources). And finally, the primary goal is to improve intelligence gathering, analysis, and operation for use in resolution of multiple problems. To accomplish these goals, the following tasks will be performed during phase II:

1. Develop a protocol for tip line set up and use in high intensity events by incorporating technological and deployment needs of law enforcement community. In Phase II, we plan to create a working guide that can be used by law enforcement during the set up of a tip line during a critical incident. This guide will be in the form of a standard operating protocol to facilitate the ease and quickness of its use. In this guide, we will outline a step-by-step process of how to prepare for incidents in which a tip line is employed as well as what agencies can do during a critical incident. We view this protocol/guide as equally important as developing the information technology, since many of the challenges of setting up and using tip lines lie in operationalizing tip lines, not just in the information technology used. We anticipate completing this guide for publication during Phase III when we test and revise the protocol utilizing expertise of our law enforcement partners.

2. Our search for useful and cost-effective technologies will be approached in two ways. We envision an automated entry system of tip information using a telephone and online integrated approach. This dual-approach provides the most flexibility to law enforcement and may solve some of the problems related to lost data and massive increases in the volume of calls during a critical incident. Ideally, we hope to search for a database system (or develop one ourselves) that automatically receives information entered on a web-based interface as well as information entered by the receiver of a telephone call. Paper-based systems will not be explored as they are viewed as inefficient and outdated.
3. We also need a system that can be integrated with a variety of search and analytic functions, as well as one which includes a geographic information system. Analytic functions are an important part of evidence-based and problem-oriented policing. In particular, aside from examining individual tips, can tips be combined, analyzed, or statistically manipulated to obtain more information that law enforcement might find useful? We plan to test tip line data (or a simulation of tip line data, if necessary) using a variety of analytic functions during Phase II and attempt to locate a technology that can incorporate analyses we find useful. During Phase III, we will test this technology with the help of our law enforcement partners.
4. Phase II also involves a more in-depth review of available technology, including a cost-benefit analysis of such technology. This will include contacting vendors for detailed product information and conducting market studies identifying, and ranking, current technological solutions.
5. As part of our protocol workbook, we will continue the information sharing sub-project by creating guides for the final workbook as well as incorporate guides into technology. These guides will suggest to agencies multiple databases by which to connect to (e.g., motor vehicle, local and federal law enforcement, telephone, credit card and bank companies, and other sources of information).
6. Finally, during Phase II, we will establish all infrastructures to test and revise the product during Phase III. A final report will be completed for each phase.

As already outlined in the introduction, our Phase II deliverables are:

#### **PHASE II DELIVERABLES**

- Develop a protocol workbook (which will be tested in Phase III) informed by the project findings to assist law enforcement in their preparation and response to incidents using tip line technology.
- Determine, create, and test collection interfaces for telephone, internet, and email tip lines.

- Review and conduct cost-benefit and market analysis of multiple technology systems that can accommodate law enforcement needs with regard to tip line processes.
- Test different types of analysis on sample data (geographic, statistical, pattern, modus operandi, trend) as well as search strategies (key word, SQLs) to determine types of analysis that might be useful. Also, determine how these analytic functions can be incorporated into information technology.
- Continue information sharing sub-project by creating guides for the final protocol workbook as well as incorporate guides into technology. These guides will suggest to agencies multiple databases by which to connect to (e.g., motor vehicle, local and federal law enforcement, telephone, credit card and bank companies, and other sources of information).
- Secure test cases for Phase III.
- Complete an executive summary and final report for Phase II.

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## 8 APPENDICES

### APPENDIX A: TIP LINE TECHNOLOGY FORMAL LETTER AND SURVEY

#### **Tip Line Technologies: Intelligence Gathering and Analysis Systems Request to Participate in Survey**

**Requested by:** Northeastern University, Department of Criminal Justice

**Principal Investigator:** Dr. Cynthia Lum (617-373-4076, c.lum@neu.edu)

**Title of Project:** Tip Line Technologies: Intelligence Gathering and Analysis Systems.

**Sponsoring/Lead U.S. Government Agencies:** Department of Justice, Department of Defense

**Program Manager:** Brooke Trahan, (617) 373-2644, Brooketrahan@aol.com

**Participant sought:** Chief Executive Officer (Chief, Commissioner, Superintendent) of randomly selected law enforcement agency or officially designated personnel.

Dear Sir/Madam,

We would like to invite you to take part in a survey to facilitate our understanding of tip line technologies and operational protocols. The purpose of this project is to identify the existing protocols for the implementation and operation of tip lines currently employed by U.S. law enforcement agencies as well as to ascertain the experience of U.S. law enforcement agencies in situations when tip lines have been utilized. This project, sponsored by the Department of Justice and the Department of Defense, is intended to develop operational protocols and the information technologies necessary to facilitate the immediate collection and analysis of information in “high-intensity” or “high-profile” incidents which demand an urgent response and quick resolution.

If you decide to take part in this study, we will ask you to fill out a survey/questionnaire about tip lines and associated technologies that your agency may or may not employ. The survey will take about 10 (ten) minutes. Please note that your law enforcement agency’s participation in this survey is completely voluntary and there are no direct benefits to you for participating in the study. However, your answers will help us to learn more about the current status of tip line technology, protocols for implementation, and operational experiences.

Your participation in this survey will be as an official representative of your law enforcement agency, and, therefore, the survey participant will be considered the law enforcement agency and not you personally. Contact information will be requested at the end of the survey, but the completion of this section will be at the discretion of the participating law enforcement agency. The purpose of collecting contact information is to allow researchers to re-contact you or another designated individual in your agency as to follow-up questions as well as possible future collaborations on this project. Any reports or publications based on this research will use only group data and will not identify your law enforcement agency specifically. The

decision to participate in this research project is at your discretion. You do not have to participate and you can refuse to answer any question.

If you have any questions about this study, please feel free to call the project manager, Brooke Trahan at (617) 373-2644 or reach her by e-mail at [BrookeTrahan@aol.com](mailto:BrookeTrahan@aol.com). You are also welcome to contact the principal investigator, Dr. Cynthia Lum, directly at 617-373-4076 or [c.lum@neu.edu](mailto:c.lum@neu.edu).

If you have any questions about your rights in this research, you may contact Vivienne A. Conner, Coordinator, Human Subject Research Protection, Division of Research Integrity, 413 Lake Hall, Northeastern University, Boston, MA 02115, phone: 617.373.7570. Thank you for your time and participation, it is greatly appreciated.

**TO THE PARTICIPATING LAW ENFORCEMENT AGENCY: YOUR ANSWERS FOR THIS SURVEY ARE ENTIRELY VOLUNTARY. PLEASE RETURN THIS SURVEY TO BROOKE TRAHAN AT [BrookeTrahan@aol.com](mailto:BrookeTrahan@aol.com) NO LATER THAN XXXXXX. YOU MAY ALSO FAX THE COMPLETED SURVEY TO (617) 373-8998 attn: DR. LUM.**

**IF YOU HAVE ANY QUESTIONS WHILE COMPLETING THIS SURVEY, PLEASE DO NOT HESITATE TO CONTACT US. A MEMBER OF THE PROJECT STAFF CAN BE REACHED AT (617) 373-2644 OR BY E-MAIL AT [BrookeTrahan@aol.com](mailto:BrookeTrahan@aol.com) .**

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This survey asks questions about two types of tip lines, **GENERAL USE** and **INCIDENT-SPECIFIC**. Before completing the survey, please read the following definitions of general use and incident-specific tip lines. Please contact the project staff if these definitions are not clear, as they must be understood in order to complete the survey.

**General Use:** A telephone, email, or internet tip line system made available to the public AT ALL TIMES for the submission of tips. General use tip lines are used for the collection of tips on an everyday basis but can also be used for the collection of tips for a specific incident.

**Incident-Specific:** A telephone, email, or internet tip line system made available to the public SPECIFICALLY FOR THE SOLICITATION OF TIPS RELATED TO A PARTICULAR INCIDENT.

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**Directions:** If you are using a computer to complete this survey, please click inside the grey box provided to start typing. There is no limit on the length of your answers.

## SECTION 1 -- GENERAL QUESTIONS

**Date Survey Completed:**

**1. Which of the following types of tip lines, if any, has your agency ever used? (Please indicate ALL that apply)**

- General use  
 Incident-specific  
 My agency has never used a tip line. (If marked, immediately skip to Section 4 on Page 6)

**2. Does your agency have written protocols, general orders, or standard operating procedures regarding the implementation and/or operation of tip lines? (Please indicate ALL that apply)**

- Yes, for general use tip lines.                       No, not for general use tip lines.  
 Yes, for incident-specific tip lines.                       No, not for incident-specific tip lines.

**3. Does your agency ensure confidentiality and/or anonymity for individuals submitting tips?**

- Yes  
 No

## SECTION 2 -- GENERAL USE TIP LINES

**If you indicated in Question 1 that your agency has used a General Use Tip Line (even if that system is also used to collect tips for specific incidents), please answer the following questions in this section. If your agency has ONLY set up tip lines for specific incidents on an ad-hoc basis, please skip to Section 3 on Page 5.**

**4. How long has your agency's general use tip line been in operation?**

From: Month:                      Year:                      To: Month:                      Year:

**5. During the most recent calendar year (e.g., January 2004 – December 2004) in which the general use tip line was operational, approximately how many tips were received? (If your agency has multiple methods of tip collection [e.g., telephone and internet] please include tips from all sources)**

From: Month:                      Year:                      To: Month:                      Year:

Number of Tips:

**6. How is the public made aware of this general use tip line? (Please indicate ALL that apply)**

- |  |   |
|--|---|
| <input type="checkbox"/> Local phone book                      | <input type="checkbox"/> Television commercial              |
| <input type="checkbox"/> Community or city website<br>website: | <input type="checkbox"/> Agency website<br>website:         |
| <input type="checkbox"/> Radio commercial                      | <input type="checkbox"/> Newspaper                          |
| <input type="checkbox"/> News Conference/Broadcast             | <input type="checkbox"/> Other (please describe in detail): |

**7. What types of specific cases has your agency utilized a general tip line for? (Please indicate ALL that apply)**

- |  |  |
|--|--|
| <input type="checkbox"/> Missing Persons | <input type="checkbox"/> Sexual Assault  |
| <input type="checkbox"/> Homicide        | <input type="checkbox"/> Drug Offenses   |
| <input type="checkbox"/> Cyber Crimes    | <input type="checkbox"/> Arson           |
| <input type="checkbox"/> Terrorism       | <input type="checkbox"/> Weapon Offenses |
| <input type="checkbox"/> Other:          |  |

**8. How does your general use tip line receive tips? (Please indicate ALL that apply)**

- People call in by telephone and a live operator receives tips
- People call in by telephone and the call is voice recorded
- People send tips by email EMAIL ADDRESS:
- Web-interface/internet WEBSITE:
- Other (please describe in detail):

**9. How are the tips recorded from this general use tip line? (Please indicate ALL that apply)**

- Telephone tips are only written down on paper, cards, or carbon copies and are filed.
- Telephone tips are entered into a computer database.
- Telephone tips are recorded digitally or on tape (voice recordings).
- Email tips are only written down on paper, cards, carbon copies, or are printed out and filed.
- Email tips are entered into a computer database.
- Internet tips are only written down on paper, cards, carbon copies, or are printed out and filed.
- Internet tips are entered into a computer database by an individual.
- Internet tips are automatically downloaded as soon as a citizen submits them into a computer database.

Other (please describe in detail):

**10. How often are the tips reviewed or analyzed from this general use tip line?**

- Daily  
 Once a week or so  
 Once a month or so  
 Rarely  
 Only when the specific need arises  
 Never

**11. Please describe, in detail, how these tips are used. If the tips are never used, please indicate “Not Applicable”.**

Not Applicable

**12. Please describe, in detail, the types of review or analysis that are conducted based on the information collected from your general use tip lines. If the tips are never used, please indicate “Not Applicable”.**

Not Applicable

**13. Does your general use tip line have the capacity to accommodate a dramatic increase in volume of tips due to a highly publicized incident?**

- Yes  
 No  
 Do not know.

**14. Have you ever used your general use tip line for a specific incident?**

- Yes  
 No, we have never had a specific incident to use the tip line for. (Skip immediately to Section 4 on Page 6)  
 No, we had a specific incident but set up a separate tip line (Skip immediately to Section 3,

Page 5)

**15. How many specific cases has your general use tip line been used for?**

Number of cases:

**16. Please describe, in detail, the most recent specific incident in which you used your general use tip line to collect tips:**

Specific Incident Description:

**17. For that recent specific incident, how was the public notified that the general use tip line would be used in that specific incident?**

- |  |   |
|--|---|
| <input type="checkbox"/> Local phone book                      | <input type="checkbox"/> Television commercial      |
| <input type="checkbox"/> Community or city website<br>website: | <input type="checkbox"/> Agency website<br>website: |
| <input type="checkbox"/> Radio commercial                      | <input type="checkbox"/> Local newspaper            |
| <input type="checkbox"/> News Conference/Broadcast             | <input type="checkbox"/> Other:                     |

**18. For that most recent situation, how were the tips reviewed?**

- All tips were reviewed in the order that they were received.
- All tips were reviewed after they were ranked according to perceived importance, validity, or relevance.
- Some tips were reviewed based on a preliminary decision about importance, validity, or relevance.
- Some tips were reviewed based on available resources.
- No tips were reviewed due to a problem with technology or a lack of resources (material or personnel).
- Other:

**19. Please describe the types of analysis that were conducted on the tips that you collected in the incident-specific tip line.**

**20. For this most recent situation, how was the information and analysis from the tip lines distributed? (Please indicate ALL that apply)**

- Information provided in tips was given to on-duty officers and/or personnel to follow-up on.
- Information provided in tips was made available to the public.
- Other (please describe in detail):

**SECTION 3 -- INCIDENT-SPECIFIC TIP LINES**

**The questions in this section should be answered ONLY by those agencies that have set up a tip line for a specific incident. This section DOES NOT APPLY if you used your General Use Tip Line for a specific incident. If you have never set up an Incident-Specific Tip Line, please skip to Section 5 on Page 7.**

**21. How many cases have you set up an incident-specific tip line for?**

Number of specific incidents:

**22. What types of specific cases has your agency utilized an incident-specific tip line for? (Please indicate ALL that apply)**

- |  |  |
|--|--|
| <input type="checkbox"/> Missing Persons | <input type="checkbox"/> Sexual Assault  |
| <input type="checkbox"/> Homicide        | <input type="checkbox"/> Drug Offenses   |
| <input type="checkbox"/> Cyber Crimes    | <input type="checkbox"/> Arson           |
| <input type="checkbox"/> Terrorism       | <input type="checkbox"/> Weapon Offenses |
| <input type="checkbox"/> Other:          |  |

**23. Please describe, in detail, the most recent specific incident in which you set up an incident-specific tip line:**

Specific Incident Description:

**24. For this most recent situation, how were the tips recorded? (Please indicate ALL that apply)**

- Telephone tips are only written down on paper, cards, or carbon copies and are filed.
- Telephone tips are entered into a computer database.
- Telephone tips are recorded digitally or on tape (voice recordings).
- Email tips are only written down on paper, cards, carbon copies, or are printed out and filed.
- Email tips are entered into a computer database.
- Internet tips are only written down on paper, cards, carbon copies, or are printed out and filed.
- Internet tips are entered into a computer database by an individual.
- Internet tips are automatically downloaded as soon as a citizen submits them into a computer database.
- Other (please describe in detail):

**25. For this most recent situation, how were the tips reviewed?**

- All tips were reviewed in the order that they were received.

- All tips were reviewed after they were ranked according to perceived importance, validity, or relevance.
- Some tips were reviewed based on a preliminary decision about importance, validity, or relevance.
- Some tips were reviewed based on available resources.
- No tips were reviewed due to a problem with technology or a lack of resources (material or personnel).
- Other:

**26. Please describe the types of analysis that were conducted on the tips that you collected in the incident-specific tip line.**

**27. For this most recent situation, how was the information or analysis from tip lines distributed? (Please indicate ALL that apply)**

- Information provided in tips was given to on-duty officers and/or personnel to follow-up on.
- Information provided in tips was made available to the public.
- Other (please describe in detail):

**28. Were any of the tips, or the information provided from the analysis of the tips, useful in the successful resolution of that case?**

Yes

Please describe:

No

Please describe:

Not Applicable; the situation is still pending.

## SECTION 4 -- NO TIP LINES

**Please answer this question if you answered in Question 1 that your agency has NEVER used a tip line.**

**29. If your agency has never used or implemented a tip line, does your agency plan to implement any type of tip line in the future?**

- Yes, we currently have plans to implement a tip line.
- Yes, but our agency is currently lacking the funding, technology, and/or personnel to implement the tip line.
- No, there are no plans to implement a tip line due to funding, technology, and/or personnel constraints.
- No, we do not feel that tip lines are effective or practical for our agency.

## SECTION 5 -- CONTACT INFORMATION

**30. Can we contact you and/or your agency with further questions about your tip line protocols, and/or would your agency be interested in collaborating with us on a project related to tip lines?**

- Yes (if yes, please fill out the section below)
- No

NAME OF AGENCY:

NAME OF CONTACT FOR AGENCY:

ADDRESS:

CITY:            STATE            ZIP

TELEPHONE NUMBER:

FAX NUMBER:

EMAIL:

**Thank you again for your participation!**

**APPENDIX B: JOINT OPERATIONS COMMAND CENTER ORGANIZATIONAL CHART**

