TIPLINE

Handbook & Software
August 2008

Suspicious Activity Reporting

SPAWAR

Space and Naval Warfare
Systems Command (SPAWAR)

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TIPLINE Handbook

Suspicious Activity Reporting

August 2008

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1.1 Brief History of the TIPLINE System

The TIPLINE system was developed from recent lessons learned by law enforcement agencies after the 2002 Washington, D.C.-area sniper incident. In that case, the public, in response to solicitations by local law enforcement officials and the Federal Bureau of Investigations (FBI), provided over 100,000 tips (the exact number may have been much more) to aid in the investigation. The sheer volume of tips, combined with the lack of an automated tip line system, proved a major challenge for law enforcement during that investigation and resulted in an inefficient use of the many tips that were generated. From in-depth discussions and working groups comprising commanders of the Montgomery County Police Department (the lead municipal agency in Maryland) and other involved officials, the project team used those lessons learned to initiate Project TIPLINE.

Spearheaded by researchers at George Mason University and sponsored by the U.S. Departments of Justice and Defense, **Project TIPLINE sought to create an automated tip collection, management, and analytic system that was freely available, adaptable, operationally relevant, practitioner friendly, and that could be used across a wide range of police agencies having various technological and personnel capacities**.

Especially helpful in creating this handbook was the "**Tip Line Technologies: Intelligence Gathering and Analysis Systems *Phase I***" document written by Dr. Cynthia Lum. The document was the executive summary for the initial idea, research, and development of Project TIPLINE. It provides a general overview of the project's vision and information about the state of tip lines in the United States. The full report is located at: ***http://www.ncjrs.gov/pdffiles1/nij/grants/211677.pdf.*** Additionally, the "Tip Line Technologies" excerpt of this report is in Appendix A of this document.

1.2 The TIPLINE Package

This package includes the free TIPLINE software application and its user guidelines in addition to this Handbook, which provides lessons learned from the Washington D.C.-area sniper incident and suggestions for creating standard operating procedures for responding to events that may use tip line systems.

Specifically, the TIPLINE package includes the following materials:

- **TIPLINE Online Submission Forms**
  The Tip Online Submission Forms for both general and critical incidents are included with the TIPLINE software application package and should be installed on an agency's Web server or standalone computer (depending on how TIPLINE is used).

- **TIPLINE Database**
  The TIPLINE database, to which the online forms will be connected, receives and stores tips that are entered using the Tip Online Submission Forms. The database stores the information systematically to facilitate analysis.

- **TIPLINE Analytic Application**
  The TIPLINE analytic application analyzes and sorts large volumes of tips stored in the database.

- **TIPLINE Handbook**

  This TIPLINE Handbook contains the following information:

  - Instructions for installing, activating, and using the TIPLINE system.
  - Standard operating procedures for establishing tip lines.
  - Instructions for running tip analyses and examples of how they can be used by law enforcement agencies.
  - Guidelines for preparing personnel and the call center, and for recording information related to the call center.
  - Suggestions for modifying or adapting any parts of these materials for an agency's own needs in responding to critical incidents, ongoing investigations, and other law enforcement concerns more efficiently.

Law enforcement agencies are encouraged to use and adapt any parts of these materials for their own needs.

1.3 Applications of the TIPLINE System

TIPLINE processes and applications can be used by police agencies to record, manage, and analyze large amounts of tip information submitted by the public. Because TIPLINE is an automated system that does not rely solely on the use of telephones, it can be used in ongoing investigations and in critical incidents to facilitate a rapid response to an urgent situation.

TIPLINE can have a wide range of applications in a police agency and can be used in agencies with varying technological resources. This handbook and software application allow law enforcement agencies to tailor and develop their own tip line processes and standard operating procedures.

1.3.1 Critical Incidents

Critical incidents such as the Washington, D.C.-area sniper or high-profile kidnapping or missing children cases often use tip lines to facilitate a rapid response for an urgent situation. Such a rapid response requires that tip line systems be in place before an event occurs. The TIPLINE package provides guidelines, Web interfaces, databases, and analytic applications to prepare for the automated intake and analysis of large volume of tips, and provides templates for agencies to create standard operating procedures tailored to their needs and agency standards.

1.3.2 Ongoing Investigations

The TIPLINE Handbook and software can also be used to develop general tip lines for ongoing investigations of persons, places, criminogenic commodities (for example, drugs, guns), or other community problems faced by law enforcement agencies. For example, tip lines can be used to solicit anonymous tips about drug trafficking, gang activity, or gun violence in an area or to obtain information about specific cases as they arise. Because it is an automated system that does not rely only on the use of telephones, multiple tip lines can be in operation simultaneously (for example, multiple TIPLINE links that connect to a single database or separate incident databases may be placed on an agency's Web site).

1.3.3 Other Uses

TIPLINE processes and applications can also be used by police agencies to record, manage, and analyze large amounts of information for other law enforcement purposes, such as problem-solving projects, citizen complaint systems, or for use in natural disasters or mass-casualty events. For example, police agencies can use this system to receive and analyze patterns among citizen complaints that may be useful in improving the performance and legitimacy of an agency. There may be an immediate need to record data on missing individuals across multiple jurisdictions and to continually update their status to inform family members and the media, as was the case during Hurricane Katrina.

1.4 Benefits of the TIPLINE System

The TIPLINE system offers many benefits to law enforcement agencies:

- The software is free, easy to use, and adaptable.
- No subscription to an information service is necessary. This is not a trial version of a larger application; all materials used in the TIPLINE system, including this Handbook, are enclosed.
- These materials are sponsored by the National Institute of Justice of the U.S. Department of Justice and the Space and Naval Warfare Systems Center, Charleston, of the U.S. Department of Defense.
- These materials are based on practitioner- and evidence-based research about what is known about tip lines in the United States, how they can be used, and what works in collecting, analyzing, and using large quantities of tips.
- These materials have been created in direct consultation and testing with the Montgomery County Police Department (Maryland), Fairfax County Police Department (Virginia), and Manassas City Police Department (Virginia), individuals who have direct experience and knowledge about tip line use, crime analysis, information sharing, and police deployment.
- The protocol and software emphasize automation and analysis, moving away from hand-written systems that examine tips on a tip-by-tip basis. Automation and analysis are major components missing in most tip line processes.
- This Handbook and software are modifiable to an agency's own standards, resources, technology, and capabilities in order to minimize the costs of setting up and preparing for tip line responses.

1.4.1 Users Exchange Forum

Users may wish to exchange experiences relating to their use of the system, such as ideas about agency adaptation and suggestions for troubleshooting. To access this user exchange, please go to the following Web address: ***http://gunston.gmu.edu/clum/Tipline/About.html***.

Note: Users may find additional information about the TIPLINE project at the following Web sites:

Project TIPLINE Web Site
http://gunston.gmu.edu/clum/Tipline/About.html

The Preliminary Project TIPLINE Research and Development Report
http://www.ncjrs.gov/pdffiles1/nij/grants/211677.pdf

2.1 The Importance of Preparing and Setting Up Tip Lines Before Incidents Occur

Agency preparation is crucial to successfully employing tip lines. Critical incidents, as well as general investigations, can benefit from, and sometimes require, that operational systems and processes are already in place and ready to use when a critical or major event occurs. Common challenges and potential pitfalls can be avoided by developing and discussing, in advance, the standard operating procedures, strategic plans, and technical processes necessary to employ a tip line system.

Law enforcement agencies often have the following questions that necessitate strategic planning and setting up technical capabilities ahead of time:

- Will our agency be immediately able to solicit tips from the public? How will incoming tips be received and operationalized?
- If tips are collected using telephones, does our agency have the physical equipment and personnel resources to receive telephone tips? Can we rely on a company, community partner, or government agency for the necessary equipment?
- How can telephone tips be immediately entered into a computerized database?
- If tips are to be collected via the Internet, does our agency have a Web interface and system in place where citizens can submit tips online?
- Do we have a computerized system where tips can be automatically and quickly entered, downloaded, searched, sorted, prioritized, and analyzed for patterns?
- Which unit or personnel will manage the collection and analysis of tips?
- Are we prepared to quickly train individuals during critical incidents to use the system? Who will retain institutional knowledge about the tip line system?
- In a critical incident, where will the tip line command center be housed? Does that command center have the physical and electronic needs to operate a tip line system? If not, what are some alternatives to collecting large amounts of tips in a critical event?

- If we involve other federal, local, or state police agencies in critical or ongoing investigations, can they adapt to, and coordinate with, our tip line system quickly?

- How can we best use the tips we collect without being burdened by backlogs and data entry?

- What are some ways in which analyzed tips can be used to aid in investigations?

These questions can be addressed with Project TIPLINE. This section of the Handbook will assist agencies in preparing for tip line use by providing suggestions on how to solicit, receive, automate, analyze, and operationalize tips using the TIPLINE system. Additionally, it provides more general comments on how to prepare for critical incidents using tip lines. It should be noted that law enforcement agencies should not rely solely on the automated analytical features of the software. It will be necessary and vital to have human review prior to police action.

2.2 Understanding the TIPLINE System

Prior to using the TIPLINE system, agencies should discuss and understand the TIPLINE process in the context of their own capabilities and needs. The process involves four steps:

1. Receiving and collecting tips using both online and telephone systems.
2. Immediately downloading, automating, and storing tips in a database.
3. Analyzing the stored tips using the TIPLINE analytic application.
4. Operationalizing tip analysis.

Figure 2-1 illustrates the four steps of the process.

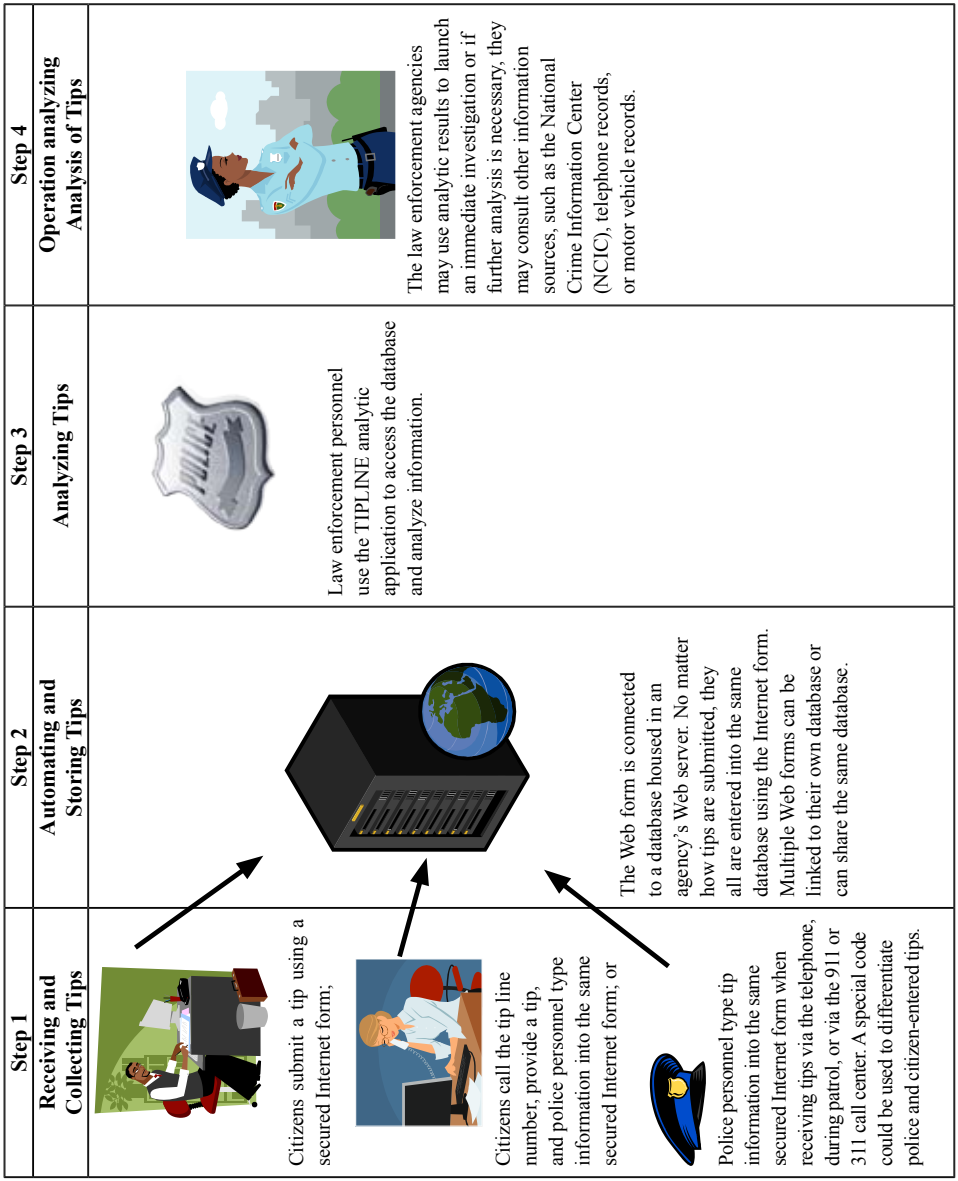


Figure 2-1: The TIPLINE Process

2.2.1 Receiving and Collecting Tips Using Both Online and Telephone Systems

The TIPLINE system uses a Web-based form, which is placed on the police agency's Web site to collect tips. Tips can be submitted directly by the public or by officers who receive tips.

Using a Web-based form for data entry is an efficient tip-entry approach for several reasons:

- ***Paper-based, hand-written forms take longer to create, use, transmit, and analyze.*** Eventually, such information has to be individually and manually entered into a computer if any form of analysis or even basic sorting and case management is conducted. Web-based forms eliminate this problem by allowing tips to be directly entered into a database in real time and automatically ready for more advanced analysis.

- ***Web-based forms can be used in multiple ways and at the same time.*** The public can enter tips directly through the Internet, or police can enter tips into the same form if they receive tips by telephone or in the field. Separate tip lines can exist simultaneously and for different investigations, and seemingly separate tip submission forms can be linked to the same database.

- ***Online tip submission forms can be accessed anywhere an Internet connection is available.*** For example, if federal agents or other jurisdictions become involved in a major investigation and receive calls at multiple locations, they can enter tips into the same database from multiple locations for combined analysis of all tips. For incidents that span jurisdictions, a Web-based form eliminates having to coordinate collection and integration of paper tips from different locations and the transferring of tips to a central repository. With permission granted by the controlling agency that houses the database, the database can be accessed and analyzed by multiple jurisdictions that have the TIPLINE analytic application.

- ***A Web-based form can dramatically reduce the number of telephone calls to a tip center.*** This will help avoid "busy signal" problems if resources are not available to take each call. If dispatchers cannot transfer tip calls to a tip center, they can enter tips directly into the Web form via Internet connections at their terminals. This also reduces citizen dissatisfaction with the process.

- ***Citizens can submit tips more privately with online forms than with a telephone.***

2.2.2 Immediately Automating, Downloading, and Storing Tips in a Computerized Database

The Tip Online Submission Form allows tips to be automatically downloaded and incorporated into the TIPLINE database, which is placed on an agency's Web server. This automated system of direct download from the Web interface to the computer database eliminates having to enter handwritten tips into a computer database from a single location.

The online form has preset choices, thus reducing data entry problems. Furthermore, using a server allows data to be accessed from any location using a secured password/login process.

The actual source codes are included in this package, so agencies can modify the forms and databases to their needs.

2.2.3 Analyzing Received Tips Using the TIPLINE Analytic Application

Automated data entry allows tips to be immediately analyzed. The database in which tips are stored is accessed by the TIPLINE analytic application (or can be directly downloaded by an individual who knows how to analyze data in database programs such as Microsoft Excel or Access or statistical applications such as SPSS), and analytic results can be generated at any time, with a continuous stream of data.

Using the system requires only basic computer knowledge. The software works by linking to the database, accessing the information in that database, and providing a "point and click" interface in which police personnel choose single or multiple search options (similar to Standard Query Language (SQL) commands). These are some of the analytic applications:

- Search 10,000 tips for the top 10 most frequently appearing combinations of suspect and vehicle characteristics.
- Search tip "hot spots" by examining the most frequently mentioned street addresses in tips.
- Search basic keywords and tip characteristics.

2.2.4 Operationalizing TIPLINE Analysis

The results of the analysis are returned to those involved in the investigation through deployment processes established by agencies. Here are two examples of how the results of TIPLINE analysis might be used:

Example 1: After generating a list of the top 20 drug market blocks, officers can be dispatched to those areas for saturated patrol and other deployment tactics.

Example 2: If 20 license plates appear more than once in 10,000 tips, investigators can run those licenses against motor vehicle records to obtain information on persons of interest.

TIPLINE capitalizes on existing law enforcement practices and provides a technical "edge" by giving investigators more accurate targets of investigation.

2.3 Modifying TIPLINE to Fit an Agency's Needs

The following sub-sections provide instructions for the technical setup and preparation of the TIPLINE system. The four steps outlined in this section can be modified to fit an agency's needs. For example, the software and forms can be set up on a computer as well as a Web server. Tips can be received via telephone and entered directly into a database stored on the computer, then analyzed on the same computer using the TIPLINE application. Additionally, analysts who know how to use database software (such as Microsoft Access or MySQL), could download a copy of a live database, run SQL on the data, and/or transfer the data into a Geographic Information System (GIS) to map.

The information technologist, database programmer, or Web-server specialist helping to set up TIPLINE can do this by adapting TIPLINE's source codes to add or remove agency-specific fields. TIPLINE is open-source software and meant to be accessible to a wide variety of agencies with different capabilities and needs.

2.3.1 Technical Preparation: Setting Up the TIPLINE Online Submission Form, Database, and Analytic Application

The optimal use of TIPLINE is to set up the system as soon as possible so it can be in place and operational in the event of a critical incident or other need. Online Web submission forms do not have to be activated until their use is needed. For example, an agency need not show the URL link on its Web site until it is ready to use the system.

2.3.2 Identifying the Technical Requirements to Set Up the TIPLINE System

Before an agency can set up the TIPLINE system, it needs to identify the technical personnel who manage the setup, connect to a Web server, connect computers to the Internet, and set up telephones or a call center. These requirements are discussed next.

1. **Identify Information Technology Personnel**
   It is strongly recommended that police agencies work with their information technology personnel (individuals who manage their Web sites, servers, intranet and Internet systems, and e-mail systems) to set up the TIPLINE system. If police agencies do not have such personnel, they should request assistance from another local government agency or reliable and trusted software company. These individuals may be more familiar with the steps outlined below and can make this process easier.

   If you do not have information technology personnel, local computer companies or university computational science personnel may be able to assist. Because both the Web forms and database are provided in the TIPLINE CD, setting up this connection can be completed in about an hour with the help of an IT professional.

2. **Connect to a Web Server**
   All tips are eventually entered into the TIPLINE database through an online submission form connected to the database. This process requires that both the online tip submission forms and the database are housed on a Web server (located at the police department or in another location the department chooses). If the forms and the database are located on a Web server, tips can be submitted wherever Internet access is available.

   Most police agencies or jurisdictions have access to either an in-house Web server or share one with other government entities. It is essential that the server is always turned on and running with a live Internet connection during tip collection. Failure to do so may result in information being lost in the transmission from a citizen or police agent's computer to the central database. We also recommend that the database be frequently backed up. **Again, we recommend that you speak directly to the information technology personnel within your agency to assist you with the Web server.**

Hardware Requirements for Database Server

- Pentium 3 or above Pentium class processor or equivalent.
- At least 25 gigabytes (GB) hard disk space.
- 512 MB memory (RAM).
- Monitor, mouse, and keyboard.

Software Requirements for Database Server

- Operating System: Windows XP/NT/2000 or higher.
- Internet Explorer 4.0 and above or other Web browsers such as Opera, Firefox, or Netscape.
- Internet Information Services (IIS).
- Installed TIPLINE application.

3. Connect Computers to the Internet

Although citizens can enter tips from their own Internet connections, others may wish to telephone the policy agency with a tip. Some agencies prefer to receive tips by telephone so that the call-taker might gather more information from the tip-giver.

Ideally, your critical-incident tip line command center will have a telephone close to a computer with an Internet connection to facilitate the data entry of telephone tips received. A Web-based system has the following advantages:

- The Web form can be printed and filled in by hand so that the information can later be entered into the same online system.

- A Web-based system allows tips to be taken from any police unit, office, or Internet-capable patrol car, thus eliminating the need for a tip line command center.

- Personnel with the appropriate permissions can access the database that houses the tips from any agency computer with Internet access.

Hardware Requirements for Computers That Perform Data Entry and Analysis

- Pentium 3 or above Pentium class processor or equivalent.
- At least 15 gigabytes (GB) hard disk space.
- 256 MB memory (RAM).

Software Requirements for Computers That Perform Data Entry and Analysis

- Operating System: Windows XP/NT/2000 or higher.
- Preferably, a Microsoft Office Suite containing Access software.
- Internet Explorer 4.0 and above or other browsers like Opera, Firefox, or Netscape.
- Installed TIPLINE application.

4. Set Up Telephones or a Call Center

Even with Web-based forms for entering tips, some citizens provide tips via telephone in both critical incidents and ongoing investigations. A major task in a critical incident is to find a large enough bank of telephones to receive calls or be able to route calls to existing telephone lines.

Even though using an Internet tip process reduces the volume of calls an agency receives, telephones are still needed. Chapter 5 gives specific information about setting up a telephone command center. In the preparation stage, a law enforcement agency should identify a bank of telephones and computers that can be used in case of a critical incident. Some suggestions follow.

- ***Identify a source of telephone sets*** (10-25 sets) that can quickly be utilized. Have printed copies of the TIPLINE forms so that tips can be hand-written and later entered into computers with Internet access. Ideally, route tips to telephones located near computers with Internet access or with TIPLINE already loaded, so that tips can be directly entered into the TIPLINE database.

- ***Identify a phone service provider*** or local telephone company that can assist in setting up a call center with multiple phone lines and in establishing a tip line toll-free number. The company may also help agencies understand how to route tip calls to existing telephone lines.

- ***Identify alternative telephone possibilities*****,** for example, routing calls to existing telephone lines at the desks of investigators or analysts who are near computer terminals with Internet connections.

- ***Estimate the number of personnel needed*** to answer the telephones, factoring in breaks and shifts.

- ***Find out if a local, state, or federal agency, university, or business has a call center*** already established and can provide telephone/computer banks quickly at the start of a critical incident.

- ***If the case is transferred to a federal agency*,** be prepared to quickly divert calls to the desks of federal agents who can utilize their computers with Internet connections for tip submission and analysis.

- ***Test the call-taking system*** to determine that your system functions properly and efficiently.

- ***Identify bilingual individuals*** in the department who might assist in taking calls from individuals who speak other languages.

2.3.3 Setting Up the Online Submission Form and Database and Linking Them to Each Other

Note: If you have questions about Web servers and databases, please contact your department's Web server personnel or an outside IT service company to assist you with the implementation and verification of a secure Web server and provide technical help with this section of the handbook.

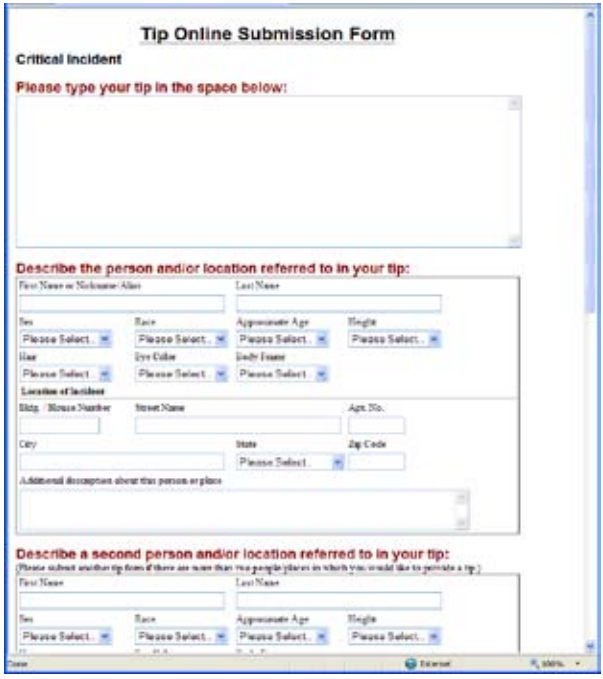
General Information

The Web form is an ***.asp*** document that can be added to a server and linked to an agency's Web site. It is then connected to a database within the server where tips are stored for analysis. Depending on the specific needs of the agency, they can wait to make visible, publish, or advertise the location of the link to the Web form.

The intended use of the tip line will determine how you will set up your online submission forms. The CD enclosed in the TIPLINE package contains two tip submission forms: one is for critical incidents and the other is for general submissions.

For tips that are entered on the critical incident form, "Critical Incident" is the default value in the database field indicating the type of incident. If the general submission form is used, the value chosen can be selected from the drop-down menu (for example, Missing Person, Assault, Robbery/Theft). Figure 2-2 shows the first page of the critical incident and general incident tip submission forms.

Critical Incident



General Incident

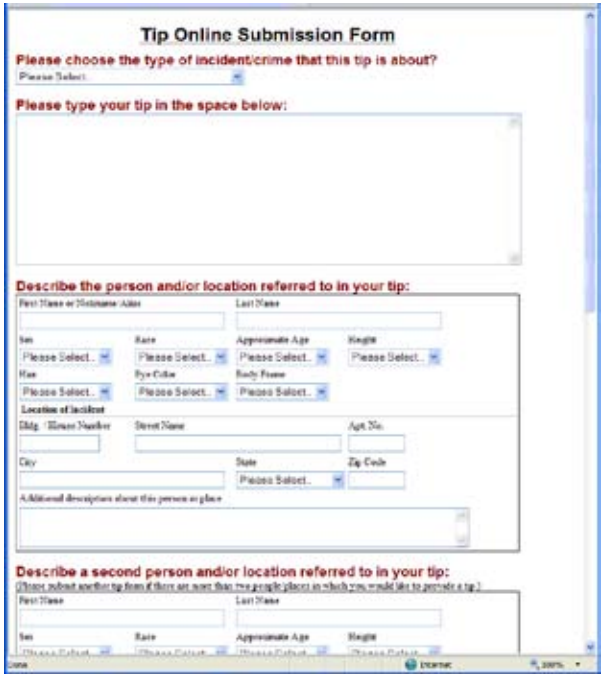


Figure 2-2: Online Tip Submission Forms

Multiple and separate tip lines can be set up simultaneously by creating multiple submission form-database links. In other words, this TIPLINE application can be reproduced within the same police agency for a variety of uses and can operate simultaneously. To do this, the agency must provide different URLs on the Web interfaces, so that an officer or citizen knows which database is in use. The next section explains how to set up the online tip submission forms, the database, and the files used to access and analyze the tips in that database.

Set Up the TIPLINE Submission Forms and Database

The Web administrator (or someone in your agency who has previously set up online surveys or other forms) should assist with the following setup tasks. These are the suggested setup options, but an experienced Web administrator may want or need to modify the setup to comply with their server configuration and security standards. ***It is strongly recommended that the TIPLINE software (databases, forms, etc.) be placed behind a firewall to prevent any vulnerabilities to Internet attacks.***

Note: If you do not have information technology personnel, local computer companies and/or university computational science personnel may be of assistance. Since both the Web form and database are included in the TIPLINE CD, it should take about an hour to set up the connection.

The setup consists of the four following tasks:

1. **Copy Web Pages**
   If possible, create a new sub-Web named TIPLINE on the Web server. During the remainder of the setup, it is assumed that the files are in the \ *wwwroot\TIPLINE* directory. If they are placed somewhere else, please substitute "TIPLINE" with the directory where they are placed.

2. **Copy Database**
   Copy the database to a directory on the Web server. Currently, the Web pages will look for the database at *C:\db\TIPLINE.mdb*. The database can be placed anywhere on the server as long as the account permissions are set up on that folder as instructed in the following step.

3. **Set Up Account Permissions**
   The account being used to access the database requires read/write access to the database file and directory where the database is located. Unless modified by an administrator, this will be the Web server's anonymous account. The anonymous Internet account is the account that the Web server uses when anonymous access is used and typically starts with **IUSR_** and ends with the server name.

4. Modify the Database Connection String

One of the included Web files is named *DBConn.inc*. This file contains the code that connects to the database. At the top of this file there is a line that needs to be edited to point to the directory where the database is located. Following are two examples of how to do this, depending on where the database is placed. In the first example, you can see that the DATA SOURCE part of it points to *c:\db\TIPLINE.mdb*. Modify that portion of the connection string to the full path where the database is placed.

Example 1

If the database is placed as described in step 2 on the previous page, the connection string will read as follows:

```
m_TipConnString = "PROVIDER=Microsoft.Jet.
OLEDB.4.0;DATA SOURCE=C:\db\TIPLINE.mdb;"
```

Example 2

If the database is placed in a subdirectory of the Web files (a directory named "db" in this example), use the following connection string:

```
m_TipConnString = "PROVIDER=Microsoft.Jet.
OLEDB.4.0;DATA SOURCE=" & Server.MapPath("\
Tipline\db\TIPLINE.mdb") & ";"
```

where *Tipline*... is a directory just under the *wwwroot* as explained in step 1.

Figure 2-3 shows the database structure.

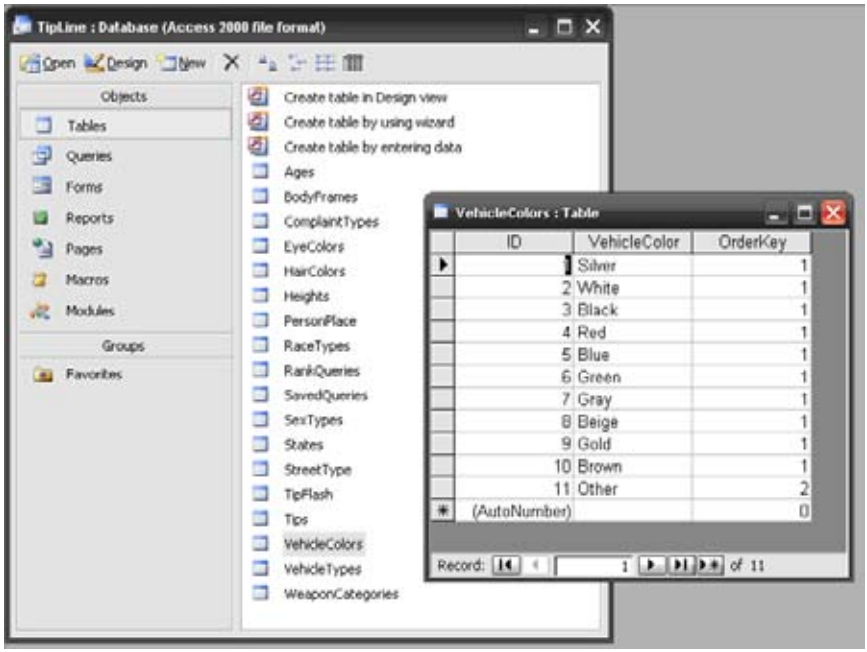


Figure 2-3: Database Structure

Test Connection of Submission Forms to Database

After the TIPLINE submission forms have been connected to the database, test the connection as follows:

1. Open a browser and navigate to the directory where the Web pages are.
2. Open the …*Tipline/Private/Index.asp* file.

The opening interface of the TIPLINE analytic application, as shown in Figure 2-4, displays. (The use of this screen is discussed in detail in Chapter 3, Section 3.2.)

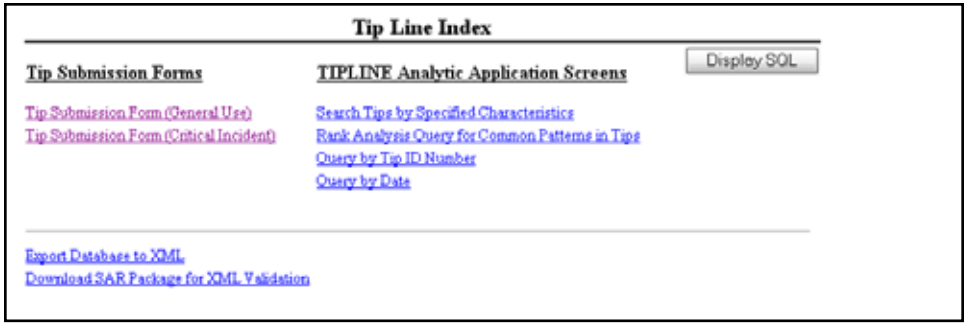


Figure 2-4: TIPLINE Index

3. Click on **Tip Submission Form (General Use)**.

   - If there ***is*** a valid connection to the database, this page displays properly and there are valid selections in the drop-down menus.

   - If there ***is not*** a valid connection, an error message displays indicating why the page does not display properly.

   - If the page displays properly, ***but there is an error upon submitting a tip***, check that the user has **"*write access*"** to the database file/folder, as explained earlier in Account Permissions, step 3 in the **Set Up the TIPLINE Submission Forms and Database** section.

2.3.4 Testing Online Forms, Database, and Analytic Application

To make sure the online forms, database, and analytic software are working properly, run the following simple test.

1. Open a Web browser, type in the URL to the TIPLINE submission form, and then submit a test tip.
2. Access the database in the Web server to see if the tip was automatically entered.
3. Run a query on the database (see Chapter 3, Section 3.3, ***Searching Tips by Specific Characteristics***) to see if a search for aspects of that tip can be conducted.

2.3.5 Activating the TIPLINE Submission Forms

To activate the TIPLINE online submission forms that have been set up and established on your agency's server, do the following:

1. Create (or make visible) a link to the tip submission form from the agency's main Web page or other specified location.

2. Make sure that all stations receiving telephone calls and other computers with Internet access can access the Web form.

Security Note for Web Administrators

The TIPLINE Web site is a "classic" .asp and is easily configurable for many deployment models. The application has two parts, public and private, so your Web administrator can restrict the permissions on the private folder to only those persons needing access. The preferred method would be to set up two separate Web sites—one for the public with no permissions restrictions and another for the internal users. Delete the private folder on the public site after setup and direct internal users to the private site.

As presented, the database is **not** secured. It should be put in a directory that is **not** easily accessed from the Web and secured according to your department protocol.

It is strongly recommended that the TIPLINE software (databases, forms, etc.) be placed behind a firewall to prevent any vulnerabilities to internet attacks.

If you are familiar with connection strings, the DBConn.inc file can be easily modified to provide any needed security restrictions to the database. Please refer to standard security methods easily found on the Web by using the search terms: "Securing Microsoft Access." (for example, see "How to Control Access to a Database on a Web server in Windows 2000" located at: ***http://support.microsoft.com/kb/313077***)

3.1 Overview of the TIPLINE Analytic Application

The few computerized tip line systems used in U.S. policing allow tips to be entered into an organizing table or database, where each tip can be flagged, searched by keywords, or updated based on the action taken for that tip. However, unless the user makes a request, the system lacks an analytic component that provides output in the form of aggregate patterns and trends in the data. With the TIPLINE analytic application, the information may be entered into multiple submission forms-database links, and the user is then able to search the entire database of information for patterns or specified characteristic.

TIPLINE is a database-style application that has a number of preset analytic queries built into an easy-to-use interface. Additionally, TIPLINE allows agencies to devise their own queries or download the database for advanced analysis.

3.2 Using the TIPLINE Analytic Application

The opening interface of the TIPLINE analytic application that is seen and used by police agencies is the ***Tip Line Index***, shown in Figure 3-1. In the TIPLINE package, it is located at *…/Tipline/Private/Index.asp*.

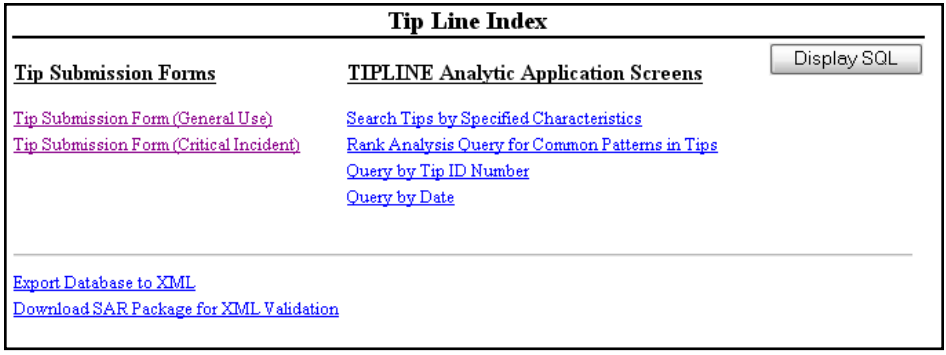


Figure 3-1: TIPLINE Index

This private ***Tip Line Index*** lets the analyst, officer, or commander choose the type of query/analysis to run. To display the private ***Tip Line Index***, do the following:

1. Open a browser and navigate to the directory where the Web forms are stored.
2. Open the *…Tipline/Private/Index.asp* file.

Note: The *Tip Line Index* used by the public for online tip submission is located within the TIPLINE package at *…/Tipline/Public/Index.asp*. The public screen contains only the Tip Submission Forms.

Tip Line Index Screen

The ***Tip Line Index*** screen is divided into three sections.

1. Under Tip Submission Forms are links to the ***General Use*** and ***Critical Incident*** tip submission forms. Police personnel can use these links to display the actual submission forms to upload a tip.

Note: These links can be placed elsewhere if an agency does not want them in the same location as the links to the TIPLINE analytic application.

The online ***Tip Submission Forms*** are discussed in Section 2.3.3 and Section 3.2.

2. Under **TIPLINE Analytic Application Screens** are links to four types of analytic queries. These queries are described in Sections 3.3 through 3.5.
   - Search Tips by Specific Characteristics (Section 3.3)
   - Rank Analysis Query for Common Patterns in Tips (Section 3.4.2)
   - Query by Tip ID Number (Section 3.5)
   - Query by Date (Section 3.5)

3. At the bottom left of the screen are links to ***Export Database to XML*** and ***Download SAR Package for XML Validation***. These links are discussed in Section 3.6.

3.3 Searching Tips by Specific Characteristics

The first query link under the **TIPLINE Analytic Application Screen** is ***Search Tips by Specific Characteristics.*** This query, shown in Figure 3-2, lets you search the entire database of tips that satisfy a specific characteristic or combination of characteristics. This query looks similar to the Online Tip Submission Forms, see Figure 2-2.

The ***Search Tips by Specific Characteristics*** query lets you search in two ways:

1. Search all tip narratives by specific keywords in the Tip Narrative Keyword Search area.

2. Search persons/vehicles/weapons characteristics more specifically by using the Person Query and Weapon and Vehicle Query in the next two sections of the form.

Note: Online tip submission forms are in English. However, the TIPLINE package will include a zipped Word document with translations of TIPLINE terms in Spanish, French, Chinese, and Portuguese.

Figure 3-2: Search Tips by Specified Characteristics Query

You can generate queries for all fields on the tip submission form by using the drop-down menus, which correspond to the drop-down menus in the Online Tip Submission Form. The Contact Information Query area lets you run a query on the information given to the police. You can also search multiple characteristics for more specific searches.

Examples

If you select Brown under hair color as the only specification on this query form, a list is generated of all tips in which any persons of interest with brown hair color were noted.

If you type Main and select Street in the Street Name and Street Type fields, a list of all tips in which Main and Street were entered is generated. If you select Brown under hair color and Main for Street Name, the query will result in all tips reported on Main Street/Road/Place/Blvd./etc. with individuals of interest with brown hair.

Use the Results Configuration drop-down boxes to determine how your results will display. The number of fields shown on a Results screen is limited to those you select in the Results Configuration section of this form.

Example

The ***Tip Query Results*** screen, shown in Figure 3-3, was generated by searching a set of test tips for Last Name = Rob, and selecting the Incident Description, First Name, Last Name, Sex, and City fields in the **Results Configuration** section of the form.

To see the actual tip submitted, click the Detail link in the first column.

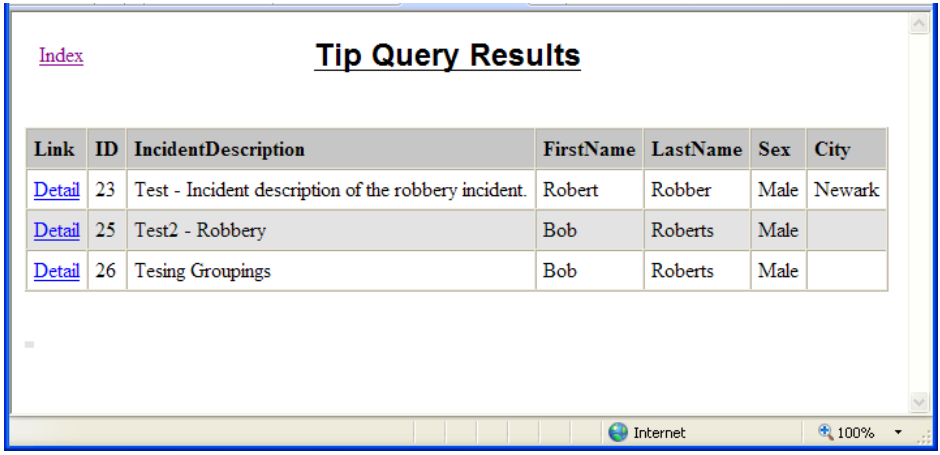


Figure 3-3: Tip Query Results

3.4 Using the Rank Analysis Query to See Common Patterns in Tips

The Rank Analysis Query generates lists of common patterns in descending order of frequency.

Note: As more tips and information are entered into the database, the analytic application software does not automatically generate a real-time update of possible new results. **New search results are only updated when the individual user reruns the initial query.**

Furthermore, the system does not currently conduct passive pattern searches in the background to connect seemingly unrelated crimes. In order for patterns to be recognized, an individual user must input specified search parameters.

3.4.1 Overview of the Rank Analysis Query

The ***Rank Analysis Query for Common Patterns in Tips***, shown in Figure 3-4, lets you find patterns in tips that reappear in the database. Choose from five preset categories.

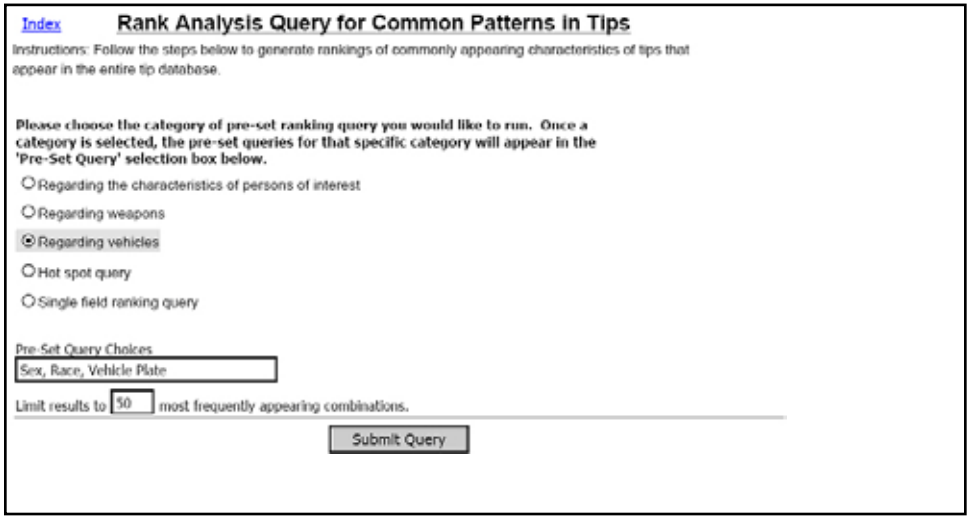


Figure 3-4: Rank Analysis Query for Common Patterns in Tips

Note: The ***Rank Analysis Query for Common Patterns in Tips*** uses Internet Explorer-specific commands. IE is currently the only browser supporting this query.

Here is an example of when you might use this query:

If over the course of two days, 10,000 tips have been submitted, and you specify Toyota for Vehicle Type, you may receive a list of 1,000 tips. But police investigators may be interested in the following questions:

- Do a few types of vehicles (make, model and color) reappear in the tips?
- Do combined personal characteristics (hair color, eye color, and gender, race) reappear in the tips?
- Does a street block, corner, or house reappear in the tips?

3.4.2 Using the Rank Analysis Query for Common Patterns in Tips

Select one of the following preset queries on the Rank Analysis Query for Common Patterns in Tips to run this analytic inquiry:

- Regarding the characteristics of persons of interest
- Regarding weapons
- Regarding vehicles
- Hot spot query
- Single field ranking query

When you select a category, the preset queries drop-down box displays the preset ranking analytic queries associated with that particular category of query. For example, if you select ***Regarding vehicles***, the following preset queries can be generated:

Vehicle type, color: This choice generates a descending list of the most frequently appearing vehicle type/color combinations in the tips. The second, third, and fourth tips on the list may also be useful.

Vehicle plate: Vehicle plate is included in the Single Field Ranking query as well as in the Regarding Vehicles query. The ***Regarding vehicles*** preset query pulls from, for example, 10,000 tips, a descending ordered list of the license plates that reappear in the tips database.

3.4.3 Some Ideas on Using Preset Queries

Here are some thoughts about using the five preset queries.

Regarding the characteristics of persons of interest. What race, sex, and age combinations appear most frequently in tips? Does a hair color, eye color, and gender combination appear frequently in the tips?

General Precaution
Note that when a description of a person or car is released to the public, tips that specify a sighting of persons or vehicles that fit that description may begin to be submitted. Police should be careful about how results from the TIPLINE application are used and to whom the information is disseminated.

Regarding weapons. Does a particular type of weapon continue to appear in the tips? The preset queries in this category also cross-reference type of weapons with characteristics of individuals or places.

Example

> In a database of 10,000 tips, are there certain streets in which tips are being generated about firearms? Is there a nickname and weapon combination that has appeared more than once in the tip?

Regarding vehicles. Does a particular type of vehicle continue to appear in the tips?

Example

> Of 10,000 tips that have been submitted, does a vehicle of a certain make, model, and color continue to appear frequently in the tips? The preset query allows officers to run a simple ranking query, for example, the top 10 most frequently appearing license plates in the 10,000 tips. Or, officers can query the most common vehicle type and color that appears in the tips.

Hot Spots Query. Because a subscription to a GIS is expensive or may be unavailable, we have built into the TIPLINE analysis system a type of geographic analysis using this ranking interface without requiring the use of a GIS. Officers can search the entire tip database for the street "hundred blocks" that appears the most frequently in the tips, to better geographically target officer surveillance, deterrence, or patrol. This works by the software rounding the street number to the nearest hundred (or unit) and finding the most common hundred blocks that appear.

Example

> For a missing child case, there may be a street block or address of a shopping mall that keeps reappearing in the tips. To find this, one would ask the TIPLINE analytic application to provide the top 50 street-suffix combinations that keep reappearing in the tips to send officers or investigators.

Single Field Ranking Query. The Single Field Ranking Query allows analysts to select a field of their own choosing (for example, vehicle license plate, type of weapon, first name, last name) to see the most common types in each of these categories that appear in the database.

The results page of a Rank Analysis Query is shown in Figure 3-5.

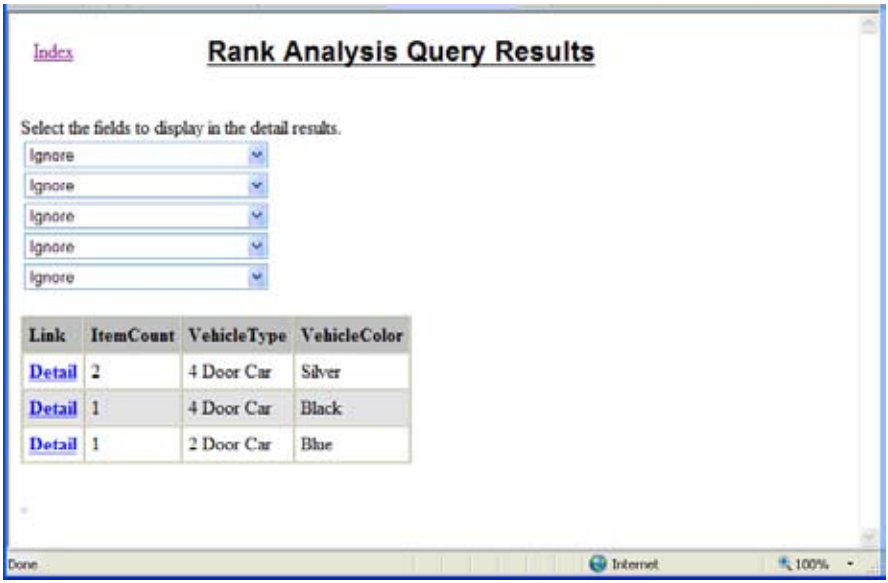


Figure 3-5: Rank Analysis Query Results

3.5 Querying Tips by Tip ID Number or by Date

TIPLINE can also run simple queries to recall a single tip by ID number or tips submitted between specified dates.

- When you view an individual record on any Results screen, an ID for that record displays (see Figure 3-3). You can display the record using the Query by Tip ID Number.

- To find all tips submitted between two specified dates, use the Search Tips by Date query, shown in Figure 3-6.

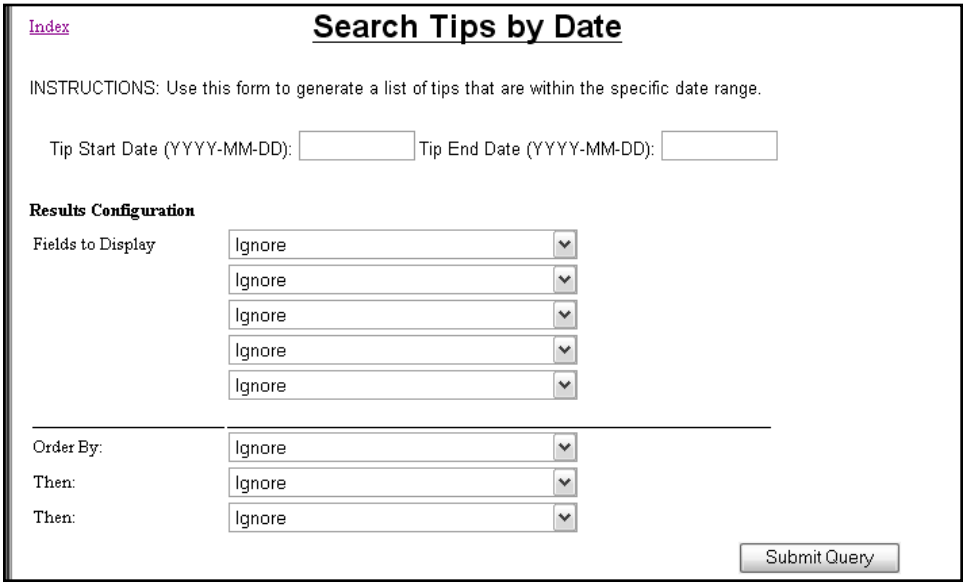


Figure 3-6: Search Tips by Date

3.6 Exporting the TIPLINE Database

Information stored in the TIPLINE database can be exported in XML for additional analysis and portability. To export the information, do as follows:

1. On the ***Tip Line Index*** screen, click ***Export Database to XML*** in the bottom section of the screen.

   A File Download - Security Warning dialog box displays, as shown in Figure 3-7. You may ***view*** or ***save*** the file in a specified location.

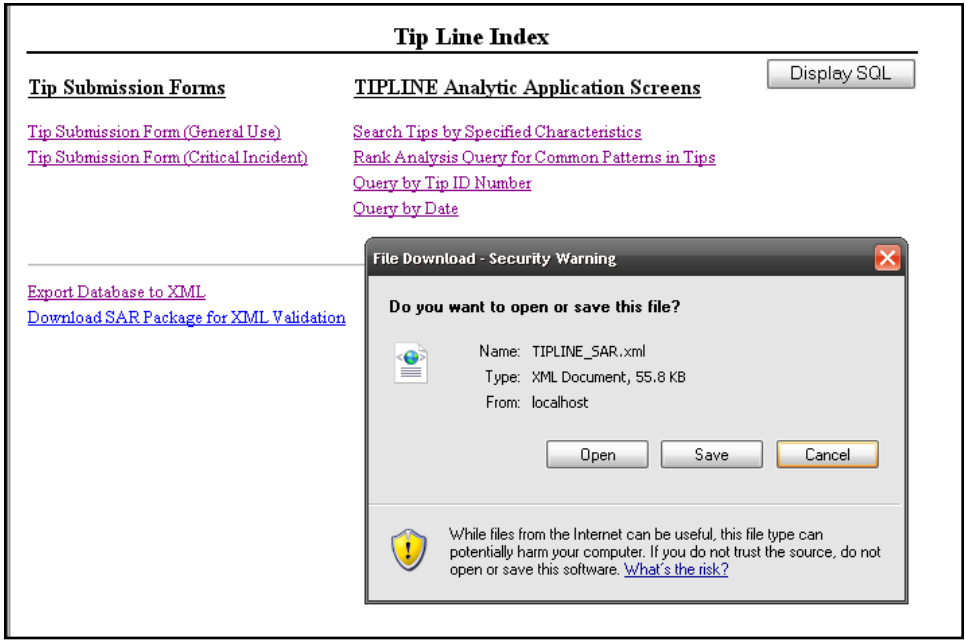


Figure 3-7: File Download - Security Warning Dialog Box

2. On the ***File Download*** dialog box, click Open to view the file or click Save to save the file in a specified location

   The XML provided is compliant with the Suspicious Activity Reporting (SAR) XML standard. To download the SAR package for XML validation, do the following:

   Click the ***Download SAR Package for XML Validation*** link under the ***Export Database to XML*** link on the ***Tip Line Index*** screen.

3.7 Exporting Data to a Geographic Information System

TIPLINE does not have a GIS connected to or built into its system. Agencies that have GIS software or access to GIS software can download the database as discussed in 2.3, and the GIS application can be used to map the addresses specified on the Tip Submission Forms using the Bldg/House Number, Street Name, and Street Type fields.

3.8 Deployment Based on TIPLINE Analysis

Completed analyses can be used immediately in a variety of ways to assist with responding to critical or other incidents. Sections 3.8.1 and 3.8.2 give some ideas and examples of how to follow up on analytic results stored in the TIPLINE system. It should be noted that law enforcement agencies should not rely solely on the automated analytical features of the software. It will be necessary and vital to have human review prior to police action.

3.8.1 Patrol Deployment

The following are some ways in which completed analyses can immediately be used:

1. **General Patrol Lookouts**
   TIPLINE can provide the most common characteristics of vehicles, persons, locations, and objects that patrol officers can keep a general level of observation and they can alert the public as necessary.

2. **Hot Spots**
   TIPLINE can provide the most frequently cited street names from tips about suspicious activity related to an incident. Patrol officers can increase visibility and presence in these areas or be deployed to these areas for further action.

3. **Quick Response**
   Immediately after a shooting, for example, tips may be called in on fleeing individuals. Locations of tips may be ascertained using the hot spots approach just described, or agencies may download the data and upload it into their own GIS systems to provide a general idea of the movement of suspected individuals or vehicles. Quickly relaying this information to patrol units may assist in the quick response to a situation.

4. **Street-Level Investigations**
   Officers might be sent to a "hot" area to conduct field interviews, talk to residents, and collect information about local concerns.

3.8.2 Investigative Follow-Up

Information garnered from TIPLINE analysis can be further cross-referenced with other data sources and followed up with special investigations. Table 3-1 gives examples of questions of interest that may be asked in investigative follow-ups.

Table 3-1: Questions of Interest in Investigative Follow-ups

Question of Interest	Type of Analysis Conducted by TIPLINE Software	Further Investigation or Deployment of Results
What are the top 10 (or 20, 30, etc.) license plates that continue to be called in by citizens?	The Web form has a space for license plates and car identification. A query is run on this field and a list is generated with license plates, and the number of times they appear, in descending order.	The top 10, 20, etc. license plate numbers are then printed out and given to an officer to run through motor vehicle registration, the National Crime Information Center (NCIC), warrant checks, etc. to locate the owner of the vehicle or other individuals associated with that car.
We know the suspect is a white male, age 18-25, with short brown hair. Can the computer identify all tips in which this combination of characteristics is present?	Yes. A query is run that restricts the search to the specified race, age range, and hair description. All tips are listed.	Tips may provide further information on individuals, including names, addresses, last seen at, work addresses, etc. for follow-up.
The weapon used in the crime was a rifle.	A query is run on all tips in which a rifle or long gun is mentioned.	Tips may provide further information on individuals, including names, addresses, last seen at, work addresses, etc. for follow-up.
We know that the suspect lives somewhere in a five-mile radius of the 200 block of Main Street.	Tips can easily be transferred into a GIS system and mapped. Tips originating in a five-mile radius of Main Street are flagged and further examined.	Tips may provide further information on individuals, including names, addresses, last seen at, work addresses, etc. for follow-up.

Question of Interest	Type of Analysis Conducted by TIPLINE Software	Further Investigation or Deployment of Results
A shooting happens and tips begin flooding in immediately. Where are suspect sightings occurring?	If a GIS is not readily available, a query can be run to generate the top 10 streets where individuals see a suspect in tips that originate after the time and date of the shooting.	Streets can be immediately radioed into the field for patrol officers to respond to.
Let's say we do not know anything about the suspect vehicle, but many tips are being called in with descriptions of vehicles. What are the top 10, 20 etc. vehicle combinations (make, model, color) that continue to appear in the database?	A query is run on the multiple fields describing vehicles and a list is generated with the types of vehicles that appear most often.	General lookouts for patrol and citizens can be generated. Motor vehicle records and searching may be used. The same type of statistical profiling can be conducted to look for common person characteristics.
Large numbers of tips come in reporting only partial license plate numbers. A list of the most frequently reported license plate numbers may not be very useful because a large percentage of callers did not report the complete number. What are the five most commonly reported vehicle colors and states of vehicle license plate?	The Web form has variables for license plate state and vehicle color. These two fields can be combined and the most frequently occurring combination can be displayed. These combinations can then be manually checked against the partial plates that have been reported with the Registry of Motor Vehicles or Department of Motor Vehicles of the state of the license in question.	The results of this analysis may be checked against stolen vehicle reports or vehicle registration records.

3.9 Cross-Referencing Other Sources of Information with TIPLINE Analysis

This section lists some additional sources of information to cross-reference with TIPLINE analysis for further investigative analysis. We encourage agencies to use and add to this list agency-specific information when creating their standard operating procedures and to share with other law enforcement agencies possible information sources using the TIPLINE information exchange site.

Note: Some of these databases are maintained by private vendors. TIPLINE does not specifically endorse them, but suggests that they are possible data sources of information.

Additionally, law enforcement agencies MUST follow legal, due process, constitutional, and ethical avenues for data collection, including the obtaining of warrants and court orders for information, when required.

1. **Vehicle Registration and Traffic Stop Data**
   - Law enforcement agencies should already have official access to motor vehicle data where they can find license, registration, and other vehicle information.
   - Most states collect information on motor vehicle stops that may provide a useful cross-reference for geographically situated events.

2. **Firearm Registries**
   - Agencies can request a trace from the Bureau of Alcohol, Tobacco, Firearms and Explosives' (ATF) National Tracing Center's National Tracing Branch using the following Web site: ***http://www.atf.gov/forms/pdfs/f33121n.pdf*** (phone numbers and information available on this form). Law enforcement can send in a trace request and obtain information regarding the identity of the first purchaser of the firearm within 11 days, or if is urgent, within 24 hours.
   - Any individual can do a federal firearms license search to verify the validity of a dealer's license at the following Web site: ***https://www.atfonline.gov/fflezcheck***.
   - The National Integrated Ballistic Information Network can be accessed by users at the following Web site: ***http://www.nibin.gov***
   - A few states have centralized gun registration records.
   - You can visit the National Instant Criminal Background Check System at: ***http://www.fbi.gov/hq/cjisd/nics.htm***
   - A Stolen Gun File can be accessed via the NCIC.

3. Crime and Criminal Records

- Law enforcement should already have access to criminal records by state.
- Other locations of criminal records can include adult and juvenile courts, jails and prisons, probation and parole offices. Specialized units within police agencies may also keep additional records (for example, gang affiliation or information on drugs and firearms) in separate databases.
- Law enforcement should already have access to the NCIC (***http://www.fbi.gov/hq/cjisd/ncic.htm***) and the Integrated Automated Fingerprint Identification System (IAFIS) (***http://www.fbi.gov/hq/cjisd/iafis.htm***).
- The High-Intensity Drug Trafficking Area Program (HIDTA) also facilitates interagency information sharing and cooperation among state, local, and federal agencies. See ***http://www.whitehousedrugpolicy.gov/hidta/contact.html*** for contact information.
- A DNA database is maintained by the FBI (***http://www.fbi.gov/hq/lab/codis/index1.htm***) and state DNA statute information can be found at ***http://www.aslme.org/dna_04/grid/index.php***.
- Most law enforcement agencies have ready-to-analyze computerized data, such as crime reports, 911 calls, and other information such as recently stolen vehicles, missing persons, etc. Your crime analysis, research and planning, or information management units may already have information that can be cross-referenced with tips.

4. Bomb Databases

- Consult the U.S. Bomb Data Center at ***http://www.atf.treas.gov/aexis2/index.htm***. Data from the Uniform Crime Reporting (UCR), Arson and Explosives Incident System (AEXIS), and International Bombing Incident Program (IBIP) are available here.
- Law enforcement can contact their local ATF branch for explosives tracing (***http://www.atf.gov/aexis2/tracing.htm***).

- Bomb Arson Tracking System (BATS) is a partnership among the Department of Justice, the ATF U.S. Bomb Data Center, and members of the nation's fire and post-blast investigative communities. See ***http://www.atf.treas.gov/aexis2/bats.htm***. BATS is a comprehensive incident-based information sharing system. To have access to the BATS program, a law enforcement agency must submit a letter of interest from the department's chief on departmental letterhead to:

  Bureau of Alcohol, Tobacco, Firearms, and Explosives
  U.S. Bomb Data Center - BATS Program
  P.O. Box 50980
  Washington, DC 20001
  (800)-461-8841

5. Housing Records

- Contact your local courthouse or county recorder's office to find a property owner's identity. Some counties have online access to this information.

- The following Web site shows a listing of the types of information that can be found for all federally owned housing facilities (for example, copies of leases): ***http://www.irs.gov/irm/part1/ch12s52.html#d0e438322***.

- Contact your local housing department (or authority) for public housing information.

6. Financial Records

- Local Internal Revenue Service offices and contacts can be found at ***http://www.irs.gov***.

- Tax Assessor Records.

- Bank records can be obtained by court order. ATM, debit card, and credit card transactions can provide useful cross-referencing resources (by time and place) for geographically situated events.

7. Sex Offender Registry

- Sex offender registries for each state are accessible through this Web site: ***http://www.fbi.gov/hq/cid/cac/states.htm.***

- The National Sex Offender Public Registry can be accessed at ***http://www.nsopr.gov***.

- Communications Records (Phone and E-mail).

- Phone (land lines), cell phone, and Internet records can be obtained with a court order.

- Cell phone records may be helpful in tracking potential offender locations by time and place in cell phone tower information, even when calls are not being made (the phone simply needs to be turned on). Cell phone tower information may be kept for variable lengths of time by different companies.

8. Communications Records (Phone and E-mail)

- Phone (land lines), cell phone, and Internet records can be obtained with a court order.

- Cell phone records may be helpful in tracking potential offender locations by time and place in cell phone tower information even when calls are not being made (the phone simply needs to be turned on). Cell phone tower information may be kept for variable lengths of time by different companies.

9. School Records

- School records can be obtained by court order.

- A school may release records if an emergency situation occurs that threatens the health or safety of the student or other individuals.

10. Missing Person Reports

- See the National Center for Missing and Exploited Children's Web site at ***http://www.missingkids.com*** for missing persons reports.

- See the FBI Web site at ***http://www.fbi.gov/mostwant/kidnap/kidmiss.htm.***

11. Terrorism

- The National Counterterrorism Center houses the Worldwide Incidents Tracking System (***http://wits.nctc.gov/Main.do***) and a terrorism watch list (***http://www.nctc.gov***).

- The Terrorist Screening Center of the FBI maintains the U.S. Government's Consolidated Terrorist Watch List (***http://www.fbi.gov/terrorinfo/counterrorism/tsc.htm***).

- The National Consortium for the Study of Terrorism and Responses to Terrorism maintains the Global Terrorism Database (***http://www.start.umd.edu/data/gtd***).

- Memorial Institute for the Prevention of Terrorism's (MIPT) Terrorism Knowledge Database is also available online (***http://www.tkb.org***).

12. Immigration

- The Law Enforcement Support Center (LESC) of U.S. Immigration and Customs Enforcement provides immigration status and identity information on aliens suspected, arrested, or convicted of criminal activity. The LESC assists law enforcement agencies with information gathered from eight Department of Homeland Security (DHS) databases, the National Crime Information Center (NCIC), the Interstate Identification Index, and other state criminal history indices (***http://www.ice.gov/partners/lesc/index.htm***).

13. Gang Databases

- Some agencies, as well as affiliated High Intensity Drug Trafficking Agencies (HIDTA), may maintain gang databases containing names, nicknames, tattoo information, and gang affiliations that may be investigated.

- You may also cross-reference information with the Violent Gang and Terrorist Organizations File of the FBI's NCIC.

14. Other

- You may access the National Insurance Crime Bureau online at ***https://www.nicb.org/cps/rde/xchg/nicb/hs.xsl/index.htm.***

- Universities are a valuable resource to law enforcement during critical incidents. While crime analysis may seem the job of police officials, university researchers, usually in the areas of criminology, crime and justice, statistics, information technology, sociology, and economics, regularly conduct this type of analysis.

- Public Records Databases such as the following noted below may be accessed:

  - Accurint (***http://www.accurint.com***)
  - ChoicePoint (***http://www.choicepoint.com***)
  - Open Online (***http://www.openonline.com***)
  - Locate Plus (***https://www.locateplus.com/welcome.asp***)
  - Merlin (***http://www.merlindata.com***)

Please note: These are only suggestions and are not specifically endorsed by TIPLINE.

The main catalyst for the development of the TIPLINE system was the number of tip lines used in response to critical incidents. Critical incidents are situations that arise unexpectedly and in which crucial information from the public is solicited in short periods of time. Incidents that span across an entire region such as the Washington, D.C. area or high-profile kidnappings or homicides require special considerations when using tip lines. This section suggests standard operating procedures when using the TIPLINE system during a critical incident. These protocols assume that tip lines have been set up and personnel identified who will be in charge of tip line operation and monitoring the technological, command, and other types of preparation were completed before this stage, as detailed in Chapter 2. It is possible, though less efficient, to set up TIPLINE within the first 24 hours of an event with the assistance of an information technology staff member.

4.1 Convening Relevant Personnel

Successful tip line deployment requires that relevant personnel convene at the beginning of the critical incident to quickly operationalize the TIPLINE process, assign personnel to specific tasks, and create accountability mechanisms so that tasks are carried out. Some of these individuals will comprise the general command, while other individuals will include information technology staff, outside telecommunications assistance, crime analysts, volunteers, and their supervisors. Agencies may also want to separate investigative or enforcement staff from staff assigned to administrative duties and TIPLINE management. These individuals may also come from multiple agencies. Sections 4.1.1 through 4.1.3 discuss the functions that relevant personnel perform.

4.1.1 Command Staff Responsibilities (in reference to tip lines)

1. **Commander of the TIPLINE process** does the following:
    - Oversees the TIPLINE process and operationalization.
    - Provides and ensures telephone staff read ***Guidelines for Call Takers*** (included as Section 4.6).
    - Ensures that TIPLINE technology is set up before the TIPLINE telephone number and Web site are published.
    - Directs all supervisors of units related to TIPLINE and may also be responsible for scheduling shifts.

2. **Patrol commanders** oversee street-level patrol deployment of TIPLINE analytic results.

   For example, small geographic areas (blocks, addresses) might be identified from the TIPLINE application as locations where a missing person may have been spotted, or where an event may occur. Results will be disseminated by these commanders directly to relevant patrol supervisors over radio, landline, or electronic communications. Patrol commanders can also use TIPLINE themselves to create their own analyses.

3. **Detective commanders** oversee further investigation of TIPLINE analytic results.
   For example, TIPLINE analyses may result in lists of persons, places, license plates, etc. that need to be run against other databases (see Section 3.9) or to be applied with other investigative tools. Detective commanders will be in charge of generating (or assigning personnel to generate) and disseminating analytic results for further investigation and ensuring that follow-ups are done.

4. **Support service commanders,** for example, command staff for information technology and research and planning divisions (911 and 311 call centers, crime analysis, research and development, information technology services, radio communications, telephone services) will be asked to do the following:

   - Oversee information and communication technology needs.
   - Work with outside resources when such needs cannot be met by the police agency.
   - Be directly in charge of units using the TIPLINE analytic application (when necessary and appropriate).
   - Commanders of 911 or 311 centers may need to provide special instructions to dispatchers in the event that they receive tips through the 911 system. The TIPLINE system allows dispatchers who have easy Internet access to also enter "stray" tips that come through the 911 or 311 call centers.

4.1.2 Information Technology Staff

The information technology staff performs the following functions:

- Ensures TIPLINE submission forms, databases, and analytic interface are available for access and operate properly on the agency's Web server. These should be the same individuals that were involved in the planning stages as described in Chapter 2 of this handbook.

- Works with telecommunications companies to set up telephone lines, establishing a nationwide toll-free number and linking multiple lines with a single number.

- Monitors and maintains the database server, assuring it is functioning properly and receiving tips. **It is essential that the database be constantly backed up to ensure no data is lost.**

- Assists police personnel with using the TIPLINE analytic application, and conducts analyses, if necessary.

- Assists police personnel in downloading TIPLINE data from the database for use in other information technology systems (for example, GIS).

Note: The TIPLINE analytic application does not require special analytic or software knowledge to use.

4.1.3 Local Telephone Company Representative

An individual may be needed from the local telephone company to assist in setting up phone lines as follows:

- If possible, a representative should be available during the entire incident. The Montgomery County Police Department (Maryland) considers this a critical component of a successful telephone tip line system.

- Multiple telephone lines need to be set up to receive calls to a single number on an ongoing basis. When all lines are busy, set up a brief telephone recording directing individuals to the Web form if they have Internet access to provide a tip.

4.2 Establishing Minimal Tip Recording Capabilities Until TIPLINE Submission Forms, Database, and TIPLINE Analytic Application Are Operational

There may be a short period of time in which the online TIPLINE submission forms and toll-free number have not been made available to the public. Agencies should have a temporary contingency plan in place that allows tips to be received and retained during this time.

One option is to print TIPLINE online submission forms and use them to handwrite tips that come into a call center or 911 dispatch unit until the TIPLINE forms and database are set up. The information on the forms can be entered from any computer with an Internet connection once the database and online forms are up and running.

4.3 Establishing a Tip Line Command Center

Please refer to Chapter 5 for a discussion of the physical space and equipment needed to establish a TIPLINE command center and for recommendations about creating and keeping records of "decision memos" regarding your agency's preparation for critical events. Some of the decisions discussed in the following sections may have already been made (for example, locating and designating existing call center space for TIPLINE support).

4.4 Determining the Telephone Number That Will Be Used

Determine the telephone number that will be used for receiving tips for an ongoing event as follows:

- Contact your local telephone service provider to establish a nationwide toll-free number specifically for the ongoing event.
- Have the telephone company assist in setting up phones at the tip line call center so that these conditions are met:
    - Calls are taken in the order in which they are received
    - Calls ring on the next phone that becomes available (daisy-chain method of operation).

Note: Provide both the toll-free number AND the Web site at the same time to the public, so that both are available for tip submissions.

4.5 Assembling and Training Tip Line Personnel

Call takers must be able to type, know how to use the Internet, and learn to use the online submission interface quickly, because they must enter tips as they receive them on the online submission forms. The person who trains the call takers should do the following:

- Provide call takers with the brief ***Guidelines for Call Takers*** (See section 4.6) and have them read these guidelines carefully. These guidelines can be sent by e-mail or fax to persons not located at the command center, if, for instance, multiple jurisdictions are involved with data collection.
- Provide call takers with a police code to place on the online tip submission form, so tips recorded by the police can be differentiated in the database from tips entered by citizens.

- Walk through each question on the online Tip Submission Form so call takers know how to use every part of the form.

- Consider providing support services such as custodial staff, catering, daycare, and office supplies (paper, printer ink, pens, staplers, filing system) for the call takers, as described in Section 5.2.4.

- Consider including a "manners protocol" in training tip line personnel, in which specific instructions about telephone manners are discussed. Call takers are the first point of contact between the citizens and the police, and therefore should be polite and courteous.

4.6 Guidelines for Call Takers

When starting to train personnel on the system, be sure to thank them for their assistance. A good opening statement is, *"Thank for you for your assistance in operating the tip line for this investigation."* Then, go on to explain the system.

This TIPLINE system uses a Tip Online Submission Form, where both you and members of the community can enter tips directly into a database using the same Web-based form. This sheet provides general guidelines when using this form.

1. **You will receive a code to enter in the box labeled Police Code.**
   This code will be recorded in the database to indicate that the tip was entered by police personnel and not by a citizen from a private computer Internet access point.
2. **The more information you obtain from the caller, the better.**
   The questions on the Tip Online Submission Form have been carefully chosen to provide the data necessary to make connections between persons and events related to this investigation. In order to conduct analysis on multiple tips, data must be entered accurately and as completely as possible. Try to elicit as much information from the caller as possible.
3. **Spelling counts.**
   A keyword search function has been included in the computer application that will be used to analyze the tips you enter. It can only search for words that are an **exact** match to the keyword as entered. Consistently correcting spelling and avoiding the use of unusual abbreviations will increase accuracy and efficiency of this keyword search function. This is especially relevant to the spelling of names and any other descriptions that you enter. Make sure to double-check the spelling of any names or words given to you by callers.

4. **The quality of information is crucial.**
   Try to collect the most accurate and specific information possible. If a caller does not have a response for a specific question on the Tip Online Submission Form, leave the response blank. Filling in information that may be inaccurate will decrease the accuracy of analytical results.

5. **Inform people of the Web site.**
   Please tell callers about the online Tip Online Submission Form for future reference.

4.7 Activating the TIPLINE Online Submission Form

Instructions for activating the TIPLINE Online Submission Forms are given in Chapter 2 of this handbook.

4.8 Determining Who Can or Will Use the TIPLINE Analytic Software

The actual use of the TIPLINE system does not require specialized computer skills. However, agencies may wish to download the TIPLINE database to conduct more advanced analysis or to modify TIPLINE to their own needs. It may be helpful to establish a core group of people who can use TIPLINE to analyze incoming tips or quickly orient other personnel to use TIPLINE. We recommend incorporating into the analytic team people experienced in crime analysis, computerized mapping, research and development, or other computer services in your agency. We also recommend soliciting outside help from local universities, private computer companies, or computer information technology specialists in affiliated government agencies.

Agencies can determine the individuals who can access the database for analysis. The TIPLINE system can theoretically be accessed, with permissions, by anyone with an Internet connection. The TIPLINE analytic function need not be limited to a centralized command; it can also be utilized in the field at the same time other analyses are being conducted at the central command.

Tips can be immediately analyzed once they are received in the TIPLINE database. (See Chapter 3 of this handbook for instructions on how to use the TIPLINE analytic interface and the types of analyses that your agency might do.)

4.9 Suggestions for Publicizing Telephone and Online Tip Lines

- Ensure that the tip submission form and telephone numbers are operational before publicizing telephone and Web tip lines.
- Avoid changes in the tip line telephone number or Web site location.
- Work with the news media to continuously publicize the Web and telephone tip lines. Agencies may wish to proactively alert the media to the existence of tip lines before critical incidents.
- Create clear Web links to the online tip submission form(s) on the agency or jurisdiction's home pages. Be prepared to help other agencies provide links on their Web sites to the tip line submission forms.
- Use URLs and toll-free numbers that are easy to remember.
- Be clear about which tip submission form individuals should use for specific events if multiple tip lines exist for different purposes. In the event of a critical incident, agencies may wish to temporarily remove Web links to other tip lines to avoid confusion.
- Continually educate the public on the use of telephone and online tip lines.
- The Department of Transportation or other relevant agencies within your state, county, or municipality may be able to place announcements and contact information for the tip line on highway reader boards.
- During a critical incident, be available to the media to better structure media relations.
- Be aware that information given to the media from TIPLINE analysis can distort the investigation and lead to the generation of misleading tips. For example, in the Washington, D.C.-area sniper incident, a tip to the public about a white van led the public to call the police to report sightings of white vans (even though the suspects were using a blue sedan).
- Agencies may also consider targeting geographic areas by handing out flyers, meeting with local community leaders or associations, or conducting "knock and talks" to further inform a specific community about an issue.

5.1 Personnel Preparation

A challenge that had to be met quickly in the Washington, D.C.-area sniper investigation was organizing personnel to receive and process the overwhelming number of tips called in to the police. The TIPLINE system capabilities can reduce these problems and the need for large numbers of personnel to receive tips by telephone. So too can planning how to allocate personnel before a critical incident in which a tip line will be used.

Command structures vary widely from one agency to another. The following sections suggest how a critical incident tip line could be managed using the task force structure several agencies used in response to the Sniper case.

5.1.1 Agency Preparation

Create a general order and/or standard operating procedure for the entire police department for using tip lines in either critical or ongoing investigations. (Please feel free to cut and paste from this handbook any text that can help your agency create those general orders.) Such a general order would include information on the following:

- Details of the technological setup of TIPLINE.
- Name of the person in charge of TIPLINE setup and operationalization, key units involved, and duties and responsibilities of the commanders and units.
- Location of the agency's more specific handbook or guidelines related to tip lines (or include this information in the general order, depending on the style of the general order).
- Training curricula to ensure that police recruits and agency members receiving in-service training know generally about tip lines and the TIPLINE system.

5.1.2 Command Preparation

A general order would cover the following steps as well:

- Decide which rank, personnel, individual, or command will be in charge of tip line preparation, operationalization, and monitoring.
- Develop a command protocol that describes who is in charge, their respective responsibilities, and the responsibilities of the units involved.

- Conduct mock exercises that employ the sample protocol and recommendations described in Chapter 4 of this Handbook to help guide command preparation.

- Conduct yearly or biyearly updates or reviews of this general order and the TIPLINE system with senior command staff.

5.1.3 Unit Preparation

Assign the primary responsibility for the setup, operationalization, and monitoring of the TIPLINE system to a single unit and command. Appropriate units could include the crime analysis unit, the 911 call center, research and development units, intelligence units, or a community-policing unit. **We recommend placing the TIPLINE responsibility in the unit most technologically prepared to use, maintain, and develop it.** Placing responsibility for the operationalization of TIPLINE in a single unit will help to provide continuity of knowledge about the use of tip lines over time and provide institutionalization of tip line processes.

Require, as an official duty by general order, that relevant members of the unit know about the TIPLINE system (and the general tip line process) and know how to enter data and use the TIPLINE analytic application to generate analyses of submitted tips. In the event of a critical incident, these functions may be asked of other individuals, but a core group of personnel will have knowledge about this project to provide quick training, if necessary.

5.1.4 Hypothetical Functions of Agency Units During Incidents Using Tip Lines

Table 5-1: Hypothetical Functions of Agency Units During Incidents Using Tip Lines

Operational Area/Unit	Function
Command staff, including lead commander (chief, commissioner, or superintendent), deputy commissioners, and high-level command staff.	Takes leadership in ensuring that TIPLINE systems are in place and adequate preparation was carried out. During a critical event, oversees tip lines, publicizes tip lines in press conferences, and delegates command to operations and support services.

Operational Area/Unit	Function
Information Technology, Crime Analysis, Research and Planning, or Computer Support Services Units	Prepares for TIPLINE use before an event by installing the Tip Online Submission Forms and database, and runs tests to ensure database collection and software is working. Trains individuals to use the TIPLINE analytic application. During a critical incident, this unit may help to monitor servers, manage the Web sites, be available for troubleshooting, and/or conduct analyses.
Patrol or other uniformed specialized units	May use TIPLINE Web forms to collect information in the field. May initiate operational actions that arise from analysis of tips. ***First-line supervisors*** act upon analytic results and direct squads for follow-ups. First-line supervisors should have a general knowledge of the TIPLINE system. ***Patrol officers*** may also be involved in mechanisms that encourage tip submissions from the community.
Investigative Units	Commanders ensure detectives and supervisors follow through with investigating leads generated by tip analysis. These leads may be traditional (tips from individuals), but the TIPLINE application also generates pattern-based analyses that provide leads, for example, lists of recurring patterns in tips about vehicles or persons that need to be further investigated. Crime analysis units and members may be useful here.

Operational Area/Unit	Function
911 or 311 Call Center	May receive tips during an incident even if a tip line number or Web form is set up. Dispatchers who have access to the Internet can enter tips directly into a Web form. Protocols are needed to describe what dispatchers should do when they receive tips (for example, if they should enter the tips themselves or explain to tip callers how they can submit tips online).
Non-Police Personnel	May provide personnel to answer telephones or enter tips into Web forms. Retired police dispatchers, officers, or even university graduate students are helpful volunteers (especially those who work or study in the area of information technology). These individuals should be given quick training before an event. We recommend providing the one-page ***Guidelines for Call Takers*** (see Section 4.6) to call takers before they begin to take calls. The guidelines are intended to briefly train personnel on data entry as well as professional call taking.
Other Units	Tip lines may be used in ongoing investigations. For example, a drug enforcement unit may use tip lines continuously to collect information from the public or from a confidential informant. Community policing units may use tip lines to receive regular updates from community leaders or members. Such tip lines can also be set up for ongoing purposes.

5.2 Resource Preparation

Command centers created during critical incidents may not include a tip line center, depending on the nature of the command center and the equipment available to them. Chapter 4 details issues related to setting up a tip line command center during a critical incident. In general, when preparing location and equipment, consider the suggestions in the following sub-sections.

5.2.1 Physical Location

Consider where the TIPLINE computer, Internet, and telephone stations will be located. Potential locations for setup of TIPLINE stations or call centers include the following:

- The police department 911 call center where telephones and computers may already be set up.
- A state or federal agency's call center.
- Individual detective or agent desks where calls can be routed.
- A local telephone company or telemarketing agency in the area.
- Universities or technical colleges.
- Fire response or other first responder buildings.
- Municipal emergency operations centers.
- Disaster centers.
- Private agencies and organizations, such as America's Most Wanted or centers for missing children.
- Temporary cell phone technology could also be utilized to make tip line centers completely mobile.

5.2.2 Physical Space

Space needed for tip lines can vary depending on the anticipated number of tips that may need to be processed and the types of automated systems that are used. TIPLINE is almost entirely automated, and tips can be entered wherever there is a telephone and an Internet connection. Physical space may be less of a concern if calls can be routed to those telephones.

If a command center space is established, concerns regarding physical space might include the following:

- Does this space have enough room for telephone stations with an appropriate separation between them?
- Does this space have room for computer stations?
- Is this space Internet capable/ready?
- Is this space telephone capable/ready?
- Are there adequate restroom, break room, and kitchen facilities at or near this location?

5.2.3 Equipment/Furniture Needs

A call center is likely to need the following furniture and equipment:

- Desks or workstations.
- Chairs.
- Telephones with hands-free headsets.
- Computers.
- Fax machines and toner.
- Printers and ink/toner.
- Copy machine and toner.
- Televisions (for monitoring news broadcasts).
- PowerPoint projector and screen/blank wall (for briefings).
- Paper shredder.
- Office supplies such as paper, pens, and pencils.
- Surge protectors, power strips, extension cords.
- Sundry supplies.

5.2.4 Services Needed

The following services are required at the call center:

- Internet service provider
- Telephone service provider.

The following services may be needed at the call center:

- Custodial services and supplies.
- Childcare services.
- Meal-catering services.

5.3 Resource Preparation Creating Decision Memos

We strongly urge agency staff preparing for the use of tip lines in critical incidents to create "decision memos" that record key decisions, memoranda of understanding with other agencies or community groups, and other information (for example, contact information for businesses or government agencies where equipment or special services can be located or purchased quickly) and attach them to this workbook or other general order. These decision memos and this Handbook should be attached to a chief or commissioner's general order or in placed in another relevant location so the current chief/commissioner can refer to these decisions.

Decision memos might take the form of ***checklists*** (created from the lists given in the last few sections) that include information such as the following:

- Monetary and numerical estimates of equipment needed.
- How and when technical setups were done.
- Contact information for universities, telephone companies, caterers, and custodial services who might provide services.
- Names of individuals who can assist the police agency.
- Names of volunteer retired police officers who could help with investigations or call-taking.

Appendix A: "Tip Line Technologies" Excerpt

The following document was the executive summary for the initial idea, research and development of Project TIPLINE. It provides a general overview of the vision of this project and information about the state of tip lines in the United States. This report is also located, with its full report at: ***http://www.ncjrs.gov/pdffiles1/nij/grants/211677.pdf.***

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 11th 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[1] and the Washington Metropolitan Police Department's Operation TIPP (Terrorist Incident Prevention Program)[2] were specifically created after September 11th to collect tips related to terrorism. More well known and established tip lines include Crime Stoppers[3] and America's Most Wanted,[4] 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 multijurisdictional 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 multijurisdictional 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 multijurisdictional 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 nonsystematic, 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 subproject 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

[1] See ***http://www.nyc.gov/html/nypd/ .***
[2] See ***http://mpdc.dc.gov/mpdc/cwp/view,a,1238,q,555159.asp***
[3] See ***http://www.crimestoppers.org/ .***
[4] See ***http://www.amw.com/*** .

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The complete report is also available from the author.