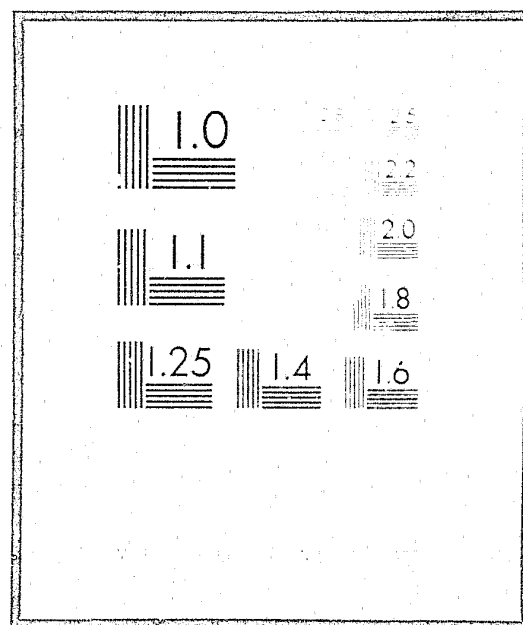


NCJRS

This microfiche was produced from documents received for inclusion in the NCJRS data base. Since NCJRS cannot exercise control over the physical condition of the documents submitted, the individual frame quality will vary. The resolution chart on this frame may be used to evaluate the document quality.



Microfilming procedures used to create this fiche comply with the standards set forth in 41CFR 101-11.504

Points of view or opinions stated in this document are those of the author(s) and do not represent the official position or policies of the U.S. Department of Justice.

U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE
WASHINGTON, D.C. 20531

1/10/77

Page filmed

CITY OF ATLANTA
BUREAU OF POLICE SERVICES

THOR PROGRAM

FALSE ALARM STUDY

MARCH, 1976

TOUCHE ROSS & CO.



36311

CITY OF ATLANTA
BUREAU OF POLICE SERVICES

THOR PROGRAM

FALSE ALARM STUDY

MARCH, 1976

NCJRS

SEP 7 1976

ACQUISITIONS

The preparation of this document was financed in part through a discretionary grant from the Law Enforcement Assistance Administration, U.S. Department of Justice (Atlanta Impact Program, Grant No. 74-DF-04-0015), under the Omnibus Crime Control and Safe Streets Act of 1968, as Amended.

TABLE OF CONTENTS

	<u>Page</u>
TRANSMITTAL LETTER	
I. INTRODUCTION.....	1
II. DESCRIPTION OF THE PROJECT.....	4
- Objectives and Scope.....	4
- Methodology.....	4
III. FINDINGS AND CONCLUSIONS.....	6
- Extent of False Alarms.....	6
- Cost of False Alarms.....	11
- Causes of False Alarms.....	14
IV. RECOMMENDATIONS.....	17
APPENDICES:	
A. List of Selected Works Consulted	
B. Persons Interviewed During the Study	

TOUCHE ROSS & CO.

14th FLOOR, PEACHTREE CENTER SOUTH
225 PEACHTREE STREET N. E.
ATLANTA, GEORGIA 30303

March 30, 1976

Commissioner A. Reginald Eaves
Public Safety Commissioner
175 Decatur Street, S. E.
Atlanta, Georgia 30303

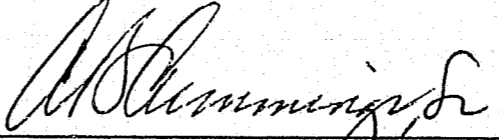
Dear Commissioner Eaves:

We have completed our research study of the false alarm problem in the City of Atlanta and are pleased to present you with our report on the study.

The attached report addresses the objectives and scope of the research study, the methodology employed, our findings and conclusions, and recommendations.

The goal of this research has been to determine the extent, cost and causes of false alarms in the City of Atlanta. We hope that you will find our report both informative and responsive to your needs. Should you have any questions regarding this research study, we will be pleased to meet with you at your convenience.

Very truly yours,



ABC Management Consultants
Arthur B. Cummings, President

Touche Ross & Co.

I. INTRODUCTION

I. INTRODUCTION

As the threat of crime became a large national problem Federal officials launched a nationwide anti-crime program in 1974. This progra, known as IMPACT, was an ambitious experiment limited to eight cities and attacking specific crimes. Atlanta was selected as one of the eight cities and, consequently, was awarded approximately \$20 million in federal funds.

The City of Atlanta elected to use some of its funds to establish the Target Hardening-Opportunity Reduction (THOR) unit. The specific objectives regarding the expected decrease in burglary, robbery, and rape. Project THOR was composed of several elements designed to deter criminal acts and aid in the apprehension of criminals. These elements included:

- Security Surveys which would pinpoint specific action steps which the citizen or businessman could evoke to enhance the physical security of his residence or business.
- Operation ID which entailed the engraving of the owner's social security number on valuables to reduce the probability of theft and to maximize the likelihood of restoring recovered property to its owner.
- Emergency Contact System (ECS) which addressed the need for contacting owners or managers of businesses in the event of a burglary. The system utilized a code which preserved the privacy of the owner, yet provided information to the beat officer regarding persons to be contacted, alarm system, etc.
- Organizational Involvement which concerned presentations made to civic, social, and business groups in Atlanta. These presentations drew upon publications, procedures, and film maintained by THOR to communicate crime prevention techniques.
- Research Projects which were designed to provide insights into crime prevention techniques and to aid the ongoing operational elements of THOR. The projects included research in the areas of security device standards, burglary insurance premiums, false alarms, and building security regulations.

This report represents one of the research efforts conducted by the THOR project.

Background

The number of false alarms received by the Atlanta Bureau of Police Services (BPS) has grown dramatically in recent years and has become a subject of considerable discussion.¹ As the volume of false alarms increases, the amount of police time spent responding to alarms also increases and becomes an activity which the BPS wishes to quantify.

The increase in false alarms can be explained in part by a growth in the number of burglar alarm and security companies. Nationally, the number of alarm company stations for multiple clients has expanded from less than 170 in 1961 to 310 in 1973, an increase of more than 82% over that twelve-year period.² An analysis of records of alarm company permits issued in Atlanta reveals that there were 35 such concerns in 1972 and 70 in 1975, an increase of 100% in three years. One result of the growth in the number of these companies is an increase in the total volume of alarms received by the police. Concurrently, the volume of false alarms has also grown. National statistics indicate that approximately 95% of all alarm signals received by the police are false.³

In an effort to reduce the time spent in responding to false alarms, many municipalities and some states have introduced legislation aimed at setting standards for the sellers and users of burglar alarms and, in general, licensing and regulating the private investigative and private industry.⁴

¹ There is no universally accepted definition of the term "false alarm", and interpretations vary between police departments and burglar alarm companies. For the purposes of this report, a false alarm is defined as an burglar alarm signal which is received and responded to by the Bureau and which was not set off by an illegal or unwarranted entry or attempted entry.

² "An Assessment of False Alarms", NBFAA Signal, First Quarter 1974, p.6.

³ Norman H. Mines, The MITRE Corporation, Burglar Alarm Requirements Analysis, September 1973.

⁴ National Crime Prevention Institute Information Center, Report File #887: Alarm Legislation, January 1975; Alarm Industry Committee for Combating Crime, "AICCC False Alarm Study", undated; and Robert J. Cohen, "False Alarm Legislation in Seattle", The Police Chief, September 1974.

Background (Cont...)

The alarm industry itself has undertaken studies to develop standards for alarm equipment.⁵ The problem of false alarms has also received attention from the U. S. Department of Justice which, through Law Enforcement Assistance Administration (LEAA) grants, has attempted to define acceptable false alarm levels through such measurement techniques as Mean Time Between False Alarm (MTBFA).⁶

Because of the growing number of false alarms, the City of Atlanta BPS defined the need for a comprehensive study of the existing situation in hopes of obtaining a more thorough understanding of the possible problem and its solutions. The research study described in this report was prepared for the BPS and sponsored under the auspices of the Target Hardening Opportunity Reduction Program (THOR), funded by an LEAA grant.

⁵"An Assessment of False Alarms". NBFAA Signal, First Quarter 1974; and Tim Willick, "Design for Profitability", SDM, April 1975.

⁶ Norman H. Mines, The MITRE Corporation, Burglar Alarm Requirements Analysis, September 1973.

II. DESCRIPTION OF THE PROJECT

II. DESCRIPTION OF THE PROJECT

Objectives and Scope

The primary goal of this research study has been to determine the extent, cost and causes of false alarms in the City of Atlanta.

The study of the extent of false alarms centers around a review of the number of burglar alarm signals generated from police and private burglar alarm systems. The purpose of this phase of the research was to estimate the following items:

- Annual number of burglar alarm signals responded to by the BPS.
- Annual number of false alarm signals received.
- Annual number of valid alarm signals received.
- Annual number of arrests made where burglar alarm system initiated police action.

Estimates of the items listed above were prepared by sampling techniques described below.

The analysis of costs of police manpower and equipment resources diverted by false alarms was based on a review of the direct payroll and equipment costs incurred during a sample period of time. This sample was then used to estimate total annual costs of false alarms.

Concurrently with the analyses of the extent and cost of false alarms, an effort was made to identify their causes. This effort included the preparation of a listing of false alarm signals, documentation of signals received during the study period, documentation of sample false alarm signals from security and alarm companies and statistical analysis of the observed causes of false alarms. The data gathered during the study period was used to prepare an estimate of the annual percentage breakdown of the causes.

Methodology

This research study represents a thorough review of all available publications regarding false alarms, including studies prepared by the burglar alarm industry, federal, state and local law enforcement agencies, City of Atlanta BPS and other organizations. A reference listing is included as Appendix A of this report.

Methodology (Cont...)

Interviews were conducted with persons knowledgeable about and concerned with the false alarm problem in the City of Atlanta in order to develop a deeper understanding of the elements and complexities surrounding the problem. A list of individuals interviewed is included as Appendix B of this report.

A review of the existing police dispatching system was made to understand exactly how alarm signals are received, processed, answered and recorded.

Selected alarm installations were visited to assess their use of burglar alarms and to document the reasons for false alarms.

A random sample of over 1,500 false alarms was taken from BPS records and was used to estimate the total annual volume of false and valid burglar alarms and to help define the cost and causes of the alarms. All attempts were made to exclude hold up alarm signal from the sample data base using BPS information recorded on dispatch cards.

Due to the magnitude of records maintained regarding alarms signals, an observation of each record was deemed impractical. Instead, data was gathered from a two week period in the month of June, that BPS and private alarm company personnel indicated was most representative of the entire year. In gathering data it was necessary to identify a period rather than randomly selecting days from the year in order to have consistency and uniformity of corresponding data between the Bureau of Police Services and private alarm companies. Data taken from another period of the year (Spring, Fall, or Winter) may yield somewhat different results. However, based on the comparison of results with similar studies, the sample obtained appears to be representative, reasonable and appropriate for the purpose of the research study.

An analysis of data provided by burglar alarm and security companies (covering the same time period as the sample described above) was prepared to attest to the reasonableness of the samples' results. This analysis was further used in the study of the causes of false alarms.

The data gathered in accordance with the steps described above was analyzed and compared with results of similar studies prepared in other cities. Following this analysis, findings were summarized, alternative solutions to the problems were evaluated, and a set of recommendations was formulated, as presented in the following sections of this report.

III. FINDINGS AND CONCLUSIONS

III. FINDINGS AND CONCLUSIONS

The purpose of this section of the report is to present findings and conclusions of the extent, cost and causes of false alarms in the City of Atlanta. These findings and conclusions are based primarily on the aforementioned sample of false alarms taken from Bureau of Police Services (BPS) records.

Extent of False Alarms

A summary of the sample of burglar alarm signals received by the BPS is shown in Exhibit A, and highlights the fact that over 98% of the alarms received are false.

In preparing the sample, false alarms were categorized according to whether they originated from a BPS alarm system or a private alarm system. Alarm signals include "signal 2" (silent) and "signal 3" (audible) alarms.

The following additional observations are made regarding the extent of false alarms:

- of the total number of false alarms to which the BPS responds, 19.2% are generated from the BPS alarm system and 80.8% are generated from the private alarm system
- less than 2% of the alarm signals received by the BPS are valid (incidents where police investigation reveals evidence of burglary or attempted intrusion)
- the combined alarm systems will experience one valid alarm signal out of 63 signals received, with BPS experiencing one out of 75 and private alarm systems experiencing one out of 60, as shown below:

	<u>BPS Alarm System</u>	<u>Private Alarm Systems</u>	<u>Both Alarm Systems</u>
Total alarm signals in sample	301	1,271	1,572
Total valid alarms	4	21	25
Valid/total ratio	.013	.017	.016
Frequency of valid alarms	1 in 75	1 in 60	1 in 63

(III. Findings and Conclusions)

Extent of False Alarms (Cont...)

- the BPS experiences an arrest rate of 0.33% from BPS system alarms, 0.24% from private system alarms, and 0.25% from the combined systems, as shown below:

	<u>BPS Alarm System</u>	<u>Private Alarm Systems</u>	<u>Both Alarm Systems</u>
Total alarm signals in sample	301	1,271	1,572
Actual incidence of arrest in sample	1	3	4
Arrest/alarm signal ratio	0.33%	0.24%	0.25%
Frequency of arrests on responding to alarm signals	1 to 300	1 in 425	1 in 400

- total estimated annual false alarms, based on the sample, exceed 37,000, as shown on the following exhibit. Note that of the total estimated alarm signals received, only approximately 608 are valid. Based on the sample, the BPS makes 97 arrests and expends an average of 98 hours of elapsed response time before an arrest is made, as shown in Exhibit B.
- the BPS response time to an alarm signal averages 9.34 minutes, with an average response time to 7.32 minutes for BPS system alarms and 9.82 minutes for private system alarms. The average elapsed time experienced by the BPS to respond and complete an investigation of an alarm signal is 15.11 minutes, as shown in Exhibit C.

EXHIBIT A
RESEARCH STUDY OF FALSE ALARMS IN ATLANTA
EXTENT AND DISTRIBUTION OF FALSE ALARMS

	<u>BPS</u> <u>Alarm System</u>		<u>Private</u> <u>Alarm Systems</u>		<u>Both</u> <u>Alarm Systems</u>	
	<u>Number</u>	<u>Percent</u> <u>of</u> <u>Total</u> <u>Alarms</u>	<u>Number</u>	<u>Percent</u> <u>of</u> <u>Total</u> <u>Alarms</u>	<u>Number</u>	<u>Percent</u> <u>of</u> <u>Total</u> <u>Alarms</u>
Number of false alarms in sample	297	18.89%	1,250	79.52%	1,547	98.41%
Number of valid alarms in sample	<u>4</u>	<u>.25</u>	<u>21</u>	<u>1.34</u>	<u>25</u>	<u>1.59</u>
Total number of alarm signals in sample	<u>301</u>	<u>19.14%</u>	<u>1,271</u>	<u>80.86%</u>	<u>1,572</u>	<u>100.00%</u>
False Alarm Rate		<u>98.7%</u>		<u>98.3%</u>		<u>98.4%</u>

EXHIBIT B
ANNUAL PROJECTION OF
ALARM SYSTEMS PERFORMANCE

	<u>BPS Alarm System</u>	<u>Private Alarm Systems</u>	<u>Both Alarm Systems</u>
Number of false alarms in sample	297	1,250	1,547
Number of valid alarms in sample	4	21	25
Percent of annual data in sample	4.11%	4.11%	4.11%
Estimated annual false alarms	7,226	30,414	37,640
Estimated annual valid alarms	96	512	608
Alarm/arrest ratio	0.33%	0.24%	0.25%
Estimated annual arrests	24	73	97
Average response time/alarm	13.55 mins.	15.48 mins.	15.11 mins.
Estimated total response time on false alarms (mins.)	97,879 mins.	470,736 mins.	568,615 mins.
Estimated total response time on false alarms (hours)	1,631 hrs.	7,846 hrs.	9,477 hrs.
Estimated elapsed time on false alarm between arrests	68	107	98

EXHIBIT CRESEARCH STUDY OF FALSE ALARMS IN ATLANTAPOLICE RESPONSE TIME

	<u>Total Time Elapsed to Dispatch</u>	<u>Total Elapsed Time for Car Arrival</u>	<u>Total Response Time for Car Arrival</u>	<u>Total Time Elapsed to Complete Investigation</u>	<u>Total Elapsed Time</u>
<u>BPS ALARM SYSTEM</u>					
Study Period Actual False Alarm Signal Time (in minutes)	688	1,485	2,173	1,850	4,023
Total Number of False Alarm Signals	297	297	297	297	297
Average Response Time (in minutes)	2.32	5.00	7.32	6.23	13.55
<u>PRIVATE ALARM SYSTEM</u>					
Study Period Actual False Alarm Signal Time (in minutes)	3,750	8,532	12,282	7,065	19,347
Total Number of False Alarm Signals	1,250	1,250	1,250	1,250	1,250
Average Response Time (in minutes)	3.00	6.83	9.83	5.65	15.48
<u>BOTH ALARM SYSTEMS</u>					
Study Period Actual False Alarm Signal Time (in minutes)	4,438	10,017	14,455	8,915	23,370
Total Number of False Alarm Signals	1,547	1,547	1,547	1,547	1,547
Average Response Time (in minutes)	2.87	6.47	9.34	5.76	15.10

(III. Findings and Conclusions)

Extent of False Alarms (Cont...)

Based on the sample previously discussed and on an analysis of summary findings from the sample, several conclusions can be drawn regarding the extent of false alarms, including the following:

- Atlanta is experiencing a slightly higher false alarm rate than the national average (98% vs. 95%).
- The BPS expends an average of 98 hours between each arrest, which is more than twice the average of 48 hours of expended police time before an incidence of arrest as cited in the Alarm Industry Committee for Combating Crime (AICCC) survey of 30,000 elapsed hours of police response time.⁷
- On the average, the BPS responds to an alarm signal in slightly over nine minutes, which leads to the conclusion that patrol car beats are structured such that they facilitate quick response to an alarm signal.
- The facts that the BPS responds to approximately 400 alarm signals between arrests and that only an average of one in 63 signals are valid, lend support to the BPS desire to understand the significance of the problem.

Cost of False Alarms

The purpose of this portion of the research study was to determine the costs directly associated with the resources required to respond to false alarms. These costs include the time expended by BPS communication and patrol personnel as well as patrol car operating expenses.

In order to more clearly understand the cost of false alarms, this analysis divides alarm signals into two basic categories: alarm signals from BPS systems and alarm systems from private systems.

¹ Alarm Industry Committee for Combating Crime, "AICCC False Alarm Study", undated.

(III. Findings and Conclusions)

Cost of False Alarms (Cont...)

Personnel cost figures were estimated by extrapolating the average total compensation (including fringe benefits) for BPS personnel. This average cost was then extended using the estimated total time expended on false alarms per the sample taken for this research study. The results of this extension are summarized in Exhibit D.

To determine patrol car costs, a sample of 13 patrol cars was randomly selected and an average operating cost per hour was estimated based on seven months of operating data for these cars. This data was then extended using the accumulated operating time (per the sample taken for this research study) to estimate patrol car costs. The results of this analysis are presented in Exhibit D.

A summary of the information presented on Exhibit D is presented below:

	BPS Alarm System	Private Alarm Systems	Both Alarm Systems
Estimated annual false alarms	7,226	30,414	37,640
Average cost per false alarm	\$2.909	\$1.853	\$2.0559
Estimated annual cost of false alarms	\$21,020	\$56,357	\$77,387

The annualized estimated cost of false alarms, \$77,387, represents an expenditure of 0.35% of the total BPS budget for 1975 of \$22,068,208.

In addition to the quantifiable costs already addressed, there are other factors which should not be overlooked, including the following:⁸

⁸ Robert J. Cohen, "False Alarm Legislation in Seattle", The Police Chief, September 1974.

EXHIBIT D
RESEARCH STUDY OF FALSE ALARMS IN ATLANTA
ANALYSIS OF COST OF FALSE ALARMS

TOUCHE ROSS & CO.

	BPS ALARM SYSTEMS				PRIVATE ALARM SYSTEMS				TOTAL BPS AND PRIVATE SYSTEMS			
	Communication Personnel	Patrol Personnel	Patrol Car Costs	Total BPS Costs	Communication Personnel	Patrol Personnel	Patrol Car Costs	Total "Private" Costs	Communication Personnel	Patrol Personnel	Patrol Car Costs	Total Costs
Actual time expended during the study period (in hours)(1)	11.47	111.17	111.17		62.50	275.50	275.50		73.97	386.67	386.67	
Average hourly cost (2)	\$5.15	\$6.66	\$0.58		\$5.15	\$6.66	\$0.58		\$5.15	\$6.66	\$0.58	
Cost of false alarms during the study period	\$59.07	\$740.39	\$64.48	\$863.94	\$321.88	\$1,834.83	\$159.79	\$2,316.50	\$380.95	\$2,575.22	\$224.27	\$3,180.44
Number of false alarms during the study period				297				1,250				1,547
Average cost per false alarm during the study period				\$ 2.909				\$ 1.853				\$ 2.0559
Estimated annual false alarms (3)				7,226				30,414				37,640
Estimated annual cost of false alarms (rounded to nearest \$100)				<u>\$21,020</u>				<u>\$56,357</u>				<u>\$77,387</u>

- (1) Based on an analysis of communication dispatch cards for the study period.
(2) Based on an analysis of the payroll budget and vehicle maintenance records for the study period.
(3) As shown in Exhibit A.

(III. Findings and Conclusions)

Cost of False Alarms (Cont...)

- indirect costs associated with responses to false alarms (e.g., overhead allocation)
- less available patrol units for other police services
- delays in answering valid calls for service due to tied-up telephone lines
- officers and citizens unnecessarily endangered with the threat of traffic accidents during "fast responses" to false alarms
- officer alertness and interest may become dulled after investigating repeated false alarms.

Causes of False Alarms

The records of alarm signals from the private alarm systems contain information regarding the cause of each false alarm registered, and the sample taken of these records was used in determining the causes of false alarms in Atlanta. The BPS does not maintain data on specific causes of false alarms from its own system.

A summary of the causes of false alarms is presented in Exhibit E, which shows that an estimated 47% of false alarms are subscriber related, 17% are equipment related, 8% are transmission related, and 28% are the result of unidentified causes.

When the breakdown shown in Exhibit E is applied to the estimated annual false alarms per Exhibit A, the following breakdown of false alarms by cause is obtained:

<u>Cause</u>	<u>Estimated False Alarms</u>
Subscriber related problems	17,691
Equipment problems	6,399
Transmission problems	3,011
Unidentified	<u>10,539</u>
Total	<u>37,640</u>

EXHIBIT ERESEARCH STUDY OF FALSE ALARMS IN ATLANTACAUSES OF FALSE ALARMS

<u>Category</u>	<u>Percent</u>
<u>Subscriber Related</u>	
Subscriber fails to close building properly	10%
Merchandise falls and trips alarm	3
AC current knocked off	4
Early opening or irregular entry	13
Inadvertent activation of alarm	17
	<u>47</u>
<u>Equipment Related</u>	
Error in installation	1
System misapplication	5
Defective part in alarm system	11
	<u>17</u>
<u>Transmission Related</u>	
Telephone repairs during normal course of business	3
Severe weather conditions	5
	<u>8</u>
<u>Miscellaneous</u>	
Master circuit problems	1
Unidentified	27
	<u>28</u>
	<u>100%</u>

(III. Findings and Conclusions)

Causes of False Alarms (Cont...)

Human error is apparently the primary contributing factor causing false alarms, which suggests the need for continued education of subscribers in order to reduce false alarms.

The volume of false alarms categorized as "unidentified" in Exhibit E suggests a need for more precise detection measurement capabilities. Similarly, the amount of false alarms that are caused by equipment problems implies that greater emphasis should be placed on alarm equipment standards and on the training of alarm installation and service personnel.

IV. RECOMMENDATIONS

IV. RECOMMENDATIONS

The BPS should consider the benefits of creating a committee comprised of representatives of the BPS, private burglar alarm and security companies and other interested parties with the objective of setting standards in the following areas:

- subscriber education
- equipment components
- training of alarm installation and service personnel
- burglar alarm and security company operations

After setting the standards, the committee should endeavor to ensure that they are maintained, either by its own efforts or through legislative measures.

The BPS should install an information system in order to record pertinent data regarding all alarm units installed in Atlanta. The purpose of this system is to facilitate an accurate assessment of performance of all alarm units as well as to provide supporting data to help establish standards for alarm units.

The BPS should adopt the practice of periodically preparing reports on false alarms based on data available on BPS files regarding the extent, cost and cause of false alarms. When the BPS fully understands these components of the problem, it will be able to effectively define a strategy aimed at the reduction of false alarms.

APPENDICES

APPENDIX A

RESEARCH STUDY OF FALSE ALARMS IN ATLANTA

LIST OF SELECTED WORKS CONSULTED

- Alarm Committee. Model Burglar and Hold-up Alarm Business Licensing Statute (Tentative Draft). The National Private Security Advisory Council, November 1, 1974.
- Alarm Industry Committee for Combating Crime. Survey of Legislation Affecting Alarm Industry, January 1974.
- Alarm Industry Committee for Combating Crime, "AICCC False Alarm Study", undated.
- "An Assessment of False Alarms". NBFAA Signal, First Quarter 1974, pp.6-10.
- Brown, James W. "Burglar Alarm Regulation by the State of Texas" NBFAA Signal, First Quarter 1975, pp. 57-58.
- Cohen, Robert J. "False Alarm Legislation in Seattle", The Police Chief, September 1974, pp. 42-43.
- Dufour, William de, The MITRE Corporation, Widespread Burglar Alarm Use -- Implications for the Police Community and the Alarm Industry, April 30, 1973.
- Kellem, Carl, Alarm Legislation -- The Objectives and The Means. National Crime Prevention Institute, 1974.
- Legal Research Division, International Association of Chiefs of Police, Inc. "Model Burglar and Hold-up Alarm Systems Ordinance". Law Enforcement Legislative Research Digest, 1973.
- Mines, Norman H., The MITRE Corporation, Burglar Alarm Requirements Analysis, prepared for National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, September 1973.
- National Crime Prevention Institute Information Center, Report File #887: Alarm Legislation, January 1975.

APPENDIX A
(continued)

RESEARCH STUDY OF FALSE ALARMS IN ATLANTA

LIST OF SELECTED WORKS CONSULTED

National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice. Installation, Test and Evaluation of a Large-Scale Burglar Alarm System for a Municipal Police Department. Cedar Rapids, Iowa, December 1971.

Rand Corporation, The. The Private Police Industry, Its Nature and Extent, December 1971.

Small Business Administration, "Crime Against Small Business", February 1967.

Willick, Tim. "Design for Profitability", SDM April 1975.

Younger, Evelle J. Building Security Standards. California: Attorney General Building Security Commission, January 1973.

APPENDIX BRESEARCH STUDY OF FALSE ALARMS IN ATLANTAPERSONS INTERVIEWED DURING THE STUDY

<u>Name</u>	<u>Company/Agency</u>
Michael Terry	Crime Analysis Team
Kent Ryan	Crime Analysis Team
Keith Collier	Crime Analysis Team
Maj. D.M. Edwards	Planning and Research, BPS
John Manfield	Department of Criminal Justice Georgia State University
William Silvia Operations Manager	Wells Fargo Alarm Service
Arthur O. Gunter Vice President and Gen. Mgr. President	Southern Burglar Alarm Co. Greater Atlanta Alarm Assoc.
Eugene Liles Operations Manager	American District Telegraph Co.
Carl Kellam	National Crime Prevention Institute University of Louisville
Lt. G.E. Hammonds	
Capt. Julian Spense	Communications Section, BPS
Lt. W.B. Shannon	Fiscal Section, BPS
Grace Sergeant	Data Processing Department, BPS