

# TELEMASP BULLETIN

## TEXAS LAW ENFORCEMENT MANAGEMENT AND ADMINISTRATIVE STATISTICS PROGRAM

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### Crime Analysis: Administrative Aspects

Crime analysis is defined as a set of systematic, analytical processes directed at providing timely and pertinent information relative to crime patterns and trend correlations. The goal of crime analysis is to assist operational and administrative personnel in the planning and deployment of limited resources. Crime analysis is used to prevent and suppress criminal activities, aid the investigative process, and increase apprehensions. This bulletin examines the administrative aspects of crime analysis.

It is the function of the crime analysis unit to identify, assemble, and disseminate information concerning crime incidents, criminal behaviors and characteristics, and patterns and trends to be used in administrative, strategic, and tactical planning. The TELEMASP survey asked each agency what percentage of their information is developed for strategic, administrative or tactical uses. The results indicate that almost half (49%) of the information produced by crime analysis units is for tactical use, 24% for administrative use, and 27% for strategic use (see Figure 1).

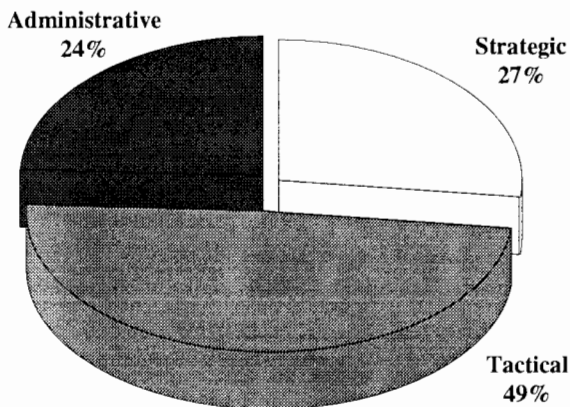


Figure 1. How Crime Analysis is Used

#### Analysis Functions: Tactical

**Crime Series/Pattern Detection:** Crime series detection is identification of offenses that are believed to be committed by the same person or group of persons; crime pattern detection, in contrast, is defined as the number of offenses that have some common characteristics but not necessarily unique to a given person or group of persons. The objective of crime series detection is apprehension, and the objective of crime pattern detection is suppression.

**Suspect-Crime Correlations:** Suspect-crime correlations identify perpetrators of known crimes by systematically matching a suspect's physical, vehicle, or M.O. information from crime reports with similar information from offender-based files.

**Target/Suspect Profiles:** Target profiles attempt to forecast the nature of the objects that might be attacked or descriptions of the types of structure and/or victims for a given crime problem. Suspect profiles can be established in the same manner. With target/suspect profiles, operational units can make more informed decisions on tactical operations.

**Crime Potential Forecasts:** Crime potential forecasts attempt to determine future crime events based on the historical analysis of cyclical, periodic, or special events as well as information from crime series/pattern detection.

The use of crime analysis can be traced back to the early 1900s when August Vollmer introduced the English technique of systematic classification of known offender *modus operandi* to American policing. Vollmer is also credited with establishing the first modern police record system, beat analysis based upon the examination of recorded calls for service, and for using pin maps to visually identify high crime areas. The term "crime analysis" was first coined 50 years later by O. W. Wilson in *Police Administration* (1963).

The rapid development in computer technology, combined with numerous projects funded by the Law Enforcement Assistance Administration (LEAA), enhanced crime analysis efforts. Crime analysis was the primary element in the Integrated Criminal Apprehension Program (ICAP), one of LEAA's most documented national programs. Over 50 agencies received funds under ICAP during the 1970s. The Violent Criminal Apprehension Program (VICAP) had its origins in ICAP. As a primary element of VICAP, crime analysis training programs were conducted across the nation, serving as a means of popularizing crime analysis. Some of the agencies participating in this survey were originally sponsored by ICAP, and the analysts were trained with ICAP funding. The survey indicates that Texas agencies are in need of training in multiple areas. The greatest need is in specific crime analysis training (see Figure 2).

#### Analysis Functions: Administrative

**Cost/Effectiveness Reports:** Typical inputs are the agency's human resources, money, equipment, and facilities. Reports of this type involve more than ratios of inputs to UCR crime rates: they frequently require an in-depth analysis of the efforts the agency is making toward crime-related goals.

**Program Evaluation:** This function uses crime information to assess the merits of an agency's policies, procedures, and projects to determine if specific organizational activities are working as intended.

**Governmental Support Studies:** Empirically based recommendations replace intuition, speculation, tradition, or political philosophy. This crime analysis function can range from formal staff-studies on changes in laws to recommendations for the issuance of individual business licenses.

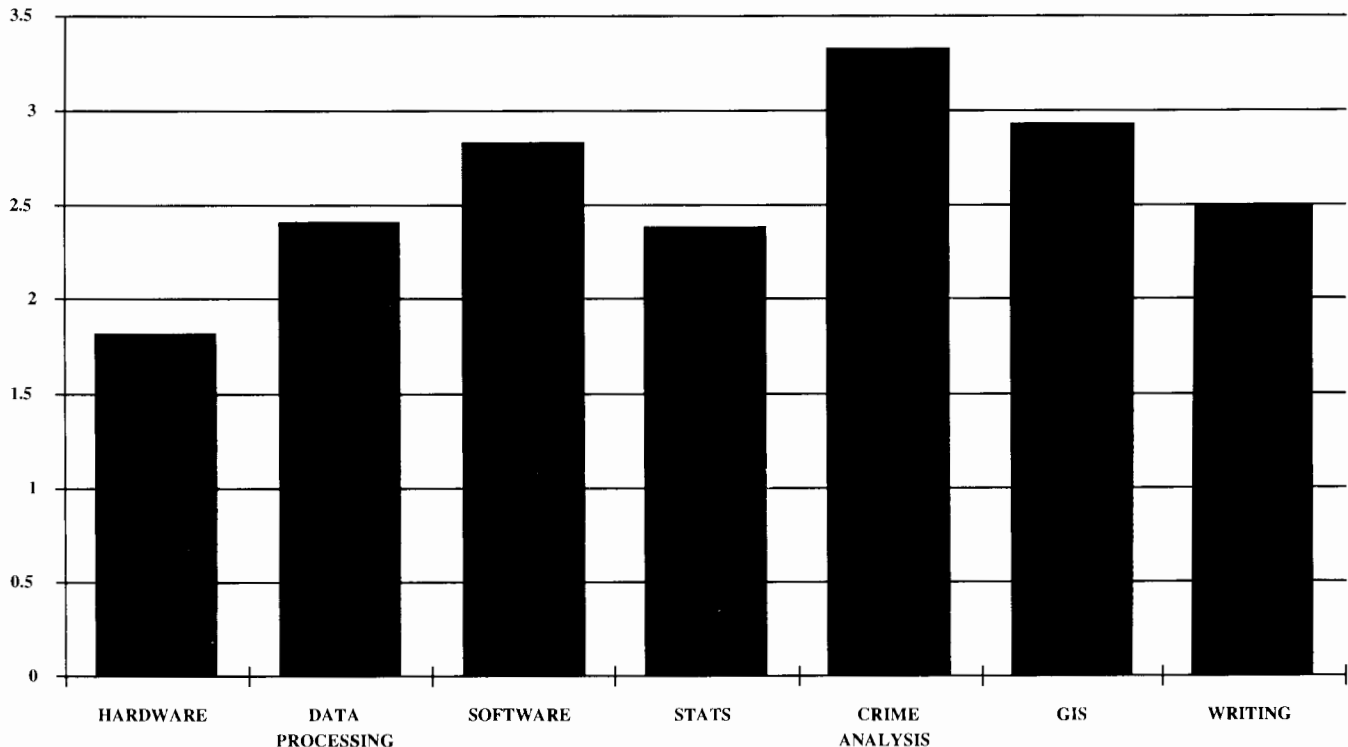


Figure 2. Need for Training

The scope and range of crime analysis is indirectly affected by its placement on the organizational chart. Under ICAP, the crime analysis unit was designed to function as an operational support unit, not an administrative planning unit. ICAP crime analysis units were designed to be both operational and intelligence units, geographically located close to patrol operations where they could stay involved in roll call and investigations. While gathering data, compiling statistics, and making reports are administrative functions of crime analysis, this is not utilizing crime analysis to its fullest extent.

Today crime analysis is viewed as an operational support unit with its own identity on the organizational chart. The TELEMASP survey found that 62% are located under administration, usually in planning and research. The other 48% are under patrol or investigations.

Resources directly influence the scope of crime analysis. Although ICAP originally intended crime analysis to be only one element of a larger comprehensive program, crime analysis has also succeeded as a stand-alone unit. Many jurisdictions that could not support a program under ICAP were able to utilize the benefits of crime analysis. The availability of personal computers, combined with expanded applications of computerized data, has resulted in a market

with numerous vendors of crime analysis systems. Agencies in Texas use a wide array of software programs. Word-processing, spreadsheets, and databases are the most common types of programs used by crime analysts. Surprisingly, crime analysis and statistics software are the least used. This is probably due to the large number of generic database programs that are used (see Figure 3).

What once took hundreds of hours can now be accomplished in a matter of minutes. Wall maps full of colored push pins are becoming obsolete. The time required to maintain a wall map can be reduced to minutes on a geographic information system (GIS), as well as improved analysis capabilities. New GIS programs are designed to be user friendly, allowing the average officer quick access to answers about crime patterns. In Texas, 31% of the agencies responding to the TELEMASP survey currently use a GIS program. MAPINFO is the most commonly used GIS program but is not the only one on the market.

The primary objective of the crime analysis unit is informational support of administrative and operational decision making. Systematic examination of crime incidents, criminal behaviors and characteristics provides relevant information to field officers needed to plan tactical and strategic objectives. Expanding the dataset to include aggregate crime information, as well as many other data sources,

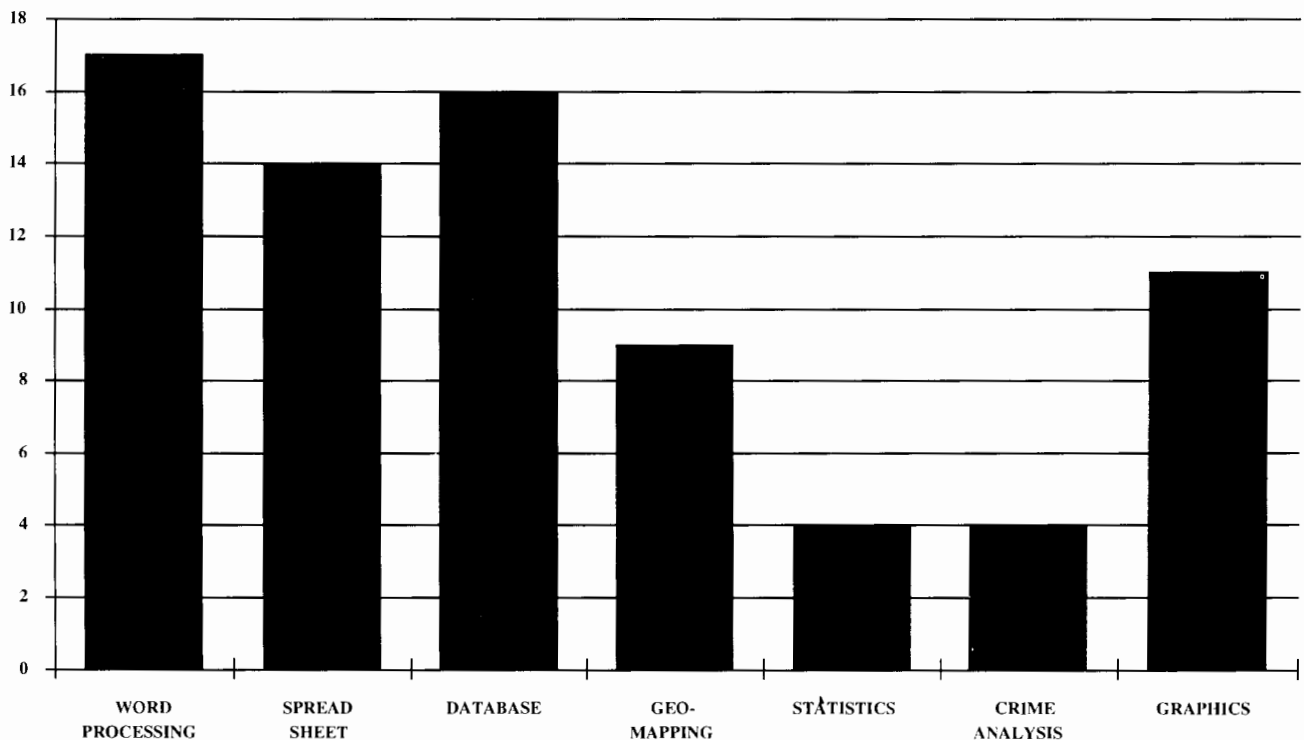


Figure 3. Uses of Specific Software



provides administrators valuable information in decisions relating to budgets, policy, staffing, capital improvements, and inter-agency relations.

A system is only as good as the data that are entered. Without data, even the most expensive state of the art system will be worthless. The primary data source is the incident report, usually completed by patrol officers. Other sources include field interrogation cards, detectives, crime intelligence reports, traffic citations, probation, parole, courts, schools and other agencies (see Figure 4). The agencies responding to the TELEMASP survey indicated that they do not rely on only one or two sources of information but rather use data from as many sources as available.

Crime analysts in local law enforcement agencies generally do not specialize in a specific crime area. Of the reporting agencies, 70% stated that their analysts do not specialize. There is an average of 0.65 analysts per 100 sworn officers. Because of their unique mandate, the Texas Department of Public Safety falls outside of the average and was not included in the analysis of specialization or percentage of analysts. They have 16 civilian crime analysts that all specialize in a specific crime area. More than one-half of the agencies reporting (53%) indicated that in their crime analysis units, only civilian personnel are used. Twenty-seven percent reported that they use only sworn personnel in their crime analysis units and another 20% use both sworn officers and civilians (see Figure 5).

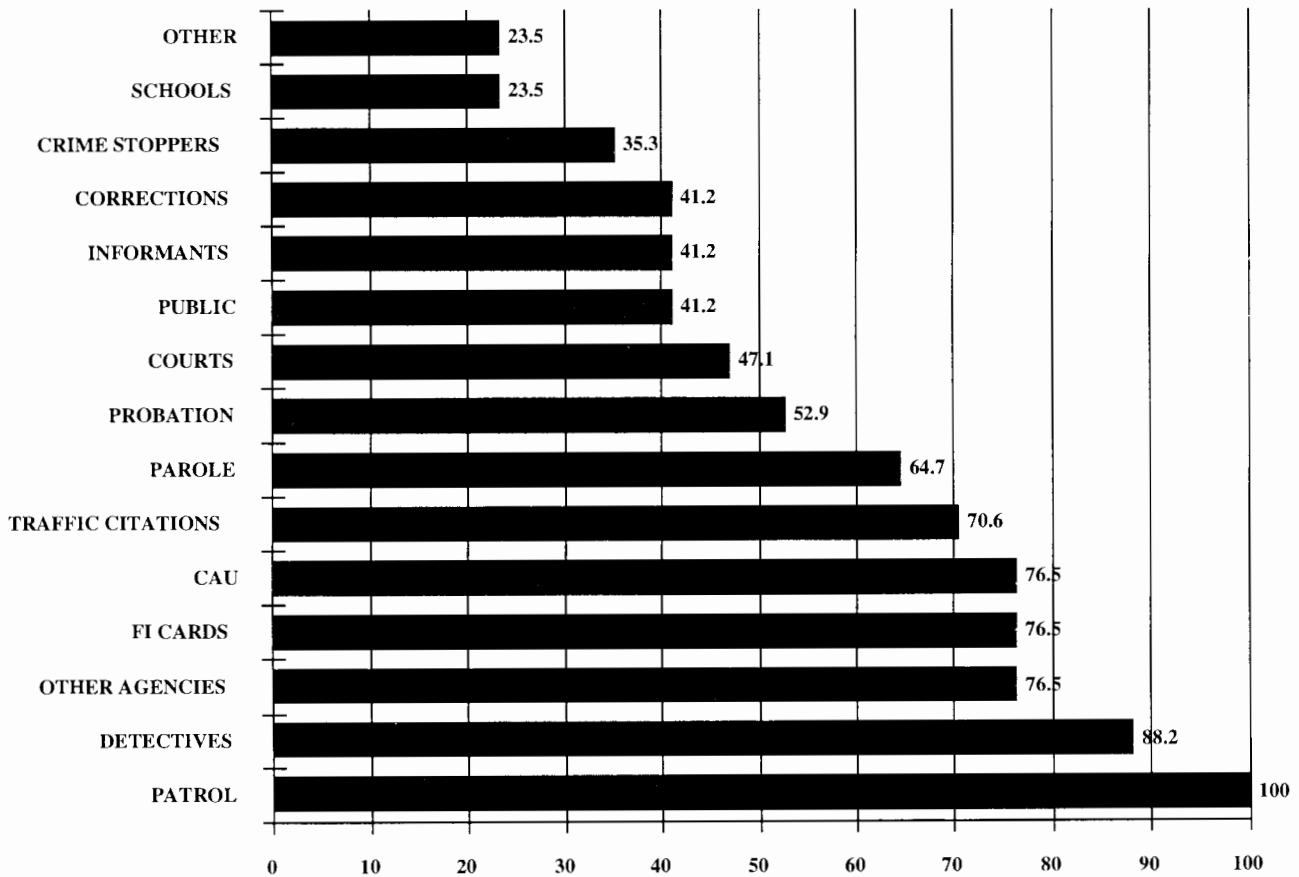


Figure 4. Sources of Information

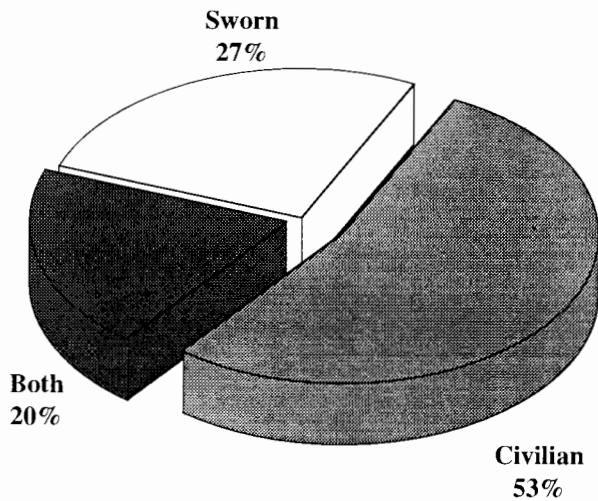


Figure 5. Sworn and Civilian Use in Crime Analysis

**Before You Buy!**

- Don't rush into buying a system. Take the time to learn what all of your options are. Decide what data will be available for input into your system and know what kind of output will fit the needs of all of the systems users.
- Know the difference between hierarchical and relational databases. Hierarchical databases are limited in output. They operate like a filing drawer. They can sort and reorder but they cannot link one piece of information to another. Relational databases can link one piece of information to another, and manipulate and retrieve it in any number of ways.
- Don't get stuck with a system that cannot be upgraded as your agency grows. Pick the best system your budget will allow. Components or modules designed for a specialized purpose, such as mapping components and investigation modules, can be added as the budget allows.
- Call around. Find out who else is using the system which you are interested in purchasing and what their experience has been with the manufacturer. How helpful have they been when changes needed to be made to the system or problems arose? Is the system flexible? What has the manufacturer NOT told you about the system?

**Analysis Functions:  
Strategic**

**Exception Reports:** Crime analysis is used to alert personnel when the frequency of crime is above or below some pre-established limits for a given geographical location.

**Crime Trend Forecasts:** Crime trend forecasting requires the identification of the prevailing tendency or general movement of crime frequencies for a particular geographical area over a given period of time. Crime trend forecasts are general, covering large geographic areas and long periods of time.

**Resource Allocation:** Resource allocation models can be constructed to aid managers in determining the best use of available human resources by analyzing:

- demand for patrol and detective services and the time expended to meet those demands
- human resources available to meet service and administrative demands
- assignment of human resources commensurate with the workload requirements
- allocation of assigned human resources to shifts in proportion to frequency of service demands
- the distribution of personnel allocated to the various shifts in such a way as it relates rationally to the geography

**Situational Analysis:** Situational analysis usually takes one of two forms: area-specific analysis or crime-specific analysis. Area-specific analysis describes the physical and demographic characteristics as well as crime history of a relatively small geographical area. Crime-specific analysis, on the other hand, takes a selected crime type and, over several geographic areas, attempts to specify the particular characteristics associated with that crime type.

When deciding what information the crime analysis unit will develop, the agencies responding to the TELEMASP survey indicated that they react in both a reactive and a proactive manner. Fifty-six percent reported that they respond primarily to requests for information from other units of the agency, while 44% reported that they decide independently what information will be developed. The most often requested information from crime analysis is crime trend or pattern information for specific areas, with suspect information ranking second.

Four questions in the TELEMASP survey asked respondents to rate their agency on various issues on a scale from one to five. The first question asked was: "Is the crime analysis unit useful for your department?" On a scale from

one to five, 80% of the agencies ranked the crime analysis unit as either a four or a five, with five being "very useful" (see Figure 6a). When asked: "Is the information provided by your unit used by other officers in your department?" 53% responded that the information was used very often by other officers in their department (see Figure 6b). While the results of the first two questions revealed that the information is seen as useful and that the information is being used, only 20% of the agencies responding reported that the information provided by the crime analysis unit is seen to be very valuable by other members of the agency (see Figure 6c). This may be a result of patrol officers not fully understanding the function of the crime analysis unit (see Figure 6d).

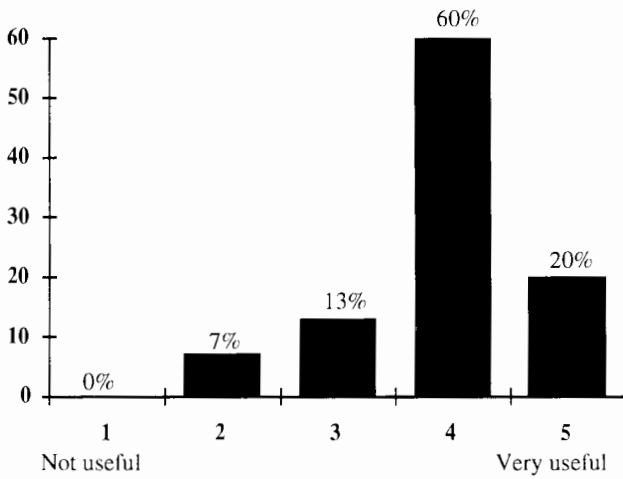


Figure 6a

Is the crime analysis unit useful for your department?

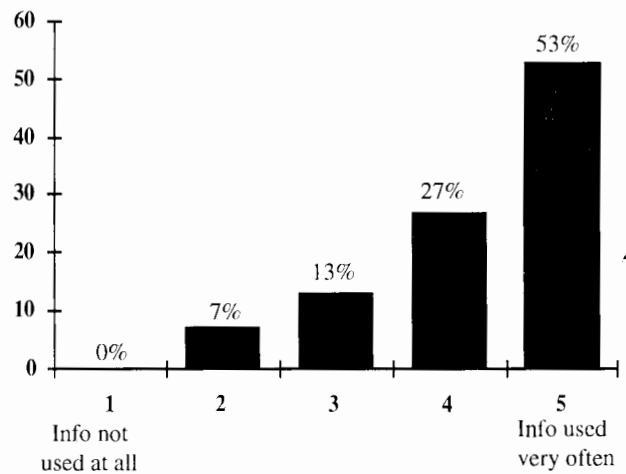


Figure 6b

Is the information provided by your unit used by other officers in your department?

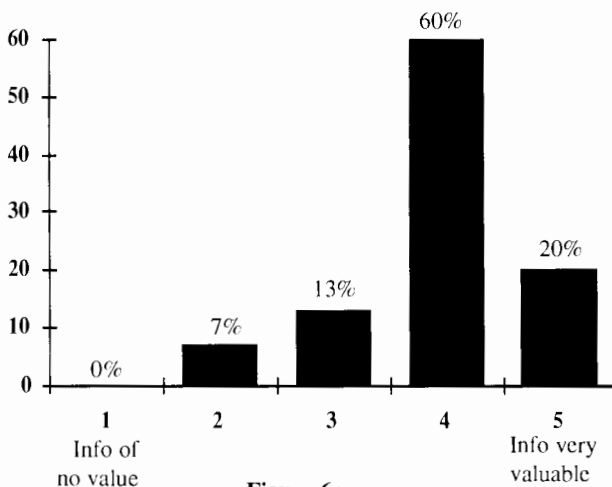


Figure 6c

Is the information provided by your crime analysis unit seen to be of value by other members of your agency?

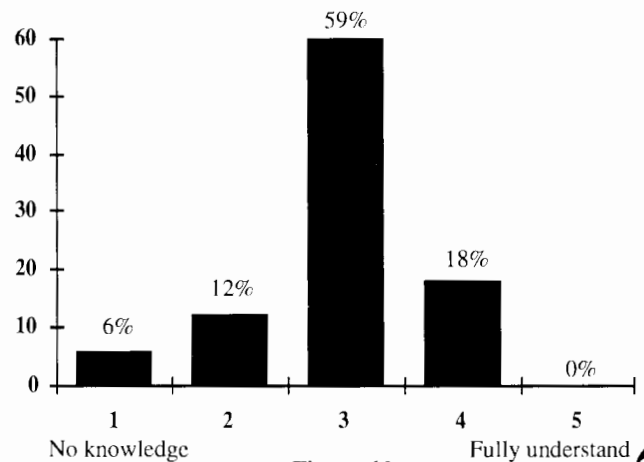


Figure 6d

Do patrol officers generally understand the function of the crime analysis unit?

## NIBRS

Crime analysis is enhanced by conversion to NIBRS. Some frequently asked questions about NIBRS are:

**What is NIBRS?** NIBRS is the National Incident-Based Reporting System. NIBRS is the result of a thorough study of the Uniform Crime Reporting Program in the late 1970s. The objective of the study was to determine what revisions should be made to the UCR to meet law enforcement's needs into the 21st century. On advice from the National Association of State UCR Programs, International Association of Chiefs of Police, National Sheriffs' Association, National Alliance of State Drug Enforcement Agencies, Drug Enforcement Administration, and various federal, state, and local criminal justice agencies, significant changes in crime reporting are underway. This is the most significant change to the UCR since it was first established nearly 60 years ago.

**What is the difference between the UCR program and NIBRS?** The difference between NIBRS and the traditional UCR program is the degree of detail in reporting. In the traditional system, law enforcement agencies tally the number of occurrences of Part I offenses, as well as arrest data for Part I and Part II offenses, and submit aggregate counts of the collected data in monthly summary reports either directly to the FBI or indirectly through state UCR programs. There is no requirement to tie arrests and exceptional clearances back to previously submitted incident reports. In NIBRS, law enforcement agencies collect detailed data regarding individual crime incidents and arrests and submit them in separate "reports" using prescribed data elements and data values to describe each incident and arrest.

**Why should my agency participate?** In the fight against crime, one of the most valuable tools is information, such as when and where crime is taking place and the characteristics of its victims and perpetrators. Detailed information is essential in planning on how to use limited resources in the most efficient and effective manner.

**Does this mean that patrol officers will have to collect more information when completing incident reports?** Participation should not place any significant new burden on officers preparing incident and arrest reports as most of the data required for NIBRS is already being entered into such reports. On the other hand, because the data to be extracted from the reports for national purposes is more detailed in NIBRS than in the traditional UCR program, increased data entry and data processing burdens are involved.

**Do I have to participate? What will happen to the traditional UCR data?** Participation in NIBRS is purely voluntary. Until an agency is ready to participate, it will continue to submit data in accordance with the requirements

of the traditional UCR program. The two systems will run simultaneously until such a time as it is determined that the old system can be discontinued.

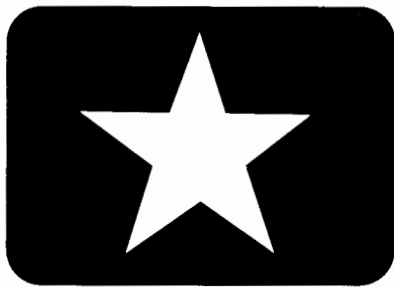
**What is the status of Texas in the NIBRS program?** The Texas Incident-Based Reporting System (TIBRS) is in the testing stage. An agency must provide TIBRS with test data to eliminate errors in their reporting system. Once an agency has submitted data for three months with less than a 4% error rate, then they are TIBRS ready. TIBRS, in turn, must comply with NIBRS quality control standards in their submission of data to NIBRS. Currently TIBRS is close to having its first agency complete the testing stage. Bedford Police Department is in the final stages of testing, with several other agencies not far behind.

For further information on TIBRS contact: Charlene Cain, Texas Uniform Crime Reporting, P. O. Box 4143, Austin Texas 78765, (512) 465-2090.

Thank you to the following agencies for participating in this month's bulletin.

Abilene Police Department  
Addison Police Department  
Arlington Police Department  
Austin Police Department  
Carrollton Police Department  
Dallas County Sheriff's Department  
Dallas Police Department  
Deer Park Police Department  
Duncanville Police Department  
El Paso Police Department  
Euless Police Department  
Fort Worth Police Department  
Galveston Police Department  
Garland Police Department  
Harris County Sheriff's Department  
Houston Police Department  
Jefferson County Sheriff's Department  
Lake LBJ Municipal Utility District Police Dept.  
Laredo Police Department  
Lubbock Police Department  
Mesquite Police Department  
Midland Police Department  
North Richland Hills Police Department  
Pasadena Police Department  
Plano Police Department  
Randall County Sheriff's Office  
Richardson Police Department  
San Antonio Police Department  
Texas Department of Public Safety  
Travis County Sheriff's Office  
White Settlement Police Department  
Wichita Falls Police Department

In next month's bulletin, the use of crime analysis as a strategic and tactical tool will be explored. New and innovative ways of using crime analysis from around the state will be shared.



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