

SOUTHWEST TEXAS STATE UNIVERSITY

THE IMPACT OF COMPUTER-BASED MANAGEMENT INFORMATION  
SYSTEMS ON POLICE ARREST WARRANTS:  
TEXAS DEPARTMENT OF PUBLIC SAFETY  
CASE STUDY

A THESIS SUBMITTED TO  
THE FACULTY OF THE DEPARTMENT OF POLITICAL SCIENCE  
IN CANDIDACY FOR THE DEGREE OF  
MASTER OF ARTS

BY  
DAVID A. WOODS

SAN MARCOS, TEXAS  
SPRING 1986



## Table of Contents

Chapter	Page
I. Introduction	
The Problem and Definition of Selected Terms .....	1
Statement of the Problem .....	1
Definition of Selected Terms .....	2
Arrest Warrant	
Magistrates	
Peace Officer	
Computer	
Computer-based information system	
Texas Department of Public Safety	
Warrant Data Bank File	
Transportation Time	
A Review of Related Literature and Research .....	5
Arrest Warrants .....	5
Historical Analysis	
Contemporary Analysis	
Case Law	
Computer Assisted Systems in Police Work .....	8
Communications	
Federal Information Networks	
Police Arrest Warrants: Computer Based Systems .....	10

NCIC

TCIC

Statement of the Purpose	11
Introduction	
Purpose of the Study	
Notes For The Chapter	14

## II. Methodology

Introduction	18
The Case Study	
General Comments and Definition	
Design Considerations for Present Research	
General Statements of the Hypotheses	20
Hypothesis I	
Hypothesis II	
Hypothesis III	
Hypothesis IV	
Hypothesis V	
Hypothesis VI	
Operational Statements of the Hypotheses	21
Hypothesis I	
Hypothesis II	
Hypothesis III	
Hypothesis IV	
Hypothesis V	
Hypothesis VI	
Statistical Analysis and Data Processing	23

Graphical Representation	
Statistical Techniques	
Using Tables and Matrices	
Column and Row Totals	
Elementary Statistical Trends	
Notes For The Chapter	..... 27

### III. Results

Hypothesis I	..... 29
Statement of the Hypothesis	
Analysis of Hypothesis I	
Hypothesis II	..... 30
Statement of the Hypothesis	
Analysis of Hypothesis II	
Hypothesis III	..... 33
Statement of the Hypothesis	
Analysis of Hypothesis III	
Hypothesis IV	..... 47
Statement of the Hypothesis	
Analysis of Hypothesis IV	
Hypothesis V	..... 50
Statement of the Hypothesis	
Analysis of Hypothesis V	
Hypothesis VI	..... 53
Statement of the Hypothesis	
Analysis of Hypothesis VI	
Composite Analysis of Results	..... 53

Additional Comments	58
Notes For The Chapter	60
IV. Discussion	
Limitations of the Study	61
Implications of the Study	62
Suggestions for Further Research	63
Notes For The Chapter	66
V. Summary	68
VI. Selected Bibliography	70
Books	
Government Documents	
Journal Articles	
Legal Periodicals, Law Reviews, and Case Law	
Interviews	
VII. Appendices	
Appendix A	78
Historical Developement of Texas Department of Public Safety.	
Appendix B	82
Description and Developement of the Warrant Data Bank File.	
Appendix C	86

Description and Developement of  
Austin Police Department  
Warrant and Information  
Computer System.

## List of Tables

Tables	Page
Table 1	
Manhours Before Implementation	..... 31
Table 2	
Saving of Manhours After	
Implementation of the File	..... 32
Table 3	
Comparison of Warrants Served	
Before and After Implementation	
of the File	..... 34
Table 4	
Warrant Activity With The File	
-Transaction Period-January	
1984-By District Office	..... 35
Table 5	
Warrant Activity With The File	
-Transaction Period-1984-	
By District Office	..... 38
Table 6	
Warrant Activity With the File	



-Transaction Period-1985-

By District Office	.....	41
--------------------	-------	----

Table 7

Warrant Activity With The File

-Transaction Period-January

1986-By District Office	.....	44
-------------------------	-------	----

Table 8

Amount Of Money Generated For

The Counties By File-1984	.....	48
---------------------------	-------	----

Table 9

Amount Of Money Generated For

The Counties By File-1985	.....	49
---------------------------	-------	----

Table 10

Cost Of Required Personnel To

Replace The File	.....	51
------------------	-------	----

Table 11

Comparison Of Costs Between

Personnel and File	.....	52
--------------------	-------	----

Table 12

Table Of Times Required For

Entry Into The File	.....	
---------------------	-------	--

By Terminal	.....	54
-------------	-------	----

Table 13

Table Of Times Required For

Manual Inquiries Into The

Warrant Files	.....	55
---------------	-------	----

Table 14

Comparison Of Times Required

For Inquiries Into The

Warrant Files ..... 56

Table 15

Results Of Survey

Questionnaire ..... 57

## List of Exhibits

Exhibits	Page
Exhibit 1	
Austin Police Department	
TCIC Entry Format	..... 88
Exhibit 2	
Austin Police Department	
Warrant Inquiry Format	..... 89
Exhibit 3	
Austin Police Department	
Warrant Entry/Modification	
Format	..... 90
Exhibit 4	
Austin Police Department	
Property Involved Format	..... 91
Exhibit 5	
Austin Police Department	
Drivers License Registration	
Format	..... 92
Exhibit 6	
Austin Police Department	

Motor Vehicle Registration

Format ..... 92

Exhibit 7

Austin Police Department

Incident Number Inquiry

Format ..... 93

Exhibit 8

Austin Police Department

Search Incident Identification

Format ..... 94



## Chapter 1

### Introduction

#### The Problem and Definition of Selected Terms

##### Statement of the Problem

Law enforcement officers are continually faced with critical decisions that profoundly affect the lives of citizens and the lives of the officers themselves. The ease with which citizens freely move in a democratic society make it imperative that the police be able to quickly and correctly identify the citizens with whom they have contact. Occasional contact is inevitable between the citizen and police, and when made, the involvement time should be kept to a minimum. A police officer has two tools to lessen the intrusion upon the freedom of the citizen necessitated by this imperative, the advent of radio transmitters/receivers, and advances in computer technology.

Starting with the Omnibus Crime Control and Safe Streets Act of 1968<sup>1</sup>, Congress authorized the appropriation of funds to upgrade state and local police forces and law enforcement techniques. The final report of the National Commission on the Causes and Prevention of Violence recommended that the investment in the administration of justice and the prevention of crime be doubled by perhaps an additional

\$5 billion a year.<sup>2</sup> Further Commission recommendations were that criminal justice offices be established to coordinate police, court, and correctional agencies as well as to coordinate public and private agencies; the restrictive licensing of the handgun; and, reordering of national priorities.

With supplemental funding from the national government, police agencies spent large amounts of monies to upgrade equipment and training of personnel. The spending was left to the individual agencies discretion and research is needed to discover whether this spending is accomplishing the goals for which the funding was legislated.

### Definition of Selected Terms

This section is designed for the reader whom may not be cognizant with some of the terms used in this paper. The terms defined below are supplied for the comfort of the reader. Other terms in this paper that are not specifically defined or explained are to be used in standard usage of the English language.

### Arrest Warrant

An arrest warrant is an written order from a magistrate, directed to a peace officer or some other person specially named, commanding him to take the body of the person accused of an offense, to be dealt with according to law.<sup>3</sup>

### Magistrates

In Texas magistrates are defined as the following: Justices of the Supreme Court, judges of the Court of Criminal Appeals, justices of the Courts of Appeals, judges of the District Court, county judges, judges of the county courts at law, judges of the county criminal courts, justices of the peace, mayors and recorders and the judges of the municipal courts of incorporated cities or towns.<sup>4</sup>

### Peace Officer

In Texas peace officers are sheriffs and their deputies, constables and deputy constables, marshals or police officers of an incorporated city-town-village, rangers and officers commissioned by the Public Safety Commission and the Director of the Department of Public Safety, investigators of the district attorneys'-criminal district attorneys'-and county attorneys' offices, law enforcement agents of the Alcoholic Beverage Commission, each member of an arson investigating unit of a city-county-or the state, any private person specially appointed to execute criminal process, officers commissioned by the governing board of any state institution of higher education-public junior college or the Texas State Technical Institute, officers commissioned by the Board of Control, law enforcement officers commissioned by the Parks and Wildlife Commission, airport security personnel commissioned as peace officers by the governing body of any political subdivision of the state that operate an airport served by a Civil Aeronautics Board certificated air carrier, municipal park and recreational patrolmen and security officers commissioned as peace



officers by the State Treasurer.<sup>5</sup>

### Computer

An computer is an device capable of accepting information, applying prescribed processes to the information, and supplying the results of these processes.<sup>6</sup>

### Computer-based information system

This is an integrated, multiple-purpose, geographically dispersed, computer-based configuration of people, procedures, and equipment designed to satisfy the informational needs of a user.<sup>7</sup>

### Texas Department of Public Safety

The Texas Department of Public Safety is referred to as Department or Department of Public Safety in this study. The Department is the primary state law enforcement agency of the state. For further information see Appendix A.

### Warrant Data Bank File

The Warrant Data Bank File is referred to as File in this study. Implemented in November 1983, the File is integrated in the License Issuance and Drivers Records (LIDR) computer. For further information see Appendix B.

### Transportation time

This is the time it takes to transport the person arrested to jail

or to a place for the disposition of the warrant. Time begins when the peace officer places the defendant under arrest and continues until such time the peace officer is relieved of the custody of the defendant, either by jail personnel or by a judge or by any other department policies consistent with law.

## A Review of Related Literature and Research

### Arrest Warrants

#### Historical Analysis

The Fourth Amendment to the United States Constitution states: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized."<sup>8</sup> The arrest warrant comes to this country from English common law. Under this common law sheriffs, constables and private citizens had a duty and responsibility to carry out, without delay, the command of a warrant that was issued by a judicial officer.<sup>9</sup> With English common law, as a result of custom and laws enacted by Parliament that existed and applied at the time of the founding of this country, as a base for criminal law we have added American customs, common law, and statutes.<sup>10</sup>

At the time of the founding of this country, government intrusion

into the personal lives of its citizens was feared and, beginning with the Bill of Rights of the Constitution, certain safeguards were created to limit the powers of the government. In Ker v. California, the Supreme Court of the United States held that arrests by state and local police officers are to be judged by the same constitutional standards as apply to the federal government.<sup>11</sup> Since, in Barron v. Baltimore<sup>12</sup>, the U. S. Supreme Court held that the Bill of Rights does not apply directly to the states, the protection of the safeguards that are in the Federal Constitution were made applicable to the States by the Fourteenth Amendment.<sup>13</sup> The Munn case did not apply to criminal cases, and federal protection did not fall under the due process clause of the Fourteenth Amendment until Powell v. Alabama.<sup>14</sup>

#### Contemporary Analysis

For an arrest warrant to be a valid and legal warrant it must meet certain requirements as set forth by law. In Texas, according to the Texas Code of Criminal Procedure, the requisite of a warrant are as follows:

"It issues in the name of 'The State of Texas', and shall be sufficient, without regard to form, if it has these substantial requisites:

1. It must specify the name of the person whose arrest is ordered, if it be known, if unknown, then some reasonably definite description must be given of him.

2. It must state that the person is accused of some offense against the laws of the State, naming the offense.

3. It must be signed by the magistrate, and his office be named in the body of the warrant, or in connection with his signature."<sup>15</sup>

The warrant extends to every part of the State, except for those issued by mayors or recorders of an incorporated city or town, and any peace officer shall be authorized to execute the same in any county of the state.<sup>16</sup> The warrant may be telegraphed to another part of the state and be valid.<sup>17</sup> The arrest may be made on any day or at any time of the day or night.<sup>18</sup> The arresting officer does not need the warrant in his possession at the time of the arrest and if he does not have the warrant in his possession at the time of the arrest he shall then inform the defendant of the offense charged and of the fact that a warrant has been issued.<sup>19</sup>

#### Case Law

The arrest warrant allows for more than the seizure of personal freedom. In the case of United States v. Rabinowitz<sup>20</sup> the Supreme Court of the United States specifically recognized the authority of the police to search incidental to an lawful arrest. Justice Frankfurter, in his dissenting opinion in Rabinowitz, stated:

"What, then, is the exception to the prohibition of the Fourth Amendment of search without a warrant in case of a legal arrest, whether the arrest is on a warrant if a crime is committed in the presence of the arrester? The exception may in part be a surviving incident of the historic role of 'hue and cry' in early Anglo-Saxon law. Its basic roots, however, lie in necessity. What is the necessity? Why is search of the arrested person permitted? For two reasons: first, in order to protect the arresting officer and to deprive the prisoner of potential means of escape,...and, secondly, to avoid destruction of evidence by the arrested person."<sup>21</sup>

How far can this search, incidental to a lawful arrest, extend in

the event of an arrest made of a driver of an automobile? The courts have held that an officer may search the person of the driver of the car and the parts of the automobile that is within the reach of the arrested.<sup>22</sup>

Whatever evidence or contraband that is recovered during this search is admissible in court only with stringent restrictions. Warrantless arrests and searches are examined by the court much closer for probable cause than warrant arrest and searches. The court, in reviewing the action when an warrant arrest is made, looks at the warrant itself rather than the probable cause of the arrest. It is acknowledged, by the court, that the probable cause for the arrest is the warrant.

### Computer Assisted Systems in Police Work

#### Communications

Digital computer terminals were placed in half of the patrol cars of Oakland, California. The terminals generated seven times as many information requests, received more than three times as many possible hits, and were three times as productive in warrant arrests and vehicle recoveries as the units that were not equipped.<sup>23</sup> Computer aided dispatch systems assist with telephone calls being answered and serviced more rapidly and evenly distributes work loads in communications divisions. Other benefits have included availability of new and better information, effective transfer, recording, and retrieval of data in the dispatching process, and speed in address

matching with geographic location.<sup>24</sup>

Computers have also allowed system interfaces between law enforcement agencies at federal, state, and local levels. As governments have been forced to limit budgets, these interfaces have brought different jurisdictions together to combine technology into regional systems.<sup>25</sup>

#### Federal Information Networks

The Federal Bureau of Investigation (FBI) maintains an Computer Criminal History File (CCH) for the use of governmental agencies concerned with law enforcement and criminal justice activities. The agencies that use the CCH files must be authorized by the FBI and conform to its regulations. This file is used mainly in post arrest situations since a significant amount of time is usually required for a return. As of 1979, the CCH file contains more than 1.4 million offender records. These records are divided into identification, court, arrest, appeal, and custody segments.<sup>26</sup>

The FBI, through Rockwell International, also developed a minutiae-based automated fingerprint system (AFIN). The AFIN technology is being used in regional computer systems across the nation. Since the AFIN in each region is basically the same system, access is available to other agencies.<sup>27</sup>

Other government agencies that are not directly involved in law enforcement activities, but do allow access to law enforcement agencies, maintain systems that contain a wealth of information. The following is a partial list of these agencies: the Civil Service Commission, Social Security Administration, Internal Revenue Service,

and the departments of Commerce, Defense, Housing and Urban Development, and State.<sup>28</sup>

Although there have been negotiations at different levels of government, there is as yet no central federal data bank that combines all of these departments.

### Police Arrest Warrants: Computer Based Systems

#### NCIC

The National Crime Information Center is managed, operated, and funded by the Federal Bureau of Investigation (FBI). Introduced in 1967, this telecommunications network reaches all 50 states, District of Columbia, Canada, Puerto Rico. There are currently nine files included in NCIC. These files are stolen vehicles, stolen articles, stolen guns, stolen license plates, wanted persons, stolen securities, stolen boats, the computerized criminal history file, and missing persons. There is a tenth separate information file accessible through NCIC, the Criminalistics Laboratory Information System.<sup>29</sup>

NCIC operates 24 hours a day, 7 days a week and can interface with control terminal equipment manufactured by the major computer firms. Only control-terminal agencies in certain states and the FBI can enter, modify, or cancel data. Direct access by law enforcement agencies to the system have two important limitations. First, physical access to the terminal is generally restricted to operators to reduce errors in terminal use and increase system security. Second, only states that agree to provide secure locations for terminals and abide by NCIC

operating policies and procedures have specific access to CCH files. With indirect access, two agency terminals validate the user agency authenticity to use the system.<sup>30</sup>

### TCIC

The Texas Crime Information Center is similar to the FBI's NCIC system in operation. Governed by a board responsible to the Director of the Department, the system is housed by the Texas Law Enforcement Telecommunications System. The Department controls the system, but access is available from any teletype terminal from any agency authorized by the governing board. System security relies on the different agencies and the Department in the manner similar to NCIC.<sup>32</sup>

## Statement of the Purpose

### Introduction

For the law enforcement administrator, questions raised about police practices in arrest situations are important in not only the area of public relations but also in the area of legal issues. The right of the police to "intrude" upon the freedom of the citizen must be balanced against the right of the citizen to be free of unjust or arbitrary State interference.<sup>32</sup> Criminal and civil litigations by citizens against law enforcement officers and agencies are becoming more prevalent and costly.<sup>33</sup> Solutions to litigation should be implemented before the litigations occurs. Policies for arrest situations must be extensively reviewed and taught to all members of



the agency on a continuing basis. In order for police to be implemented, an understanding must exist as to the two basic arrest situations, that is, arrest with a warrant and arrest without a warrant.

An arrest with a warrant requires accurate and reliable information that is quickly available to the street officer. Information that is quickly available serves a two-fold purpose of lessening the intrusion of the government upon the freedom of the citizen, and lessening the time the officer is involved in each situation.

This second concern of the law enforcement administrator is an answer to resources available to answer a plethora of calls for service. With limited manpower, the administrator must acknowledge each and every call. The time that a police officer is busy with an arrest takes some of the limited manpower from availability. Information that allows the officer to finish a situation and respond to or initiate the next situation. With a minimum amount of time out of service, is one way of reconciling the shortage of manpower without an increase in budget.

### Purpose of the Study

The present study is an attempt to determine the impact of computer-based information systems on police arrest warrants. To do this, the study looks at one law enforcement agency that has recently compiled a warrant data bank and integrated it into a larger system.

An attempt is also made to determine if the warrant database is accomplishing the job it was designed to do, and if so, what steps that led to implementation of the system are applicable to other agencies.

Notes For The Chapter

- 1 Omnibus Crime Control and Safe Streets Act of 1968, as cited in Robert L. Deighton and Martin P. Sutton, One Nation, (Lexington, Mass.: D.C. Heath and Company, 1972), p. 362-363.
- 2 National Commission on the Causes and Prevention of Violence, *Ibid*, p. 385.
- 3 Texas Code of Criminal Procedure, 1984.
- 4 Texas Penal Code, 1984.
- 5 *Ibid*.
- 6 United States Bureau of the Budget, as cited in George Martin Weinberger, "Federal Government Information Needs, Data Surveillance, and the Right of Personal Privacy: An Empirical Survey of Attitudes and Values of", D.P.A. dissertation, (University of Georgia, 1973), p. 9.
- 7 *Ibid*.
- 8 United States Constitution-Fourth Amendment, (1791)
- 9 John C. Klotter and Jacqueline R. Kanovits, Constitutional Law 4th ed. (Anderson Publishing Co, 1981).
- 10 LaSalle Extension University. La Salle Law Library. Criminal Law-Criminal Procedure-Sales of Personal Property. U.S.A. (1965).
- 11 Ker v. California. 374 US 23, 10 LEd(2nd)726, 83 SCt 1623 (1963).
- 12 Barron v. Baltimore. 7 Peters 243; 8 L. Ed. 672 (1833).
- 13 Munn v. Illinois. 94 U. S. 133; 24 LEd. 77 (1877).
- 14 Powell v. Alabama. 287 U.S. 45; 53 S.Ct. 55; 77 L.Ed. 158 (1932). For rights of persons accused of a crime see the development of the "incorporation" doctrine as made applicable to the states from the Fourteenth Amendment in: Weeks v. United States 232 U.S. 383; 34 S.Ct. 341; 58 L.Ed. 652 (1914), Wolf v. Colorado 338 U.S. 25; 69 S.Ct. 1359; 93 L.Ed. 1782 (1949), Mapp v. Ohio 367 U.S. 643; 81 S.Ct. 1684; 6 L.Ed. 2nd 1081 (1961). see also Clyde L. Cronkhite, "Automating Police Want and Warrant Information", Computers in Local Government: Police and Fire, (Auerbach Publishing Inc, 1981).
- 15 Art. 15.02. Texas Code of Criminal Procedure. For further information on legal requisits for warrants see Baker v. McCollan, 443

U.S. 137, 61 L.Ed.(2nd) 433, 99 S.Ct. 2689 (1979); Whiteley v. Warden, 401 U.S. 560, 28 L.Ed.(2nd) 306, 91 S.Ct. 1031 (1971); Spinelli v. United States, 393 U.S. 410, 21 L.Ed.(2nd) 637, 89 S.Ct. 584 (1969); West v. Cabell, 153 U.S. 78, 38 L.Ed. 643, 14 S.Ct. 752 (1894); People v. Montoya, 255 CalApp(2nd) 137, 63 CalRptr 73 (1967); United States v. Ferrone, 438 F(2nd) 381 (3rdCir 1971); Coolidge v. New Hampshire, 403 U.S. 443, 29 L.Ed.(2nd) 564, 91 S.Ct. 2022 (1981). For further information see "Valid Arrest Warrant Required," Arrest Law Bulletin, (12/84): 8.

16 Art. 15.06. Texas Code of Criminal Procedure.

17 Art. 15.08. Texas Code of Criminal Procedure.

18 Art. 15.23. Texas Code of Criminal Procedure.

19 Art. 15.26. Texas Code of Criminal Procedure. See also "Not in Police Possession at time of Arrest-U.S. v. Buckner-Ky," Arrest Law Bulletin, (February 1984: 6; and "Recalled Warrant-Officers Good Faith," The Criminal Law Reporter: Court Decisions, 36:11, (12/12/84), 2193.

20 United States v. Rabinowitz. 339 U.S. 56, 94 L.Ed. 653, 70 S.Ct. 430 (1959).

21 John C. Klotter and Jacqueline R. Kanovitz, Constitutional Law, 4th ed., (Anderson Publishing Co., 1981), pg. 213. For more information see Allan Ashman, "What's New: Searches May Be Based on Arrest Warrants," American Bar Association Journal, 70 (January 1984), p. 132-133.

22 See Chimel v. California, 395 U.S. 752, 23 L.Ed.(2nd) 685, 89 S.Ct. 2034 (1969); In re Application of Kiser, 419 F(2nd) 1134 (8thCir 1969); State v. Keith, 2 OreApp 133, 465 P(2nd) 724 (1979).

23 Kent W. Colton, "The Use An Impact of Police Computer Technology", Computers in Local Government: Police and Fire, (Auerbach Publishers Inc., 1981).

24 Ibid. pg. 7. See also William A. Hamilton, "Promis And The Police". Computers in Local Government: Police and Fire, (Auerbach Publishing Inc., 1981). Further information available in Thomas F. Walton, Communications and Data Management, (New York: Wiley Publishing, 1976).

25 For further information see Donald E. Willmes, "County Law Enforcement Applied regionally: CLEAR System Case Study"; Richard M. Saig, "Computer-Aided Dispatching: Jacksonville Case Study"; also Robert Sohn, "Computer-Aided Dispatch for Police Operations", Computers in Local Government: Police and Fire, (Auerbach Publisher Inc., 1981). The reader may also want to consult Olin H. Bray,

Distributed Data Base Management Systems, (Lexington, Mass.: Lexington Books, 1982); Dimitris N. Chorafas, Databases for Networks and Minicomputers, (New York: Petrocelli Books, 1983); Brian Davis, MIEE, Data Base Management Systems: User Experience in the U.S.A., (Manchester: NCC Publications, 1975); William C. House, Interactive Decision Oriented Data Base Systems, (New York: Petrocelli/Charter, 1977); Dionysios C. Tsichritzis, Data Base Management Systems, (New York: Academic Press, 1982); Dionysios C. Tsichritzis, Data Models, (Englewood Cliffs, New Jersey: Prentice-Hall, 1982).

26 Donald A. Marchland. "National Information System", Computers in Local Government: Police and Fire, (Auerbach Publishing Inc., 1981), pg. 7. For further information on national systems see Emmet A. Rathbun, "Interstate Identification Index", FBI Law Enforcement Bulletin, Jan. 1985, Vol. 54, No. 1. pg. 14. For fears of the Interstate Identification Index see Diana R. Gordon and Mae Churchill, "Triple I Will Be Tracking Us", The Nation, April 28, 1984.

27 Carroll D. Buracker and William K. Stover, "Automated Fingerprint Identification-Regional Application of Technology", FBI Law Enforcement Bulletin, August 1984, vol. 53, no. 8. pg. 1-5.

28 "Controversy over Federal Data Banks," Congressional Digest, 50: 225-256, October, 1971, as stated in George Martin Weinberger, Federal Government Information Needs, Data Surveillance, and the Right to Personal Privacy: An Empirical Survey Of Attitudes And Values Of, D.P.A. dissertation, (University of Georgia, 1973).

29 Donald A. Marchland, "National Information Systems", Computers in Local Government: Police and Fire, (Auerbach Publishing Inc., 1981), pg. 2-5.

30 Ibid. pg. 3.

31 From Interviews with Captain F. Waller and Communications Supervisor G. Hogenmiller, Texas Department of Public Safety, Austin.

32 Security of the system must also be considered. For discussions on system security see: Eduardo B. Fernandez, Database Security and Integrity, (Reading, Mass.: Addison-Wesley Publication Co., 1981); Charles F. Hemphill, Security Safeguards for the Computer, (New York: AMACOM, 1979); James A. Larson, Database Management System Anatomy, (Lexington, Mass.: Lexington Books, 1982); William E. Perry, Ensuring Data Base Integrity, (New York: Wiley Publishing, 1983); Jeffrey D. Ullman, Principles of Data Base Systems, (Potomac, Md.: Computer Science Press, 1980); Gio Wiederhold, Database Design, (New York: McGraw-Hill, 1983).

33 Several Supreme Court cases have describe the action of police investigations upon citizens as an intrusion. This does not seem to be an negative aspect of police power, only the court's terminology. See

especially the court cases on the developement of the "incorporation" doctrine in note 14.

34 When a civil litigation ensues against an officer, litigation is also brought against the agency employing the officer. Courts have held that the agencies must assume responsibility for the actions of its employees.

## Chapter II

### Methodology

The purpose of this chapter is to focus on the specific methodological aspects that are employed in this research. The chapter has been divided into five principle sections for ease of analysis:

(1) introduction, (2) the case study approach, (3) general statements of the hypothesis, (4) operational statements of the hypotheses, and (5) statistical analysis and data processing.

#### Introduction

In doing research, the use of the correct methodological approach is of paramount importance. The researcher must identify the population to be investigated, and determine the proper approach to study that population.

There are many approaches that a research investigator may use. Among these are survey research, which attempts to collect information in a systematic manner; observational field research, which stresses participant observation; experimental research, which attempts to manipulate the surroundings and attempts to assess the effects of the manipulations; historical analysis, which attempts to investigate historical perspectives and methodologies; content analysis with the

focus on communication; and aggregate data analysis and its use in large populations.<sup>1</sup> This is not an exhaustive list of methodologies by any means, but a listing of only a few to demonstrate to the reader that many different approaches are available. Each approach is appropriate for certain types of investigations, but the case study represents a combination of many of these approaches.

### The Case Study Approach

#### General Comments and Definition

Single case studies have been used in many areas of research including psychiatry, psychology, education, rehabilitation, counseling, social work, and other disciplines.<sup>2</sup> A case study is a methodological approach that permits experimental investigation in a detailed study of a single example of whatever it is that an researcher wishes to investigate. Each subject is treated as a unit of its own and there is no claim to representativeness.<sup>3</sup>

Specifically there are five distinct steps in a case study:

- (1) state the objectives,
- (2) design the approach,
- (3) collect the data,
- (4) organize the information to form a coherent, well integrated reconstruction of the unit of study, and
- (5) report the results and discuss their significance.<sup>4</sup>

Case studies are particularly useful as background information for planning major investigations because they bring to light the important variables, processes, and interactions that deserve more extensive



attention. The data found also provides useful anecdotes or examples to illustrate more generalized statistical findings.<sup>5</sup>

The case study approach was selected because of the limited population available. The Warrant Data Bank File is unique among state law enforcement agencies, thereby generating questions as to its use and operation. From these questions several hypotheses were formulated and tested. An attempt was made to compile the results of the hypotheses testing and present these findings for other law enforcement agencies.

Survey research was used in the testing of Hypothesis VI and observational field research was used in the testing of Hypothesis V. Aggregate data analysis was used in the testing of Hypotheses I, II, III, and IV. These approaches were combined in a single unit study that resulted in the present case study.

### General Statements of the Hypotheses

Following are the six hypotheses which have been derived from the survey literature and research in order to undergo testing in the present study.

#### Hypothesis I

That peace officers spend less time on serving warrants since the Texas Department of Public Safety Warrant Data Bank File was implemented than before its implementation.

#### Hypothesis II

That the "Warrant Data Bank File" has increased the number of warrants served, per month, by peace officers.

Hypothesis III

That implementation of the "Warrant Data Bank File" has resulted in counties experiencing an increase in "paid warrant" revenue.

Hypothesis IV

That the "Warrant Data Bank File" functions at a lower operating cost than the requisite number of personnel required to perform parallel activities.

Hypothesis V

That the "Warrant Data Bank File" operates at a faster return rate than occurs through manual personnel search.

Hypothesis VI

That the "Warrant Data Bank File" is perceived to operate with fewer errors than occurs with manual personnel search.

Operational Statements of the Hypotheses

Hypothesis I

The testing of this hypothesis was accomplished by an examination of the statistics maintained by the Department of Public Safety. A comparison was made by taking the average number of manhours employed serving warrants before the File was implemented and after implementation. Manhours were determined, by the Department, by dividing the number of hours by the number of personnel.

Hypothesis II

The testing of this hypothesis drew from records maintained by the Department of Public Safety. The average number of warrants served per month before the File was implemented was compared to the average number of warrants served per month after implementation. The number of personnel the Department employed remained constant.

### Hypothesis III

State law denies law enforcement agencies to retain monies collected by paid warrants and fines. The counties issuing the warrants are allowed to integrate the monies collected into their operating funds.

The testing of this hypothesis necessitated developing an algebraic formula. Each datum was assigned an value from records and given averages. The following is the formula designed for the testing of this hypothesis:

$$R = (X/Y) * Z$$

The symbols represent the following:

R = Total amount of money generated for the counties;

X = Total amount of money generated by the Department;

Y = Total amount of cases generated by the Department;

Z = Total number of warrants served as a result of the File.

The resulting R represents the amount of dollars generated for counties due to the implementation of the File.

### Hypothesis IV

To test this hypothesis, the cost of the required personnel and the operation of the computer was compared to the cost of hiring, training, equipping, and the salary for the required number of Troopers

to perform the same function. The difference represents an yearly average of savings that the File performs for the Department.

#### Hypothesis V

The testing of this hypothesis was accomplished by observations of communications operators. The functions indigenous, or the physical activities, to each action were timed on several different occasions in an attempt to determine the amount of time each action cost. Different operators were also timed to delete the amount of probable proficiency among the operators. The resulting averages were compared.

#### Hypothesis VI

The testing of this hypothesis was accomplished by interviewing Troopers working the road and communications operators. Interviews were in the form of a survey containing the question:

Does the Warrant Data Bank File operate with more errors, less errors, or no change in the number of errors than would occur with manual searches of the Warrant File?

The results were tabulated and included in an chart.

### Statistical Analysis and Data Processing

#### Graphical Representation

Graphs can be used to represent data collections results and raw data itself. There are several different types of graphs that are available to the researcher. Among these are bar graphs, histograms and frequency polygons.

Each graph displays a frequency distribution from a frequency table of nominal data. On a bar graph, the height of the bar is

proportional to the frequency of the data.<sup>6</sup> A histogram is a bar graph used on continuous data.<sup>7</sup> A frequency polygon is drawn by plotting the frequency of each data as a dot and then connecting each adjacent pair of dots by a straight line.<sup>8</sup>

### Statistical Techniques

Statistics refers to the analysis and interpretation of data with a view towards objective evaluation of the reliability of the conclusions based on the data.<sup>9</sup> Before data can be analyzed, they must be collected. Knowing statistical techniques before starting collection of the data is important in designing the research to be undertaken and in generating hypothesis to be tested.

Statistics can measure central tendency, dispersion and variability of fit. The measure of central tendency is also called the measure of location. This measurement indicates where among all the possible values of a variable the sample or population is located.<sup>10</sup> The measure of dispersion or variability is an indication of the clustering of measurements around the center of a distribution, or how variable the measurements are.<sup>11</sup>

To discover whether an observed frequency deviates significantly from the frequency expected from a true hypothesis, the chi-square test is used. The test involves stating an null hypothesis and alternative hypothesis to cover all possible outcomes. Chi-square is a calculation used as a measure of how far a sample distribution deviates from a theoretical distribution.<sup>12</sup>

### Using Tables and Matrices

A matrix is a two dimensional array, usually representing raw

sums of squares and raw sums of crossproducts.<sup>13</sup> A table is an orderly display of data, usually arranged in columns and rows.<sup>14</sup> Both are used to display either raw or processed data. Matrices are used when there are three or more variables involved in an analysis of an relationship.

#### Column and Row Totals

A column is a vertical section in a table or matrix. A row is a horizontal section in a table or matrix. The totals of columns and rows are representative of the total population involved.

#### Elementary Statistical Trends

Most distributions of data are observed to have a preponderance of values around the mean with progressively fewer observations toward the extremes of the range of values. The distributions tend to show a curve on an frequency polygon and are named for their shapes. A normal distribution shows a bell-shaped curve and other distributions have curves that skew to one side or the other (left or right). The normal distribution (mesokurtic) does not have to be symmetrical and can either be leptokurtic or platykurtic.<sup>15</sup>

Other types of trends are binomial distributions, linear correlations, and circular distributions. Binomial distributions are distributions with a population of only two categories.<sup>16</sup> Linear correlations are distributions that consider the linear relationship between two variables but do not assume to be functionally dependent upon each other.<sup>17</sup> Circular distributions are interval scales that have no true zero or any designation of high or low values.<sup>18</sup>

This chapter has been to introduce the reader to the different approaches that are involved with research. There has been no attempt

to include all the possible approaches, but descriptions are to be used as a base to understand the approaches used in this study. The hypotheses and a description of the approaches used in the testing of the hypotheses have been stated. An attempt has been made to familiarize the reader with different statistical analysis techniques that have been employed in this research.

Notes For The Chapter

- 1    Stephen Issac and William B. Michael, Handbook in Research and Evaluation: A Collection of Principles, Methods, and Strategies Useful in the Planning, Design, and Evaluation of Studies in Education and the Behavioral Sciences, 2nd ed., (San Diego, California: EdITS publishers, 1981), pg. 48.
- 2    Ibid. pg. 48-49.
- 3    Alan E. Kazdin, Single-Case Research Designs: Methods For Clinical And Applied Settings, (New York/Oxford: Oxford University Press, 1982), pg. 3-4.
- 4    Michel Herson and David H. Barlow, Single-case Experimental Designs: Strategies for Studying Behavior Change, (New York: Pergamon Press, 1976), pg. 24.
- 5    Ibid. pg. 47-48.
- 6    Jerrold H. Zar, Biostatistical Analysis, (Englewood Cliffs, New Jersey: Prentice-Hall, 1974), pg. 4.
- 7    Ibid. pg. 10.
- 8    Ibid. pg. 10.
- 9    Ibid. pg. 1.
- 10   Ibid. pg. 19.
- 11   Ibid. pg. 29.
- 12   Ibid. pg. 41-42.
- 13   Ibid. pg. 254.
- 14   Peter Davies, ed., The American Heritage Dictionary of the English Language, (New York: Dell Publishing Co., Inc., 1973), pg. 705.
- 15   Jerrold H. Zar, Biostatistical Analysis, (Englewood Cliffs, New Jersey: Prentice-Hall, 1974), pg. 71-73.
- 16   Ibid. pg. 281.
- 17   Ibid. pg. 236.



<sup>18</sup> Ibid. pg. 310.

## Chapter III

### Results

This chapter will focus on the results of the data collection and analysis that occurred during the present research. Each hypothesis and an analysis of the data examining that hypothesis will be discussed. After each hypothesis is stated and analyzed, a composite analysis of all the results will be developed. Additional comments by the researcher and persons interviewed concerning the system in its entirety will be included. These additional comments will demonstrate existing problems with the system and suggest attempts to determine solutions.

#### Hypothesis I

##### Statement of Hypothesis I

That peace officers spend less time on serving warrants since the Texas Department of Public Safety Warrant Data Bank File was implemented then before implementation.

##### Analysis of Hypothesis I

According to the Department records, eighty thousand (80,000) manhours a year were spent on serving warrants before implementation of the Warrant Data Bank File. Approximately half of that time, forty

thousand (40,000) manhours per year, were involved in transportation time (See Table 1, Manhours Before Implementation on page 31). For our purposes, transportation time was discounted as being impossible to measure with any degree of accuracy. The forty thousand (40,000) manhours, deleted by the Department, was an estimate of transportation time.

Before implementation of the File, the transportation time also included going to pick the person up as well as bringing the person back for disposition. After implementation of the File, transportation only occurred after arrest and to disposition. The difference between these two times is misleading since during transportation time the Trooper may engage in other activities, either before or after the arrest.<sup>1</sup>

The Troopers no longer have to serve their own warrants since they are entered into the statewide system File. A "warrant hit" anywhere in the state by a peace officer saves the searching time that was involved before implementation.<sup>2</sup>

There is a saving of, at least, forty thousand (40,000) manhours (see Table 2, Savings Of Manhours After Implementation Of The File on page 32) per year since the implementation of the File.<sup>3</sup>

An additional finding, during the testing of this hypothesis, was the fundamental change of what constitutes the serving of a warrant. (See Implications of the Study for further information.)

### Hypothesis II

#### Statement of Hypothesis II

Table 1Manhours Before Implementation

Manhours To Serve Warrants (per year)	80000
Less Transportation Time (per year)	* 40000
Total Manhours To Serve Warrants (per year)	* 40000

\*Estimated

-----  
Source: Captain F. Waller, Texas Department of Public Safety,  
Austin.

Table 2  
Savings of Manhours After  
Implementation of the File

Manhours To Serve Warrants (before file)	40000 *
Manhours To Serve Warrants (after file)	0
Total Savings of Manhours	40000 *

\*Estimated

---

Source: Captain F. Waller, Texas Department of Public Safety,  
Austin.

That the "Warrant Data Bank File" has increased the number of warrants served, per month, by peace officers.

Analysis of Hypothesis II

The official records of the Texas Department of Public Safety show that before implementation of the File, Troopers served an average of one thousand nine hundred (1900) warrants per month.

Since implementation of the File, Department records show an average of ten thousand five hundred (10,500) warrants per month (see Table 3, Comparison Of Warrants Served Between Before and After Implementation of the File on page 34). The highest number of warrants served in one month, to date, was December, 1985, with twelve thousand five hundred (12,500) warrants served.<sup>4</sup>

Tables 4 through 7, on pages 35 through 47 show the numbers, and percentage of warrants, entered and served by entry terminals of the Department.

Hypothesis III

Statement of Hypothesis III

That implementation of the "Warrant Data Bank File" has resulted in counties experiencing an increase in "paid warrant" revenue.

Analysis of Hypothesis III

The total amount of money (x) was divided by the total amount of cases (y) and the result was multiplied by the number of warrants served (z) to give the amount of revenue generated (r) for the counties ( $x/y*z=r$ ).

Table 3  
Comparison of Warrants Served Before  
And After Implementation of the File

Number of Warrants Served Per Month (before file)	1900
Number of Warrants Served Per Month (after file)	10500
Increase in Number of Warrants Served Per Month	8600

-----  
Source: Captain F. Waller, Texas Department of Public Safety,  
Austin and Texas Department of Public Safety Warrant Data Bank Summary.

Table 4  
Warrant Activity With the File  
Transaction Period  
January 1984  
By District Office

<u>District Office</u>	<u>Warrants On File</u>	<u>Warrants Entered</u>	<u>Warrants Served</u>
Abilene	1749 (3.12)*	667 (2.32)	172 (3.91)
Amarillo	777 (1.39)	324 (1.13)	72 (1.64)
Beaumont	1096 (1.95)	1122 (3.90)	18 (0.41)
Bryan	3642 (6.50)	1794 (6.24)	304 (6.91)
Childress	523 (0.93)	414 (1.44)	55 (1.25)
Corpus Christi	1649 (2.94)	1327 (4.64)	76 (1.73)
Dallas (800)	851 (1.52)	562 (1.96)	49 (1.11)
Dallas (899)	77 (0.14)	24 (0.08)	05 (0.11)
Del Rio	452 (0.81)	272 (0.95)	29 (0.66)
El Paso	1101 (1.96)	281 (0.98)	43 (0.98)



Harlingen	702 (1.25)	483 (1.68)	51 (1.16)
Houston	5079 (9.06)	2838 (9.88)	267 (6.07)
Kerrville	1419 (2.53)	1141 (3.97)	72 (1.64)
Lubbock	1929 (3.44)	872 (3.03)	202 (4.59)
Lufkin	1715 (3.06)	679 (2.36)	98 (2.23)
Midland	722 (1.29)	387 (1.35)	56 (1.27)
Mineral Wells	1129 (2.01)	234 (0.81)	110 (2.50)
Pecos	526 (0.94)	467 (1.63)	45 (1.02)
San Angelo	973 (1.74)	351 (1.22)	89 (2.02)
San Antonio	3933 (7.02)	1918 (6.68)	301 (6.84)
Sherman	1996 (3.56)	894 (3.11)	157 (3.54)
Sulphur Springs	2538 (4.53)	856 (2.98)	203 (4.61)
Tyler	2271 (4.05)	1460 (5.08)	190 (4.32)
Waco	4126 (7.36)	2431 (8.46)	363 (8.25)
Wichita Falls	1486 (2.65)	955 (3.32)	187 (4.25)
Lampasas	3050 (5.44)	848 (2.95)	276 (6.27)
Ozona	965 (1.72)	436 (1.52)	109 (2.48)

Pierce	2471 (4.41)	935 (3.25)	183 (4.16)
Texarkana	1063 (1.90)	437 (1.52)	65 (1.48)
Narcotics	152 (0.27)	12 (0.04)	08 (0.18)
McAllen	424 (0.76)	309 (1.08)	21 (0.48)
Victoria	1366 (2.44)	900 (3.13)	77 (1.75)
Austin	2100 (3.75)	991 (3.45)	321 (7.39)
Laredo	793 (1.41)	509 (1.77)	25 (0.57)
Brownwood	1218 (2.17)	604 (2.10)	100 (2.27)

Totals		38734	4399
Total Warrants on File	56063		

37

\*Percentages of Warrants to Total

-----  
Source: Texas Department of Public Safety Warrant Data Bank Summary.

Table 5  
Warrant Activity With the File  
Transaction Period  
1984  
By District Office

<u>District Office</u>	<u>Warrants On File</u>	<u>Warrants Entered</u>	<u>Warrants Served</u>
Abilene	2870 (2.34)*	4532 (1.25)	2454 (2.67)
Amarillo	1686 (1.38)	2529 (1.25)	1272 (1.39)
Beaumont	3031 (2.48)	5246 (2.60)	1774 (1.93)
Bryan	5828 (4.76)	9867 (4.88)	5329 (5.80)
Childress	2557 (2.09)	4824 (2.39)	1859 (2.02)
Corpus Christi	4868 (3.98)	9857 (4.88)	3690 (4.02)
Dallas (800)	2439 (1.99)	4185 (2.07)	1770 (1.93)
Dallas (899)	35 (0.03)	25 (0.01)	42 (0.05)
Del Rio	1378 (1.13)	2414 (1.20)	846 (0.92)
El Paso	1857 (1.52)	1919 (0.95)	798 (0.87)

Harlingen	1153 (0.94)	2060 (1.02)	1010 (1.10)
Houston (400)	8171 (6.68)	15157 (7.50)	7838 (8.54)
Houston (415)	2301 (1.88)	3177 (1.57)	869 (0.95)
Kerrville	2464 (2.01)	4386 (2.17)	1953 (2.13)
Lubbock	3352 (2.74)	5554 (2.75)	3152 (3.42)
Lufkin	4092 (3.34)	6848 (3.21)	2568 (2.79)
Midland	2510 (2.05)	4143 (2.05)	1751 (1.91)
Mineral Wells	1666 (1.36)	2956 (1.46)	2018 (2.20)
Pecos	943 (0.77)	1561 (0.77)	670 (0.73)
San Angelo	1400 (1.14)	2243 (1.11)	1532 (1.67)
San Antonio	13237 (10.82)	21366 (10.58)	8009 (8.72)
Sherman	4645 (3.80)	7355 (3.64)	3546 (3.86)
Sulphur Springs	3694 (3.02)	5022 (2.49)	2993 (3.26)
Tyler	3992 (3.26)	6057 (3.00)	2938 (3.20)
Waco	8330 (6.81)	14983 (7.42)	6949 (7.57)
Wichita Falls	2907 (2.38)	5227 (2.59)	2806 (3.06)
Lampasas	5919 (4.84)	8599 (4.26)	3834 (4.18)
Ozona	1886 (1.54)	2977 (1.47)	1669 (1.28)

Pierce	5223 (4.27)	8121 (4.02)	3975 (4.33)
Texarkana	2316 (1.89)	3371 (1.67)	1309 (1.43)
Narcotics	119 (0.10)	126 (0.06)	75 (0.08)
Rangers	01 (0.00)	01 (0.00)	00 (0.00)
McAllen	1802 (1.47)	3148 (1.56)	1081 (1.18)
Victoria	2139 (1.75)	3875 (1.92)	1842 (2.01)
Austin	6687 (5.47)	10519 (5.21)	4108 (4.47)
Laredo	2540 (2.08)	4463 (2.21)	1491 (1.62)
Brownwood	2203 (1.80)	3535 (1.75)	1942 (2.12)

40

Totals		186232	122351
Total Warrants on File	163992		

\*Percentages of Warrants to Total

-----

Source: Texas Department of Public Safety Warrant Data Bank Summary.

Table 6  
Warrant Activity With the File  
Transaction Period  
1985  
By District Office

<u>District Office</u>	<u>Warrants On File</u>	<u>Warrants Entered</u>	<u>Warrants Served</u>
Abilene	3390 (2.07)*	4207 (2.26)	2939 (2.40)
Amarillo	1931 (1.18)	1691 (0.91)	1212 (0.99)
Beaumont	4771 (2.91)	4981 (2.67)	3085 (2.52)
Bryan	7484 (4.56)	9141 (4.91)	5761 (4.71)
Childress	3088 (1.88)	2670 (1.43)	2007 (1.64)
Corpus Christi	6011 (3.67)	7287 (3.91)	4896 (4.00)
Dallas (800)	3118 (1.90)	3208 (1.72)	2355 (1.92)
Dallas (899)	53 (0.03)	27 (0.01)	20 (0.02)
Del Rio	1713 (1.04)	1750 (0.94)	1090 (0.89)
El Paso	2467 (1.50)	2014 (1.08)	1415 (1.16)

Harlingen	1716 (1.05)	1837 (0.99)	1046 (0.85)
Houston (400)	9949 (6.07)	10347 (5.55)	8148 (6.66)
Houston (415)	7423 (4.53)	10062 (5.40)	5012 (4.10)
Kerrville	3685 (2.25)	4478 (2.40)	2594 (2.12)
Lubbock	4689 (2.86)	6254 (3.36)	4682 (3.83)
Lufkin	5688 (3.47)	6959 (3.74)	5214 (4.26)
Midland	3327 (2.03)	4121 (2.21)	2594 (2.12)
Mineral Wells	2137 (1.30)	3239 (1.74)	1861 (1.52)
Pecos	1148 (0.70)	1090 (0.59)	803 (0.66)
San Angelo	1583 (0.97)	2065 (1.11)	1758 (1.44)
San Antonio	15210 (9.27)	15255 (8.20)	10175 (8.32)
Sherman	6284 (3.83)	6181 (3.32)	4432 (3.62)
Sulphur Springs	4874 (2.97)	4758 (2.66)	3617 (2.96)
Tyler	5308 (3.24)	5573 (2.99)	3919 (3.20)
Waco	9954 (6.07)	11071 (5.94)	7682 (6.28)
Wichita Falls**	0000 (0.00)	0000 (0.00)	0000 (0.00)
Lampasas	7176 (4.38)	7889 (4.24)	4552 (3.72)
Ozona	2152 (1.31)	2175 (1.17)	1835 (1.50)

Pierce	6831 (4.17)	8244 (4.43)	5748 (4.70)
Texarkana	3111 (1.90)	2901 (1.56)	1762 (1.44)
Narcotics	1239 (0.08)	108 (0.06)	16 (0.01)
Rangers	01 (0.00)	01 (0.00)	00 (0.00)
McAllen	2647 (1.61)	3196 (1.72)	1909 (1.56)
Victoria	3763 (2.30)	4761 (2.56)	2948 (2.41)
Austin	10729 (6.54)	12567 (6.75)	6406 (5.24)
Laredo	3390 (2.07)	5651 (3.03)	2593 (2.12)
Brownwood	2765 (1.69)	3133 (1.68)	2331 (1.91)
Dallas Tollway	216 (0.13)	445 (0.24)	280 (0.23)

43

Totals		202007	91809
Total Warrants on File	122312		

\*Percentages of Warrants to Total

\*\*Information not available

-----  
Source: Texas Department of Public Safety Warrant Data Bank Summary.



Table 7  
Warrant Activity With the File  
Transaction Period  
January 1986  
By District Office

<u>District Office</u>	<u>Warrants On File</u>	<u>Warrants Entered</u>	<u>Warrants Served</u>
Abilene	3417 (2.05)*	328 (2.05)	233 (2.09)
Amarillo	1903 (1.14)	178 (1.14)	129 (1.16)
Beaumont	4914 (2.95)	518 (3.24)	370 (3.32)
Bryan	7946 (4.75)	1105 (6.91)	543 (4.87)
Childress	3171 (1.90)	283 (1.77)	187 (1.68)
Corpus Christi	6284 (3.77)	850 (5.32)	440 (3.95)
Dallas (800)	3231 (1.94)	346 (2.16)	218 (1.95)
Dallas (899)	46 (0.03)	01 (0.01)	06 (0.05)
Del Rio	1753 (1.05)	131 (0.82)	98 (0.88)
El Paso	2555 (1.53)	200 (1.25)	107 (0.96)

Harlingen	1730 (1.04)	117 (0.73)	89 (0.80)
Houston (400)	10063 (6.03)	733 (4.83)	615 (5.51)
Houston (415)	7463 (4.47)	662 (4.14)	628 (5.63)
Kerrville	3562 (2.13)	204 (1.28)	228 (2.04)
Lubbock	4767 (2.86)	548 (3.43)	405 (3.63)
Lufkin	5706 (3.42)	434 (2.71)	399 (3.58)
Midland	3382 (2.03)	289 (1.81)	186 (1.67)
Mineral Wells	2100 (1.26)	129 (0.81)	163 (1.46)
Pecos	1253 (0.75)	163 (1.02)	57 (0.51)
San Angelo	1634 (0.98)	194 (1.21)	142 (1.27)
San Antonio	15530 (9.31)	1715 (10.73)	961 (8.62)
Sherman	6037 (3.62)	204 (1.28)	436 (3.91)
Sulphur Springs	4821 (2.89)	492 (3.08)	530 (4.75)
Tyler	5149 (3.09)	192 (1.20)	333 (2.99)
Waco	10179 (6.10)	1076 (6.73)	670 (6.01)
Wichita Falls**	4247 (2.55)	463 (2.90)	274 (2.46)
Lampasas	7015 (4.20)	368 (2.30)	403 (3.61)
Ozona	2192 (1.31)	187 (1.17)	137 (1.23)

Pierce	6925 (4.15)	678 (4.24)	478 (4.29)
Texarkana	3247 (1.95)	300 (1.88)	142 (1.27)
Narcotics	120 (0.07)	34 (0.21)	02 (0.02)
Rangers	01 (0.00)	00 (0.00)	00 (0.00)
McAllen	2644 (1.58)	185 (1.16)	171 (1.53)
Victoria	3785 (2.27)	426 (2.66)	316 (2.83)
Austin	11426 (6.85)	1443 (9.03)	621 (5.57)
Laredo	3670 (2.20)	527 (3.30)	199 (1.78)
Brownwood	2751 (1.65)	200 (1.25)	209 (1.87)
Dallas Tollway	230 (0.14)	44 (0.28)	28 (0.25)

Totals

15988

11153

Total Warrants on File

166849

\*Percentages of Warrants to Total

-----  
Source: Texas Department of Public Safety Warrant Data Bank Summary.

$x = \$56000000$   
 $y = 1028260.8$   
 $z = 91809$

With the symbols substituted for their respective numbers, the resulting algebraic formula is:  $56000000/1028260.8 * 91809$ . The result of \$5,000,000 represents the amount of revenue generated for the counties.<sup>5</sup> (See Table 8, Amount of Money Generated For Counties Due To File-1984, and Table 9, Amount of Money Generated For Counties Due To File-1985, on pages 48 and 49.)

#### Hypothesis IV

##### Statement of the Hypothesis

That the "Warrant Data Bank File" functions at a lower operating cost than the requisite number of personal required to perform parallel activities.

##### Analysis of the Hypothesis

The cost of designing, establishing, and implementing the File was not calculated by the Department. The system was an in-house operation using available personnel and equipment. After implementation of the system, training was accomplished on the job.

The Department estimates that it would require one-hundred and seventy-five (175) Troopers to perform in the same capacity as the File. The cost of the Troopers includes the training, equipping, and

Table 8  
Amount Of Money Generated For The  
Counties By File  
1984

Total Amount of Money (x)	\$ 56,000,000
Total Amount of Cases (y)	1,028,260.8
Number of Warrants Served (z)	91,809
Amount of Revenue Generated (r)	
$r = (\$56000000 / 1028260.8) 91809$	
$r = (54.460892) 91809$	
$r = \$5000000$	

Result: \$5,000,000 Generated For Counties By File

-----  
Source: Captain F. Waller, Texas Department of Public Safety,  
Austin and Texas Department of Public Safety Warrant Data Bank  
Summary-1984.

Table 9  
Amount Of Money Generated For The  
Counties By File  
1985

Total Amount of Money (x)	\$ 66000000
Total Amount of Cases (y)	1615033.2
Number of Warrants Served (z)	122351
Amount of Revenue Generated (r)	
$r = (\$66000000 / 1615033.2) 122351$	
$r = (40.866033) 122351$	
$r = \$5000000$	

Result: \$5,000,000 Generated For Counties By File

-----  
Source: Captain F. Waller, Texas Department of Public Safety,  
Austin and Texas Department of Public Safety Warrant Data Bank  
Summary-1984.

salary. An yearly estimate for each Trooper was set at \$22,857.143.<sup>6</sup>

A formula representing these estimates was derived:  $T * A = C$ .

The symbols represent:

$T$  = Number of Troopers (175);

$A$  = Average Cost of Trooper (\$22857.143);

$C$  = Average Yearly Cost of Required Troopers.

The algebraic formula ( $175 * \$22857.143 = C$ ) result was \$4,000,000 a year (See Table 10, Cost Of Required Personnel To Replace The File, page 51).

The cost of the system (\$0) was then compared to the cost of the required number of personal (\$4,000,000). The resulting \$4,000,000 represents the yearly amount of savings the File performs for the Department (See Table 11, Comparison Of Costs Between Personnel And File, page 52).

### Hypothesis V

#### Statement of the Hypothesis

That the "Warrant Data Bank File" operates at a faster return rate than occurs through manual personnel search.

#### Analysis of the Hypothesis

The observations were divided into two fields. The first field was concerned with actions required for inquiry of the File. The second field was concerned with actions required for inquiry through manual personnel search.

The actions required for inquiry into the File consist of entering

Table 10  
Cost Of Required Personnel To  
Replace The File

Number of Troopers (t)	175
Average Cost of Trooper (a)	\$ 22857.143
Average Yearly Cost of Required Troopers (c)	
$c = (175 \times \$22857.143)$	
$c = \$4000000$	

Result: \$4,000,000 Saved Yearly By File

-----  
Source: Captain F. Waller, Texas Department of Public Safety,  
Austin and Texas Department of Public Safety Warrant Data Bank  
Summary-1984.



Table 11  
Comparison Of Costs Between  
Personnel and File

Cost of File	\$ 000 *
Cost of Personnel	\$ 4000000
Amount of Savings to Department	
Created by File	\$ 4000000

\* Outside cost to Department

---

Source: Captain F. Waller, Texas Department of Public Safety,  
Austin and Texas Department of Public Safety Warrant Data Bank.

data into a terminal.<sup>7</sup> (See Table 12, Table of Times Required For Entry Into The File By Terminal, on page 54 for time required for entries.)

The actions required for inquiry through manual personnel search consist of leaving the communications console and crossing the room to the warrant file. The walk consists of approximately ten (10) feet. Then the proper file must be located and a physical search of the warrants ensues. See Table 13, Table of Times Required For Manual Inquiries Into The Warrant Files, on page 55 for times required for these actions.

Table 14, Comparison of Times Required For Warrant Checks, on page 56 shows the comparison of times between the two fields.

## Hypothesis VI

### Statement of the Hypothesis

That the "Warrant Data Bank File" is perceived as operating with fewer errors than occurs with manual personnel search.

### Analysis of the Hypothesis

The survey question was distributed among eighteen (n=18) Troopers and communications personnel working in the Austin, Texas, Region. The results are shown in Table 15, Results of Survey Questionnaire, page 57.

## Composite Analysis of Results

Since the implementation of the "Warrant Data Bank File", the state of Texas has experience annual revenue generation of five million

Table 12  
Table of Times Required For  
Entry Into The File  
By Terminal

Entry of Drivers License Number	(seconds)	4
Entry of Name, Date of Birth, Sex, Race	(seconds)	15
Time for Confirmation	(seconds)	35
Total Time Involved	(seconds)	54

---

Source: Communications Supervisor G. Hogenmiller, Texas

Department of Public Safety, Austin and Observations fo Communications  
Personnel during February, 1986.

Table 13  
Table of Times Required For  
Manual Inquiries Into The  
Warrant Files

Time to Reach Warrant File Location	(seconds)	10
Time for Warrant File Search	(seconds)	60
Time for Confirmation	(seconds)	10
Total Time Involved	(in seconds)	80

---

Source: Communications Supervisor G. Hogenmiller, Texas

Department of Public Safety, Austin and Observations for Communications  
Personnel during February, 1986.

Table 14  
Comparison of Times Required  
For Inquiries Into The  
Warrant Files

Time Involved for Terminal Inquiry (seconds)	54
Time Involved for Manual Search (seconds)	80
Difference Between Terminal Inquiry And Manual Search (seconds)	16
Time Saved Due to File (through confirmation) (seconds)	16

-----  
Source: Communications Supervisor G. Hogenmiller, Texas

Department of Public Safety, Austin and Observations of Communications  
Personnel during February, 1986.

Table 15  
Results of Survey  
Questionnaire

Question

Does the Warrant Data Bank File operate with:

- (a) more errors
- (b) less errors
- (c) no more or less errors

than would occur with manual searches of the Warrant File?

N=18

Results:

- (a) 0
- (b) 18
- (c) 0

---

Source: Question was asked of eighteen (18) Trooper and communications personnel in February 1986.

dollars (\$5,000,000) and annual savings to the Texas Department of Public Safety of four million dollars (\$4,000,000). The combination of savings and generated revenue totals nine million dollars (\$9,000,000) annually.

The "Warrant Data Bank File" has resulted in peace officers spending less time serving more warrants with fewer people involved. The File operates at a quicker return rate with fewer perceived errors.

The File has solved many of the problems faced by the Department, but it has created new ones since its inception.

#### Additional Comments

The increase of data has necessitated an increase in the work load of communications operators. In the Austin Regional office the same number of personnel are employed after implementation of the File as before implementation. The filing of warrants, along with the appropriate entries into the system, are an added responsibility.

Communications Supervisor Gary Hogenmiller informed that "the operators no longer have the time to be communications operators to the Troopers on the road. There are now times that the operator must take the station off the air to do warrant filing duties". This results in longer returns and possible dangers to the Troopers that are out of communication.<sup>8</sup>

Captain F. Waller praised the job the operators are doing, but admitted that the increased work load could cause problems. He added that some counties were hiring county employees as filing clerks to

help the Department with the File. Additional personnel for the Department had been requested but were denied by the Legislature.<sup>9</sup>

The lack of personnel also contributes to the lag in entry time of warrants. Most warrants are entered into the system on the 11:00 pm to 7:00 am shift, if there is time. Rarely more than a twenty-four (24) hours expire before entry into the system, most are entered within twelve (12) hours.<sup>10</sup>

The consensus appears to be that the success of the File has caught the Department by surprise. No one interviewed expected the amount of traffic that was generated. The Department is attempting to cope with the increase in activity on an outdated budget.<sup>11</sup>



Notes For The Chapter

- 1 There are times when a Trooper with one prisoner will pick up a second at a second location. This further complicates transportation time. There are also times when the Trooper may engage in law enforcement activities while enroute to pick up a prisoner, this would also add to transportation time but would not be under the operating definition.
- 2 For further information on the time for a "warrant hit", see Analysis of Hypothesis V. A "warrant hit" is the positive return of an inquiry into the Warrant Data Bank File denoting that there is one, or more, outstanding warrants for the person inquired about.
- 3 According to Captain Frankie Waller of the Texas Department of Public Safety, the Troopers now do not "hunt" for warrant arrests. They do their basic mission until notified that their inquiries have had a positive result. In essence the time now spent on serving warrants, less transportation time, is close to zero manhours. There are a few exceptions, as when felony warrants are issued, but these searches are usually done by the Criminal Law Enforcement Division.
- 4 Statistics from Capt. F. Waller, Texas Department of Public Safety, Austin.
- 5 Amounts from Capt. F. Waller, Department of Public Safety and Texas Department of Public Safety Warrant Data Base Summary, Transactions For Period 01-01-84 thru 12-31-84.
- 6 Estimates from Capt. F. Waller, Texas Department of Public Safety, Austin
- 7 For possible entries, see Appendix B for information on the Warrant Data Bank File.
- 8 Interview on 20 February 1986.
- 9 Interview on 22 February 1986.
- 10 Interview with Gary Hogenmiller, Communications Supervisor, Texas Department of Public Safety, Austin.
- 11 The costs of the personnel required to alleviate the increasing of the work load on communication operators were not calculated into the hypotheses. The Department did not have information available for this calculation. There were discussions on the proper job title and salary for the personnel, but no agreements were reached.

## CHAPTER IV

### Discussion

The present chapter will be divided into three principle sections: (1) Limitations of the Study, (2) Implications of the Study, and (3) Suggestions for Further Research.

#### Limitations of the Study

Case Studies have inherent limitations that are indigenous to the approach. The singleness of the population is the most illuminate limitation. Case studies do not permit rigorous empirical control and are among the most fragile of the comparative methods of research.<sup>1</sup>

The present study contains one law enforcement agency with sufficient personnel and equipment that allowed them to design and implement the system without outside assistance. The Department has statewide jurisdiction which allows it to arrest anywhere in the state without concerning itself with extradition. The costly process of extradition from one jurisdiction to another would be prohibitive to many agencies.

For those agencies without, computers are expensive machinery and outside the budgets of many money conscious administrators. Computer cost occurs twice to the administrator, first in the buying of the

hardware and then in the buying of the software. Hardware cost is the initial fee that the administrator must face, running into millions of dollars. The software, where data processing personnel are not employed by the agency, is another cost that runs to thousands of dollars and is a continuing cost.

Information was supplied by the agency being studied. Although there are no reasons to discount this information, there are no independent sources of information that would confirm. The study is limited in this area as well.

As with any approach that is not standardized, the reliability of the study is open to question. Reliability is considered as the extent to which two or more researchers obtain the same results following the same or comparable methods.<sup>2</sup> If other research tests the present study, different results may be obtained either from different methodological approaches or populations.

#### Implications of the Study

There are several significant implications derived from the present study. Foremost is the amount of monies generated from the File. Into this amount are the savings to the Department generated by the File. To the administrator with limited budgets, yet mounting costs, any degree of increased productivity with a decrease of expenditures must be explored. In addition to the agency administrator, the administrator of the political entity must explore generating funds without an increase in expenditures.

Another significant implication of the study is an ethereal one. Long have legal scholars, and common man himself, argued over the definition of justice. The field in which the agency belongs is labeled as criminal justice. One definition, in which we will use here, describes justice as receiving something properly due or merited.<sup>3</sup> If we accept this premise, then the increase of warrant hits indicates justice being accomplished. The warrants are on individuals who are accused of violating the law and have failed to make disposition. The warrant hits with subsequent arrest and forced disposition, can be defined as justice.

The fundamental change of what constitutes serving a warrant is an implication that evolved from the research. Previously, serving a warrant consisted of a peace officer receiving the warrant from a court and looking for the individual named. This process could take anywhere from hours to months, or years. With the advent of the File, the warrant is available to any peace officer in the state in seconds. The search of one peace officer for one particular individual is discontinued and replaced by a search for one individual by all peace officers of the state. The active search of one has been replaced by a passive search of many.

#### Suggestions for Further Research

The present study should be the starting point for future research. Other law enforcement agencies should look at this research and decide whether or not they could benefit from an identical File.

Along with the present study, several factors should be investigated.

One factor to be investigated is the jurisdiction factor. Limited jurisdictional agencies would find a deficit from creation and implementation of such a file unless they have a large aggregate amount of warrants. The revenue to be generated must be balanced against the funds expended for a File. Current sample limited jurisdiction agencies with a file are Austin Police Department, Austin, Texas, and Houston Police Department, Houston, Texas.<sup>4</sup> A Regional Warrant Data Bank File for the Dallas-Ft. Worth metroplex area was created by agreement between the local jurisdictions.<sup>5</sup>

Another factor to concern the agency is that of hardware and software cost. Research is needed for the appropriate hardware for a reasonable expenditure. The memory capacity of the hardware must be sufficient for the purpose of use, with adequate room for growth.<sup>6</sup> Necessary cost of training for personnel on the new hardware must be investigated. The cost of training must also be integrated into the cost of software.

If data processing personnel are available the agency must research the desirability of having the programs created in-house. In cases of shared data processing personnel, investigation should undertaken for the availability of the personnel. Where there are no data processing personnel available to the administrator, research must be accomplished for the desirability of buying ready-made or "packaged" programs.<sup>7</sup>

To summarize, the costs of hardware, software, and training must be researched to provide a balance against the expected revenue to be

generated by the new system. The administrator must also research availability of personnel for the system and the expected increase in activity at all levels of the system from street officers to court clerks. In the final analysis however justice is defined, it does have a price. The price can only be determined by the residents of the jurisdiction involved.

## Notes For The Chapter

- 1 Neil J. Smelser, Comparative Methods In The Social Sciences. (Englewood Cliffs, New Jersey: Prentice-Hall, 1976), p. 199.
- 2 Maltilda White Riley, Sociological Research: A Case Approach. (New York: Harcourt, Brace & World, 1963), p. 73.
- 3 Peter Davies, ed., The American Heritage Dictionary of the English Language (New York: Dell Publishing Co., Inc., 1973), p. 388.
- 4 For an example of a limited jurisdiction agency File, see Appendix C for entries on the Austin Police Department Data File, Austin, Texas. These are information requests that are available to authorized police personnel concerning warrants and criminal histories in the City of Austin.
- 5 From an interview with Captain F. Waller, Texas Department of Public Safety and Gary Hogenmiller, Communications Supervisor, Texas Department of Public Safety, Austin Office.
- 6 For more information see: Jean Loup Baer, Computer Systems Architecture, (Rockville, Md.: computer Science Press, 1980); Colin Bentley, Computer Project Management, (London, New York: Heyden Press, 1982); Richard A. Bassler, The Technology of Data Base Management Systems, (Arlington, Va.: College Readings, Inc., 1974); Olin H. Bray, Data Base Computers, (Lexington, Mass.: Lexington Books, 1979); G. W. Gorsline, Computer Organization Hardware/Software, (Englewood Cliffs, New Jersey: Prentice-Hall, 1980); Charles P. Pfleeger, Machine Organization: An Introduction to the Structure and Programming of Computing Systems, (New York: Wiley Publishing, 1982); and Irving J. Sloan, The Computer and the Law, (London-New York: Oceana Publication, 1984).
- 7 The reader may want to consult the following sources: R. J. Cypser, Communications Architecture for Distributive Systems, (Reading, Mass.: Addison-Wesley Publishing Co., 1983); Ivan Flores, Data Base Architecture, (New York: Van Nostrand Reinhold, 1981); Sakti P. Ghosh, Data Base Organization for Data Base Management, (New York: Academic Press, 1977); George V. Hubbard, Computer-Assisted Data Base Design, (New York: Van Nostrand Reinhold, 1981); Borje Langefors, Information and Data in Systems, (New York: Petrocelli/Charter, 1976); James A. Martin, An End-Users Guide to Data Base, (Englewood Cliffs, New Jersey: Prentice-Hall, 1981), Computer Data Base Organization, (Englewood Cliffs, New Jersey: Prentice-Hall, 1977), Principles of Data-Base

Management, (Englewood Cliffs, New Jersey: Prentice-Hall, 1976), Strategic Data-Planning Methodologies, (Englewood Cliffs, New Jersey: Prentice-Hall, 1982); Charles T. Meadow, Applied Data Management, (New York: Wiley Publishing, 1976); Ronald G. Ross, Data Base Systems: Design, Implementation, and Management, (New York: AMACOM, 1978); and Gio Wiederhold, Database Design, (New York: McGraw-Hill, 1983).



## CHAPTER V

## Summary

The present research was an attempt to determine the impact of computer based management information systems on police arrest warrants by conducting a case study of the Texas Department of Public Safety. The Department created and implemented a Warrant Data Bank File which consists primarily of misdemeanor traffic warrants. It was hypothesized that the File saved law enforcement officers time; generated an increase in the number of warrants served; generated an increase of revenue for counties; saved revenue for the Department; operated with a faster return rate than manual search; operated with fewer errors than a manual search.

Several different methodological approaches were employed in the research. The testing of the hypotheses involved survey research, observational field research, and aggregate data analysis. The above approaches were combined to give a composite analysis of the results of the testing of the hypotheses. Additional comments by individuals interviewed were included to present an opportunity to advise of problems or successes with the File.

To a great extent the results of the analysis verified the hypotheses. The most significant implication of the research consisted of the amount of revenue generated by the use of the File. The savings

realized by the Department between the cost of required personell and the cost of the creation, implementation, and operation of the File. The increased generation of revenue from the use of the File further contributed to the cost effectiveness. The ethereal implication of justice being accomplished was discussed.

Further research is needed by the law enforcement administrator to decide the feasibility of a comparable system for their agency. Suggestions for the research areas were discussed along with areas for public administrators. Large jurisdiction and regional files of several agencies were also discussed as alternatives for a statewide system.

S E L E C T E D   B I B L I O G R A P H Y

## Selected Bibliography

## Books

- Baer, Jean Loup. Computer Systems Architecture. Rockville, Md.: Computer Science Press. 1980.
- Bassler, Richard A. The Technology of Data Base Management Systems. Arlington, Va.: College Readings, Inc. 1974.
- Bently, Colin. Computer Project Management. London, New York.: Heyden Press. 1982.
- Bray, Olin H. Data Base Computers. Lexington, Mass.: Lexington Books. 1979.
- . Distributed Data Base Management Systems. Lexington, Mass.: Lexington Books. 1982.
- Chorafas, Dimitris N. Databases for Networks and Minicomputers. New York: Petrocelli Books. 1983.
- Computers in Local Government: Police and Fire. New Jersey: Auerbach. 1981.
- Colton, K. "The Use and Impact of Police Computer Technology."
- Cronkhite, C.L. "Automating Police Want and Warrant Information."
- Hamilton, William A. "Promis and the Police."
- Marchland, D. "National Information Systems."
- Saig, Richard M. "Computer-Aided Dispatching: Jacksonville Case Study".
- Sohn, R. "Computer-Aided Dispatch for Police Ops."
- Willmes, D.E. "County Law Enforcement Applied Regionally: CLEAR System Case Study."
- Cushman, Robert F. Cases in Constitutional Law. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1984.
- Cypser, R.J. Communications Architecture for Distributive Systems. Reading, Mass.: Addison-Wesley Publishing Co. 1978.
- Date, C.J. An Introduction to Data Base Systems. Reading, Mass.: Addison-Wesley Publishing Co. 1981.
- . An Introduction to Data Base Systems. 2nd ed. Reading, Mass.: Addison-Wesley Publishing Co. 1983.
- Davis, Brian. MIEE. Data Base Management Systems: User Experience

- Davis, Brian. MIEE. Data Base Management Systems: User Experience in the U.S.A.. Manchester: NCC Publications. 1975.
- Denzin, Norman K. Sociological Methods: A Sourcebook. Chicago, Illinois: Aldine Publishing Company. 1970.
- Fernandez, Eduardo B. Database Security and Integrity. Reading, Mass.: Addison-Wesley Publication Co. 1981.
- Flavin, Matt. Fundamental Concepts of Information Modeling. New York: Yourdon Press. 1981.
- Flores, Ivan. Data Base Architecture. New York: Van Nostrand Reinhold. 1981.
- Ghosh, Sakti P. Data Base Organization for Data Management. New York: Academic Press. 1977.
- Gorsline, G.W. Computer Organization Hardware/Software. Englewood Cliffs, New Jersey: Prentice-Hall. 1980.
- Grillo, John P. Data Management Techniques. Dubuque, Iowa: W.C. Brown. 1981.
- Hemphill, Charles F. Security Safeguards for the Computer. New York: AMACOM. 1979.
- Herson, Michel and Barlow, David H. Single-Case Experimental Designs: Strategies for Studying Behavior Change. New York: Pergamon Press. 1976.
- House, William C. Interactive Decision Oriented Data Base Systems. New York: Petrocelli/Charter. 1977.
- Hubbard, George V. Computer-Assisted Data Base Design. New York: Van Nostrand Reinhold. 1981.
- Hyde, William F. Improving Productivity by Classification, Coding and Data Base Standardization: the Key to Maximizing CAD/CAM and Group Technology. New York: M. Decker Press. 1981.
- Isaac, Stephen and Michael, William B. Handbook in Research and Evaluation: A Collection of Principles, Methods, and Strategies Useful in the Planning, Design, and Evaluation of Studies in Education and the Behavioral Sciences. 2nd ed. San Diego, California: EdITS publishers. 1981.
- Kamisar, Yale; LaFave, Wayne R. and Israel, Jerold H. Basic Criminal Procedure. St. Paul, Minn.: West Publishing Co. 1980.

- Kazdin, Alan E. Single-Case Research Designs: Methods For Clinical And Applied Settings. New York/Oxford: Oxford University Press. 1982.
- Keighton, Robert L. and Sutton, Martin P. One Nation. Lexington, Mass.: D.C. Heath and Company. 1972.
- Klotter, John C. and Kanovits, Jacqueline R. Constitutional Law. 4th ed. Anderson Publishing Co. 1981.
- LaSalle Extension University. Volume III Criminal Law-Criminal Procedure-Sales of Personal Property. U.S.A. 1965.
- Langefors, Borje. Information and Data in Systems. New York: Petrocelli/Charter. 1976.
- Larson, James A. Database Management System Anatomy. Lexington, Mass.: Lexington Books. 1982.
- Martin, James. An End-Users Guide to Data Base. Englewood Cliffs, New Jersey: Prentice-Hall. 1981.
- \_\_\_\_\_. Computer Data Base Organization. Englewood, New Jersey: Prentice-Hall. 1977.
- \_\_\_\_\_. Principles of Data-Base Management. Englewood, New Jersey: Prentice-Hall. 1976.
- \_\_\_\_\_. Strategic Data-Planning Methodologies. Englewood, New Jersey: Prentice-Hall. 1982.
- McNeill, Patrick. Research Methods. London, England: Tavistock Publications Ltd. 1985.
- Meadow, Charles T. Applied Data Management. New York: Wiley Publishing. 1976.
- Perry, William E. Ensuring Data Base Integrity. New York: Wiley Publishing. 1983.
- Pfleeger, Charles P. Machine Organization: An Introduction to the Structure and Programming of Computing Systems. New York: Wiley Publishing. 1982.
- Prothro, Vivan C. Information Management Systems: Data Base Primer. New York: Petrocelli/Charter. 1976.
- Riley, Matilda White. Sociological Research: A Case Approach. New York: Harcourt, Brace & World, Inc. 1963.
- Ross, Ronald G. Data Base Systems: Design, Implementation, and

- Management. New York: AMACOM. 1978.
- Sloan, Irving J. The Computer and the Law. London-New York: Oceana Publication. 1984.
- Smelser, Neil J. Comparative Methods In The Social Sciences. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1976.
- Sundgren, Bo. Theory of Data Bases. New York: Petrocelli/Charter. 1975.
- Tsichritzis, Dionysios C. Data Base Management Systems. New York: Academic Press. 1982.
- \_\_\_\_\_. Data Models. Englewood Cliffs, New Jersey: Prentice-Hall. 1982.
- Ullman, Jeffrey D. Principles of Data Base Systems. Potomac, Md.: Computer Science Press. 1980.
- Vasta, Joseph A. Understanding Data Base Management Systems. Belmont, Ca.: Wadsworth Publishing Co. 1985.
- Walton, Thomas F. Communications and Data Management. New York: Wiley Publishing. 1976.
- Weiderhold, Gio. Database Design. New York: McGraw-Hill. 1983.
- Weinberger, George M. "Federal Government Information Needs, Data Surveillance, and the Right of Personal Privacy: An Empirical Survey of Attitudes and Values of." D.P.A. dissertation, University of Georgia, 1973.
- Williamson, John B.; Karp, David A.; and Dalphin, John R. The Research Craft: An Introduction to Social Science Methods. Boston, Mass.: Little, Brown and Company. 1977.

#### Journals

- Ashman, Allan. "What's New: Searches May Be Based on Arrest Warrants." American Bar Association Journal. 70 (January 1984): 132-133.
- Buracker, Carroll D. and Stover, Willaim K. "Automated Fingerprint Identification-Regional Application of Technology." FBI Law Enforcement Bulletin. 53.8 (August 1984): 1-5.
- George, Dennis A. and Kleinknecht, G. H. "Computer Assisted Report Entry-CARE." FBI Law Enforcement Bulletin. 54.5 (May 1985): 2-7.

Rathbun, Emmet A. "Interstate Identification Index." FBI Law Enforcement Bulletin. 54:1 (January 1985): 14-17.

"Mistaken Arrest not Grounds for Recovery." AELE Liability Reporter. 145 (January 1985): 6.

"Not in Police Possession at time of Arrest-U.S. v Buckner- Ky." Arrest Law Bulletin. (February 1984): 6.

"Recalled Warrant-Officers Good Faith." The Criminal Law Reporter: Court Decisions. 36:11 (12/12/84): 2193.

"Valid Arrest Warrant Required." Arrest Law Bulletin. (12/84): 8.

#### Case Law

Baker v. McCollan, 443 U.S. 137, 61 L. Ed. (2nd) 433, 99 S. Ct. 2689. 1979.

Barron V. Baltimore, 7 Peters 243, 8 L. Ed. 672. 1833.

Chimel v. California, 395 U.S. 56, 23 L. Ed. (2nd) 685, 89 S. Ct. 2034. 1969.

Coolidge v. New Hampshire, 403 U.S. 443, 29 L. Ed. (2nd) 564, 91 S. Ct. 2022. 1981.

In re Application of Kiser, 419 F (2nd) 1134 8thCir. 1969.

Ker v. California, 374 U.S. 23, 10 L. Ed. (2nd) 726, 83 S. Ct. 1623. 1963.

Mapp v. Ohio, 367 U.S. 643, 81 S. Ct. 1684, 6 L. Ed. (2nd) 1081. 1961.

Munn v. Illinois, 94 U.S. 133, 24 L. Ed. 77. 1877.

People v. Montoya, 255 CalApp (2nd) 137, 63 CalRptr 73. 1967.

Powell v. Alabama, 287 U.S. 45, 53 S. Ct. 55, 77 L. Ed. 158. 1932.

Spinelli v. United States, 393 U.S. 410, 21 L. Ed. (2nd) 637, 89 S. Ct. 584. 1969.

State v. Keith, 2 OreApp 133, 465 P (2nd) 724. 1979.

United States v. Ferrone, 438 F (2nd) 381 3rdCir. 1971.

United States v. Rabinowitz, 339 U.S. 56, 94 L. Ed. 653, 70 S. Ct.



430. 1959.

Weeks v. United States, 232 U.S. 383, 34 S. Ct. 341, 58 L. Ed. 652.  
1914.

West v. Cabell, 153 U.S. 78, 38 L. Ed. 643, 14 S. Ct. 752. 1894.

Whiteley v. Warden, 401 U.S. 560, 28 L. Ed. (2nd) 306, 91 S. Ct.  
1031. 1971.

Wolff v. Colorado, 338 U.S. 25, 69 S. Ct. 1359, 93 L. Ed. 1782.  
1949.

#### Interviews

Coleman, Lance. Texas Department of Public Safety, Austin, Texas.  
20 February 1986.

Gay, Roy. Austin Police Department, Austin, Texas. 18 February  
1986.

Hogenmiller, Gary. Texas Department of Public Safety, Austin, Texas.  
20 February 1986.

Imboden, Donald. Texas Department of Public Safety, Austin, Texas.  
20 February 1986.

Scott, Carlton R. Texas Department of Public Safety, Austin, Texas.  
Interviews. From December, 1985 to February, 1986.

Waller, Frankie. Texas Department of Public Safety, Austin, Texas.  
22 February 1986.

## A P P E N D I C I E S

## Appendix A

Agency Description<sup>1</sup>1823-1927

The Texas Department of Public Safety is the oldest State law enforcement agency in the United States, dating back to 1823. Stephen F. Austin aquired permission to colonize the Texas territory and hired ten men to range the area for the protection of the settlers from Indian attack. These men became known as "Rangers".

During the revolution, the Rangers protected the frontier and took no part in the military functions. Their job remained frontier protection, principally protection of the borders from outlaws and mexican bandits, until approximately 1876. With the settling of the frontier the mission of the Rangers changed to law enforcement among the settlers. The Rangers were the only state law enforcement agency until 1927 when they were supplemented by the creation of the State Highway Patrol.

1927-1944

The State Highway Patrol was charged with the duty of enforcing all the laws pertaining to traffic and vehicles on public highways. In 1931, Griffenhagen and Associates, of Chicago, recommended to the state legislature that the expenditures often made to maintain martial law by

the Texas National Guard should be used for the establishment of a more effective State Police agency. The study also recommended that the state should establish a Crime Laboratory, Central Filing System for criminal records, and a Radio Communications System. The present form of department was established by the 44th Legislature on August 10, 1935.

The Headquarters Division, of the Department of Public Safety, contains the Bureau of Communications which was to establish a police broadcasting system for the state. Its two fold purpose was to: (1) broadcast information concerning activities of law violators, and (2) initiate a statewide roadblock system for use in apprehending fugitives at large. To accomplish this mission the Bureau was appropriated a telephone, a Western Union telegraph, and a teletype machine. A temporary solution to the equipment shortage was to use existing city police radios until funds could be obtained for a central broadcast unit.

In 1939 communications purchased a truck for the construction of a mobile radio unit, obtained a radio transmitter and built the first Department-owned radio station in Austin. The Department also owned a radio station in Longview and jointly owned a station with the City of Tyler and Smith County. Police departments in larger cities continued to assist the Department in its communications.

#### 1944-Present

By 1944 the Department owned four radio stations located in Austin, Dallas, Fort Worth, and Houston. Two-way radios were beginning to be installed in Patrol cars and Ranger units. These stations

increased to nine by 1950 and a bus was also purchased for a portable radio station. A total of seventy-five vehicles were equipped with radios at this time.

The Communications Service continued to expand until reaching twenty-five radio stations, seventeen two-way repeaters, and three talk-back repeaters.

Note For The Appendix

- <sup>1</sup> Information from Texas Department of Public Safety Training Manual, (1985).

## APPENDIX B

Warrant Data Bank File Description<sup>1</sup>Historical Development

In the early 1980's the Department of Public Safety recognized that a more efficient method was needed to serve warrants issued based on citations from the Department. The existing method was for each Trooper to hold warrants received from other Troopers until such time they could be served, constituting three per cent of total manhours. The Department maintained a few Troopers in a Warrant Division whose responsibility consisted solely of serving outstanding warrants. This took Troopers from the road and depleted the manpower available for the Departments' basic mission of traffic and criminal law enforcement.

Captain Ed Pringle,<sup>2</sup> Texas Department of Public Safety, organized members of various support services to create the present Warrant Data Bank File. Members of the Data Processing Division wrote the program for the File and existing hardware was used to implement and store the File. The Data Processing Division trained Communications personnel in the use of the system. Using in-house personnel the Department created and implemented the Warrant Data Bank File without an increase in expenditures. The Warrant Division was disbanded and the Troopers returned to regular duty.

The Warrant Data Bank File is separate from the National Crime Information Center (NCIC) and Texas Crime Information Center (TCIC) systems. The governing board of TCIC decided not to allow misdemeanor warrants into the TCIC file leaving no other option for the Department than to create a system. The File is housed in the License Issuance and Driver Record (LIDR) computer, thereby giving automatic access to the File each time an inquiry is made about a drivers license.

Using the same hardware, a Distributive Drivers License System is also being implemented that will automatically check the Warrant Data Base File for each drivers license renewal on every licensed driver in the state. This is expected to handle eighty-five per cent of the drivers of Texas.

#### Warrant Data Bank File

Safeguards were built into the system to prevent abuse and mistakes. The Departments' legal staff were checked with on each step of the process of the system. Once each yearly quarter the system prints out a list of current warrants on file for validation. In each regional office a check is made with the competent court to validate the authenticity of the warrant and its status. When a name change is requested, a comparison of the Drivers License File is made with the Warrant Data Bank File. With unlicensed drivers, their name, date of birth, race, and sex are entered into the File. Policy changes have recently gone into effect in regards to information access to the public. Before the policy change the Department required that the person requesting information to do it in person. This was not an attempt to trap the person in case of an outstanding warrant, but an



attempt to confirm the identity of the person. The Department did not want to let information out to just anyone. With the policy change, the Department will give out information from the File to anyone who calls. This step was checked with the legal staff for possible violation of law, but their interpretation of the Freedom of Information Act was that the information was available to anyone.

Entry into the system can be gained from any Department teletype terminal. A record is made by the system for each addition or deletion of a warrant with the time, date, and identity of the person with access to the system. There are back up records of the warrants that are checked each time a change is made. The above information is sent to the proper Trooper who initiated the warrant and is checked with the files kept by him. Other police agencies can only inquire into the system, they cannot change information that is found.

At the present time the Warrant Data Bank File must be checked separate from TCIC and NCIC due to an inadequacy in the hardware switches. All inquiries must go to the Austin station before going on to the competent regional office. Appropriations have been requested for updating hardware that will allow a full check of all three systems on one request.<sup>3</sup>

## Notes For The Appendix

- <sup>1</sup> Information from Captain F. Waller and Communications Supervisor G. Hogenmiller, Texas Department of Public Safety, Austin, Texas.
- <sup>2</sup> Captain Ed Pringle received the departments' first Legion of Merit medal. The Legion of Merit is awarded for significant contributions to law enforcement and the Department.
- <sup>3</sup> Information from Captain F. Waller, Texas Department of Public Safety, Austin, Texas.

Appendix C  
Austin Police Department Warrant File<sup>1</sup>

In 1983, the Austin Police Department, Austin, Texas, implemented an computer-based information system to assist their officers in information retrieval. The system was developed in-house and is constantly monitored by data personal. Access to the system is restricted on several levels, both passwords and other safeguards in the system.

Security relies on the amount of information available to the officers. Officers are taught just enough to do basic functions. Upon entering the system with their personal password, the officer is checked by the programing to determine clearance. Passwords are created by the individual officer. Every month the computer purges all passwords and officers must reenter their respective password. Passwords must contain a minimum of six (6) digits.

Several different inquiries are available through the system. For instance, TCIC entries are available (see Exhibit 1, Austin Police Department Entry Format For TCIC, on page 88) and warrant inquiries for outstanding warrants issued through the Austin Police Department are available in format form (see Exhibit 2, Austin Police Department Warrant Inquiry Format, on page 89). On the warrant entry or modification format, there are spaces available to run the inquiry by

name-date of birth-race; Social Security number; Department of Public Safety number; Federal Bureau of Investigation number; and Austin Police Department number. Comments can be entered to supplement system information. If the entry does not have an Austin Police Department number prior to entry, the system automatically assigns one (see Exhibit 3, Austin Police Department Warrant Entry/Modification Format, on page 91).

Property description information may also be requested through the system (see Exhibit 4, Austin Police Department Search Property Incident, on page 92). Drivers license information, which is connected to the Department of Public Safety Warrant Data Bank File, (see Exhibit 5, Austin Police Department Driver License Information Format, on page 92) and motor vehicle registration (see Exhibit 6, Austin Police Department Motor Vehicle Registration Format on page 92) are available to the officer.

If an officer needs information on an previous incident that occurred, two methods are available. The first method (see Exhibit 7, Austin Police Department Incident Inquiry Format, on page 93) consists of inquiry by incident number. If the number, the names involved, vehicles involved, property involved are known then the computer can retrieve the incident report. If only an approximate date is known for the incident, the second method (see Exhibit 8, Austin Police Department Search Incident Identification Format, on page 94) can be used.

## Exhibit 1

## Austin Police Department

## TCIC Entry Format

WANTED PERSON ENTER (EW)  
 TEMPORARY FELONY WANT ENTRY (ET)  
 WANTED PERSON MISDEMEANOR ENTRY (ED) (TCIC ONLY)

## ENTRY FORMAT:

(MKE) \_ \_ \_ (ORI) I X 2 2 7 0 1 0 0 \_ \_ \_

(NAM) \_ \_ \_ \_ \_

(SEX) \_ (RAC) \_ (POB) \_ (DOB) \_ (HGT) \_

(WGT) \_ (EYE) \_ (HAIR) \_

(FBI) \_ (SKN) \_ (SMT) \_

(FPC) \_

(MNU) \_ (SOC) \_

(OLN) \_ (OL5) \_

(OLY) \_ (OFF) \_ (DOW) \_ (OCA) \_

(MIS) \_

CONTACT WARRANT DIV 512 480 5032 \_

(LIC) \_ (LIS) \_ (LIY) \_ (LIT) \_

(VIN) \_ (VYR) \_

(VMA) \_ (VMO) \_ (VST) \_ (VCO) \_

ENTERED BY: \_\_\_\_\_

DATE ENTERED: \_\_\_\_\_

AUTHORIZED BY: \_\_\_\_\_

CANCELLED BY: \_\_\_\_\_

DATE CANCELLED: \_\_\_\_\_

Exhibit 2

Austin Police Department  
Warrant Inquiry Format

WARRANT INQUIRY

MKE

LAST NAME                      FIRST                      DOB                      S                      R

DRIVERS LICENSE STATE              NUMBER

APD                      MNU                      FBI

SOC                      FPC

LIC                      LIS                      LIY

VIN

Exhibit 3

Austin Police Department

Warrant Inquiry Format

WARRANT ENTRY/MODIFICATION

LAST NAME	FIRST	MIDDLE	DOB	DR
LICENSE SOC SEC NUM				
STREET ADDRESS	CITY	STATE	ZIP	APD NUM
R				S

HGT	WGT	HAI	PHONE	DPS NUM	FBI NUM
FP CLASS					
CAUTION			COMMENT.....		

G0325743

STATUS	OFFENSE	CAUSE NUM	DATE ISSUED
VIOLATION	REPORT NUM	OFFICER	TCIC
DISP DATE			DISPOSITION
TYPE	STATUS	OFFENSE	CAUSE NUM
VIOLATION	REPORT NUM	OFFICER	TCIC
DISP DATE			DISPOSITION

Exhibit 4

Austin Police Department

Property Involved Format

SEARCH PROPERTY INVOLVED  
INVOLVED: MM/DD/YY THRU MM/DD/YY  
INVOLVEMENT  
ARTICLE  
MAKE  
MODEL  
SIZE  
ID MARK  
SERIAL NUMBER



Exhibit 5

Austin Police Department  
Driver License Information  
Format

DRIVER LICENSE INFORMATION

LICENSE REQUEST

DRIVER LICENSE NUMBER

LAST NAME

FIRST NAME

DOB

USER ID

Exhibit 6

Austin Police Department  
Motor Vehicle Registration  
Format

MOTOR VEHICLE REGISTRATION

LIY

LIC

VIN

Exhibit 7

Austin Police Department Incident Number Inquiry

Format

INCIDENT NUMBER INQUIRY

AGENCY CODE  
INCIDENT YEAR  
INCIDENT NUMBER  
RECORD TYPE

1-INCIDENT IDENTIFICATION  
2-NAMES INVOLVED  
3-VEHICLES INVOLVED  
4-PROPERTY INVOLVED  
5-NARRATIVE INFORMATION  
6-STATISTICS INFORMATION

SEARCH NAME(S) INVOLVED  
INVOLVED MM/DD/YY THRU MM/DD/YY  
RACE/SEX  
FIRST NAME  
AGE OR DOB  
LASTNAME (OR ALIAS)  
FIRST INITIAL  
MIDDLE INITIAL  
INVOLVEMENT  
PHONETIC LAST NAME  
FIRST INITIAL  
APD NUMBER

Exhibit 8  
Austin Police Department  
Search Incident Identification  
Format

SEARCH INCIDENT IDENTIFICATION  
REPORTED: MM/DD/YY THRU MM/DD/YY  
OCCURED: MM/DD/YY THRU MM/DD/YY  
TYPE INCIDENT=.....  
LOCATION: PRE STREET/COMMON NAME TYPE SUF CT=.....  
SEC-DIST=.....  
STREET= ..... NUMBER:..... THRU .....  
INTERSECT= ..... FRAC:./. APT=.....  
CITY= AUSTIN..... PREMISE.....  
OFFICER=..... AGENCY=001  
ASSIGNED TO=..... AGENCY=001

Note For The Appendix

<sup>1</sup> Information and Exhibits furnished by Roy Gay, Warrant Officer,  
Austin Police Department, Austin, Texas.