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THE DSPG ARMS ROOM PHYSICAL SECURITY PROGRAM AND THE PRIVATE SECTOR

FEBRUARY 1972

MTR-6140

W. A. ELIOT

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A Presentation Before the LEAA-Private Security Conference
16-17 December, 1971, Washington, D. C.

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Contract No.: F19628-71-C-0002

Contract Sponsor: Defense Special Projects Group

Project No.: 832A

FEBRUARY 1972

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WASHINGTON OPERATIONS

MITRE Department
and Project Approval: L. L. Holmes

ABSTRACT

This paper was presented before the LEAA-Private Security Conference on 17 December 1971, in Washington, D.C. describing the DSPG Arms Room Physical Security Program.

INFORMATION RETRIEVAL INDEX TERMS:

Security	Detection
Alarm	Burglar
Police	Intrusion
Sensor	Specification
DSPG	LEAA

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1.0 INTRODUCTION

On 9 December 1971 an invitation was extended to the Defense Special Projects Group (DSPG) by Mr. Charles M. Coster, Associate Administrator of the Law Enforcement Assistance Administration (LEAA), to discuss the DSPG Arms Room Physical Security Program before a LEAA-Private Security Conference (see Appendix 1). The author was requested by LTC Thomas H. Brain of the Physical Security Branch of DSPG, with the concurrence of Mr. Lawrence L. Holmes of the MITRE Corporation, to make the presentation on behalf of DSPG.

The agenda for the meeting (see Appendix 2) covers the proposed relationship between LEAA and the security industry, and the plans and recommendations for programs to improve security practice in the commercial and private sectors. The DSPG paper was included in the agenda as an example of the physical security work underway in the Department of Defense and to provide an opportunity for the workers in the DSPG program to suggest areas that appear to need additional R&D by the security industry. The words are entirely those of the author but they represent the common concern of all who have been associated with the DSPG program. The following is the paper presented before the LEAA-Private Security Conference.

2.0 PRESENTATION

The DSPG Arms Room Physical Security Program and the Private Sector

Description of DSPG

The Defense Special Projects Group is a Joint-Service agency of the Department of Defense, with responsibilities for special projects in the development of intrusion sensors for the Military. Most of the work of the agency has been concerned with tactical sensors for detecting intrusions against field objectives, and much of it has been done in support of operations in Southeast Asia. DSPG, as the Group is called, has had a special funding authority through the Military Departments to initiate the sensor developments and to produce the sensors in needed quantities.

Physical Security

In late 1970, with the slow-down of U.S. activity in Southeast Asia, the special funding authority was extended into contiguous programs in physical security covering the development of intrusion detection systems for fixed installations and arms rooms.

SLIDE 1 - Mission

This is an excerpt of the mission statement signed by the Secretary of Defense in December 1970 relating

ARMS ROOM SECURITY MISSION

"DIRECT OR UNDERTAKE IN COORDINATION WITH THE MILITARY DEPARTMENTS AN RDT & E PROGRAM TO PROVIDE EFFECTIVE PHYSICAL SECURITY OF ARMS ROOMS, INSTALLATIONS, AND BASES."

Ref: SEC DEF MEMO FOR SECRETARIES OF THE MILITARY DEPARTMENTS 12 DEC 70

Slide 1

to physical security. Two programs resulted, one directed toward bases and installations involving perimeter sensors and central readouts, and the other directed toward arms rooms. The arms room task is now nearing completion and is the subject of this briefing.

2.1 Briefing

SLIDE 2 - Outline

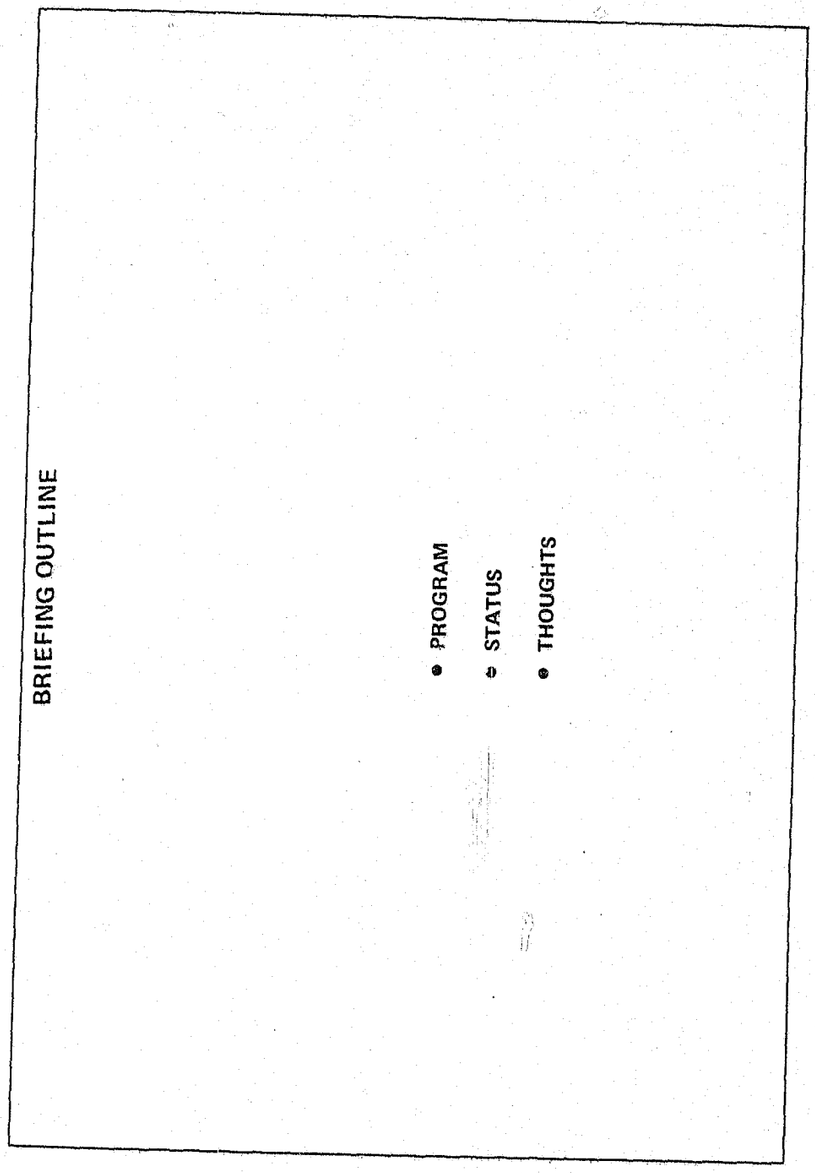
This outlines the topics to be covered. I will touch briefly on why it was felt the program was needed and will describe the program itself. Finally, I will pass along some thoughts we developed during the program regarding the contributions and responsibilities of the security industry for better physical security.

2.2 Program

In advance of the mission statement by the Secretary of Defense, an intensive survey was made by us at DSPG of Military Commanders and specialists concerned with the security of arms rooms. The purpose was to determine what the responsible parties felt were their principal problems and what they would like to see done about them.

SLIDE 3 - Conclusions

The conclusions were very pronounced and they all centered on problems with the intrusion detection equipment. Virtually every person contacted, from Pentagon



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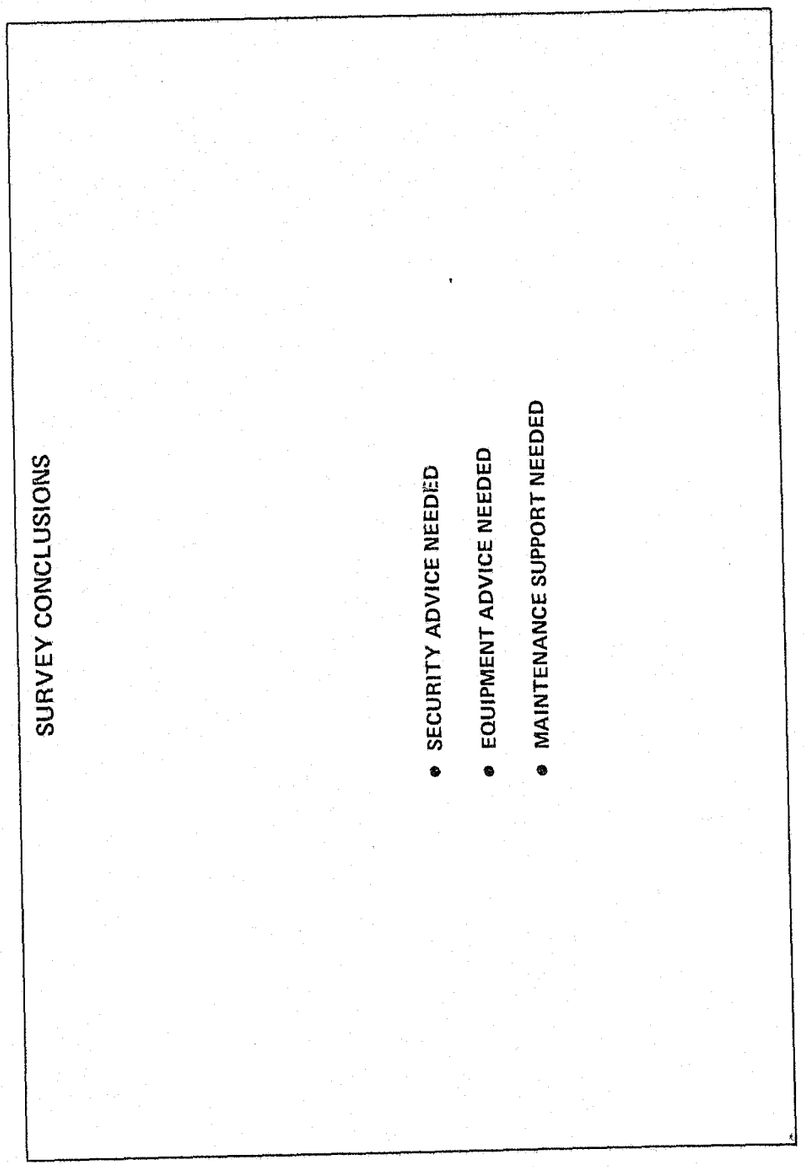

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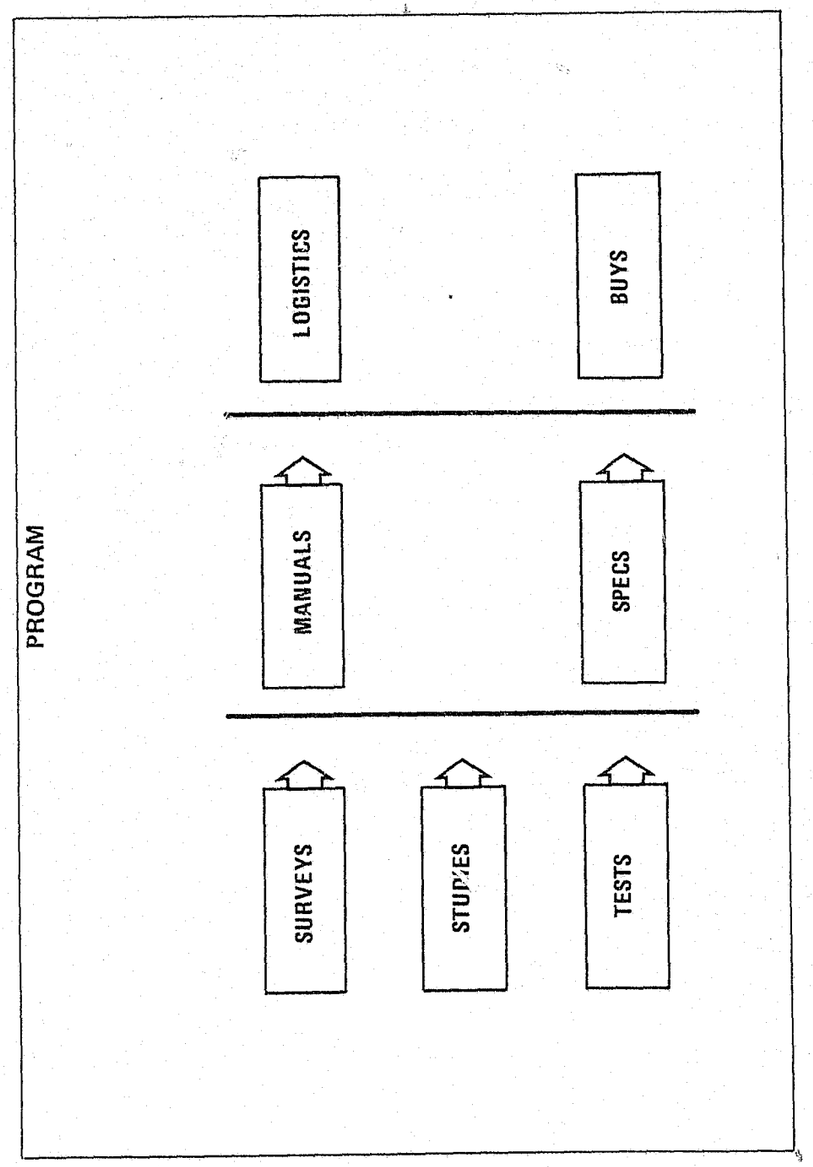
official to division security inspector, asked for help in separating the good equipment from the bad. They all had tales of purchases that turned out wrong, of equipment that failed to perform to expectations or of operators who failed even to turn the equipment on, and they all spoke favorably of the concept of central procurement and standardization, with all the quality assurance, training and maintenance support this implies. This is not to say that the equipment was always bad but obviously somebody needed help and it wasn't being provided. The purpose of the DSPG program was to provide the standards needed to fill this gap.

SLIDE 4 - Program

The initial goal of the program was a set of specifications that would define the minimum performance required of the system components. These specifications would establish the quality assurance standards and interface uniformity needed for procurement to inventory, independently of any installation. This standardization is crucial to the subsequent logistics support plan because of the impact it has on maintenance and training and the stockpiling of spares.

The manuals describe the selection and installation of system components to allow the bulk of the work to be



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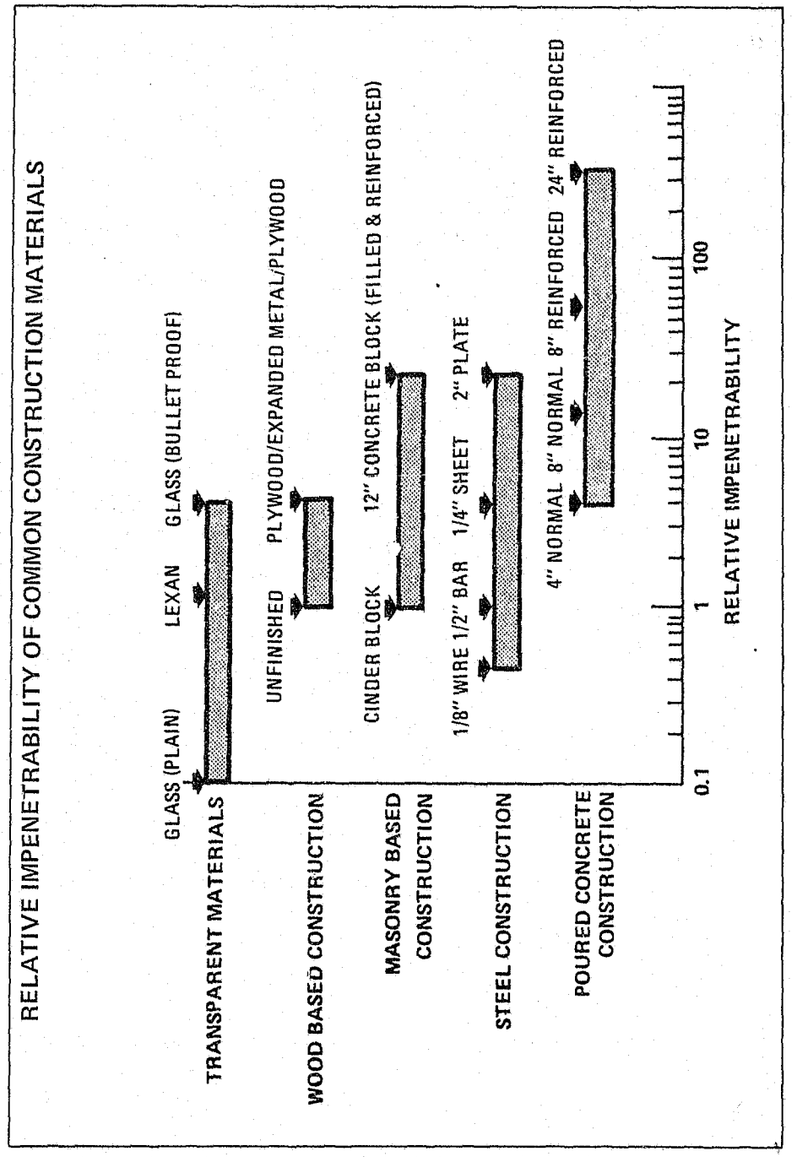
done by the user with minimum reliance on security specialists.

The tests and studies were conducted early in the program to support the technical provisions of the specifications. The studies evaluated a number of the real-world factors that seem to influence the effectiveness of detection systems. They included analyses of apparent weaknesses of operational systems and studies of intrusion barrier effectiveness.

2.3 Status

Tests SLIDE 5 - Results

An example of results from the intrusion barrier study conducted with the assistance of the National Bureau of Standards is this plot of the relative time required to penetrate walls constructed of common construction materials. It shows the unsurprising fact that poured-core cement block walls are more resistant to penetration than wooden walls and that reinforced poured concrete walls are tougher yet. A less expected observation is that it takes only seconds to smash through many of the walls with only a sledge hammer and a strong back. For instance, in a test in the field, it took only 45 seconds to batter a 12 by 15 inch hole through an 8-inch mortar-filled concrete block wall with a 10-pound sledge hammer,



Slide 5

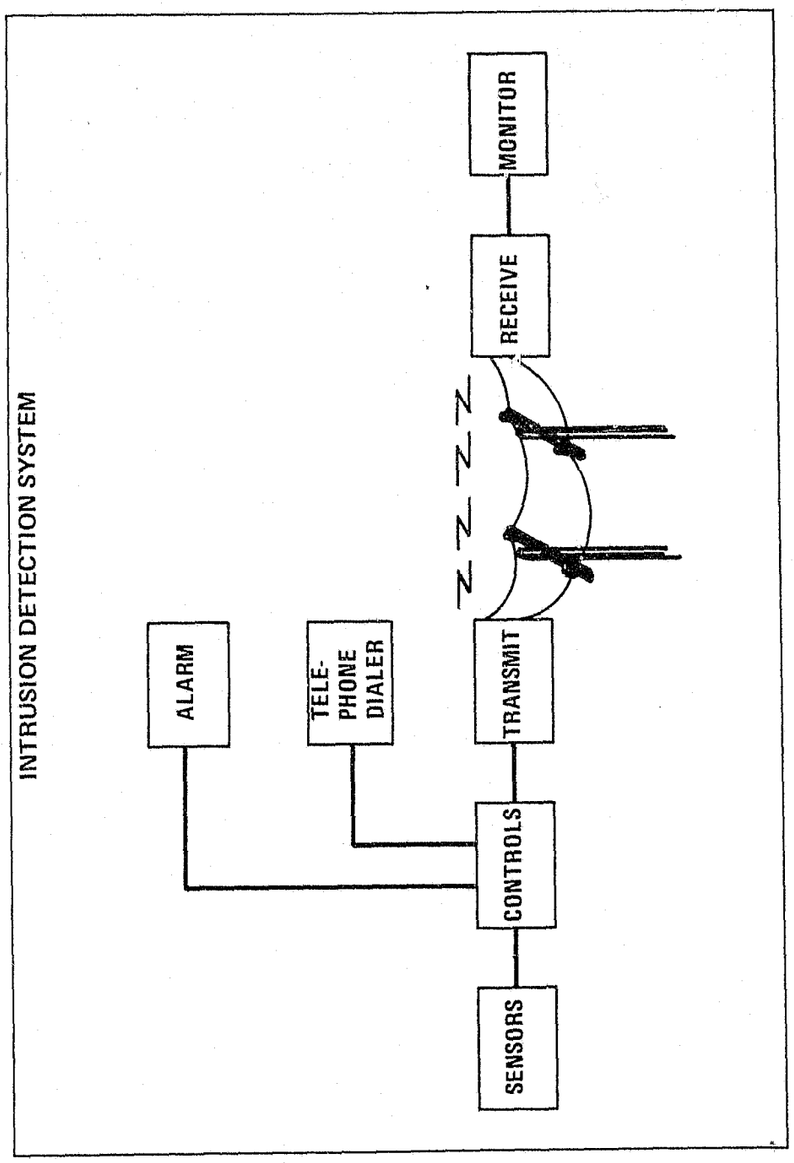
and only 55 seconds for a 5-inch mortar-filled concrete block wall with ½-inch reinforcing rods.

Other tests conducted in Army and Navy engineering laboratories consisted of evaluations of the sensitivity of available detection techniques to intrusion and false alarm sources. The word techniques is important. Over 120 items of equipment were tested under controlled conditions, not so much to establish that one worked better than the other but to determine if there was a pattern of performance that could be associated with a technique. There was a pattern and the selection of sensors reflects this.

Specifications SLIDE 6 - System

This is an entirely familiar and conventional system. It consists of a number of intrusion sensors located at the arms room and a sensor monitor at the readout site. The control unit serves as the termination point for all the sensors and as the secure/access control for the controlled area. The data transmitter and receiver provide the means for passing alarm signals from the arms room to the readout site over commercial telephone lines with a high level of supervision against line break or tamper.

The alarm unit is an electronic screamer located at the arms room, and used as a backup to the remote monitor.



Slide 6

The telephone dialer is an optional means of signalling an alarm by recorded telephone message without the use of the remote monitor.

SLIDE 7 - Sensors

The sensors divide into several types. The upper five are penetration sensors used to detect intrusions through the doors and walls of the room. The Balanced Magnetic Switch detects the opening or removal of doors. The Passive Ultrasonic Sensor detects the sounds of break-in at frequencies above normal hearing. The Grid Wire Sensor detects the actual breakthrough of a fragile surface. The Capacitance Proximity Sensor detects the change in capacitance of a metal grid covering the inside of a window or opening when the grill is touched. The Vibration Sensor detects the vibrations of break-in through metal shutters and screens.

The Ultrasonic Motion Sensor differs from the others by sensing the motion of an intruder inside the room after a penetration is made. The Magnetic Weapons Sensor is different in another way in sensing the actual removal of a weapon from the arms rack.

The two Duress Sensors at the end of the list are strategically located switches used by the arms room guards to call for help.

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All of these items are covered by specifications that leave considerable leeway for design initiative and no leeway at all for performance and interface.

SLIDE 8 - Specification

Every item is specified separately and all follow the standard Mil Spec format shown. The specifications have been completed and will probably be distributed within the Government before the end of Calendar 1971.

Manuals SLIDE 9 - Manual

The principal manual is an Employment Manual that aids the nonspecialist user to select the detection system components appropriate to his own arms room. This is a new approach to security installation and it is brought about by a recognition of the fact that with over 10,000 arms rooms in the Continental United States, there is little hope of assembling a large enough army of specialists qualified to give every room individual expert attention.

The manual describes the threat facing military arms rooms and describes the general characteristics of the rooms themselves. The identification of the threat is important because of the impact it has on the type of line supervision needed. Also, it is important where users might be tempted to apply the system to other than

SPECIFICATIONS

- DESCRIPTION
- REQUIREMENTS
  - PERFORMANCE
  - RELIABILITY
- TESTS
  - FORM & FUNCTION
  - PERFORMANCE
  - RELIABILITY
- ORDERING DATA

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CONTENTS OF EMPLOYMENT MANUAL

- INTRODUCTION
  - THREAT
  - PURPOSE
  - SCOPE
  - APPROACH
- ARMS ROOM CHARACTERISTICS
  - PHYSICAL CHARACTERISTICS
  - VULNERABILITIES
- AVAILABLE SYSTEM COMPONENTS
  - SYSTEMS DESCRIPTION
  - ADVANTAGES
  - DISADVANTAGES
  - SPEC IDENTIFICATION
  - SYSTEM COST
- COMPONENT SELECTION PROCEDURE
  - VULNERABILITY SURVEY INSTRUCTIONS
  - ENVIRONMENTAL ANALYSIS INSTRUCTIONS
  - EQUIPMENT SELECTION PROCESS

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Slide 9

arms rooms; what works in an arms room may be entirely inappropriate in a bank.

The manual also describes the system and establishes a rationale for the selection of components for installation. This is the crucial part that allows the user to make a preliminary estimate of requirements. Later manuals will provide the instructions for installation.

SLIDE 10 - Logistics

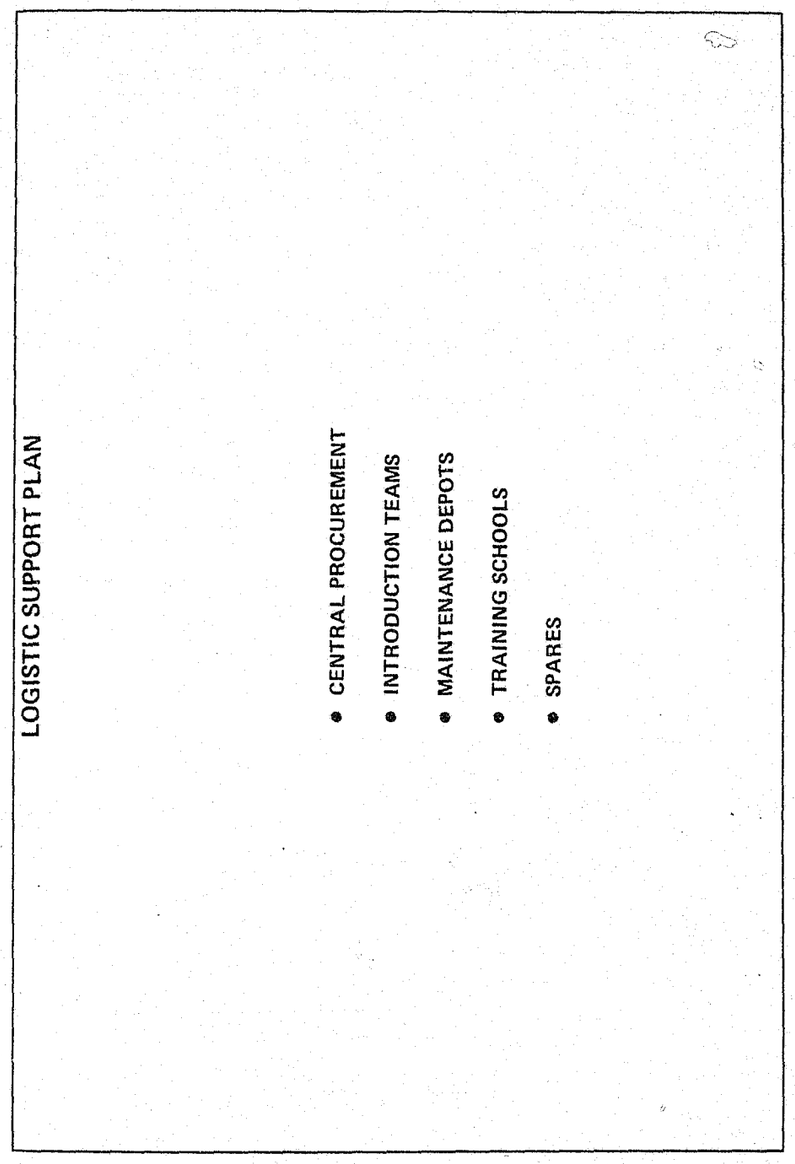
The Logistics Support Plan, which is prepared by the military departments, establishes the responsibilities for procurement and maintenance following production release. The draft plan currently in preparation confirms the concept of central procurement to military specifications and establishes responsibilities for depots and schools.

Follow-On

In summary, the specifications and the Employment Manual have been completed but not released for use. The Logistics Support Plan and the Installation Instructions are in draft and will be completed by the time the system is in production.

SLIDE 11 - Follow-On

The next step is to procure a limited quantity of items to specification to set the stage for full scale production in Fiscal Year 1973.



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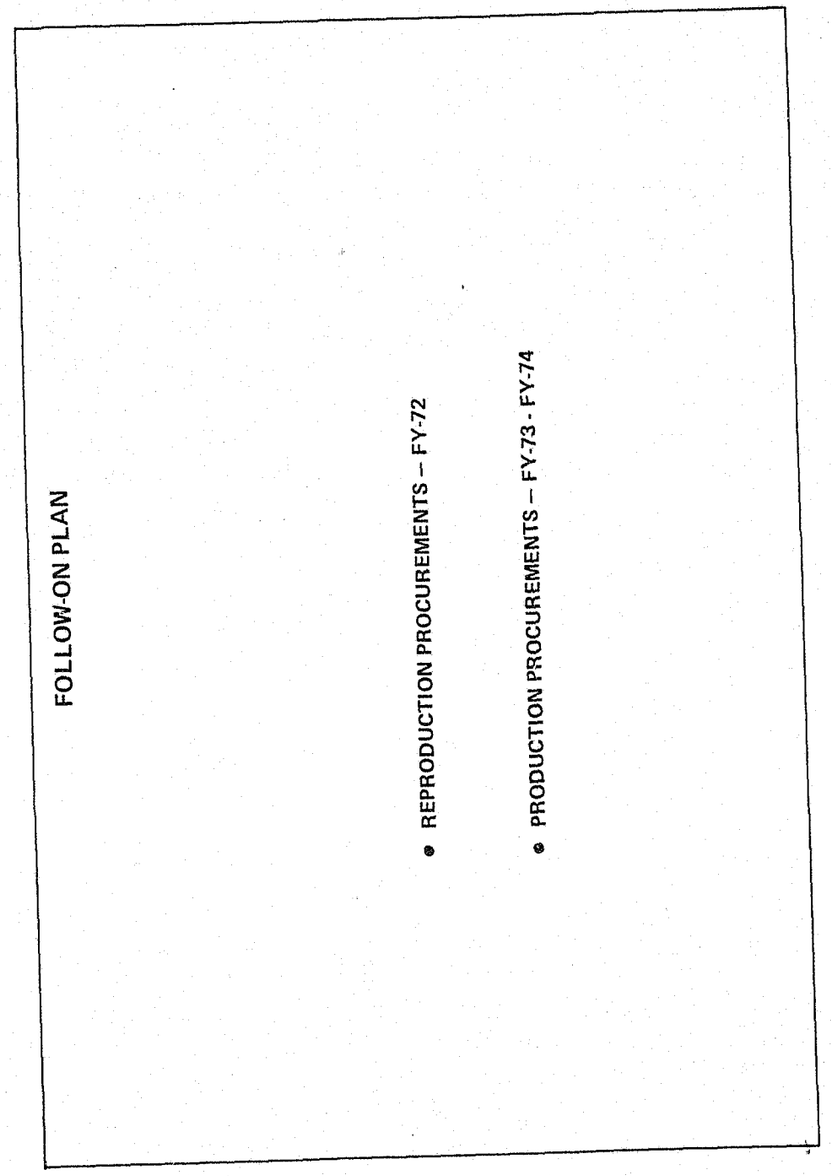

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2.4 Thoughts

Now what has all this accomplished? First, the Department of Defense now has the necessary criteria to allow it to test what it buys and ultimately to exercise firm configuration control. The system format for every arms room is identical and the interfaces and equipment characteristics are uniform regardless of the manufacturer. This makes maintenance and training programs feasible and goes a long way to insure that the field is not going to be populated with systems that don't work.

Second, the stage is set for central procurement of equipment for all Services. The advantages in cost and quality control are obvious.

Finally, with the equipment characteristics established and with the operational concepts in hand, the military departments are now in a position to deal with the system aspects of physical security. This refers to all of the factors that determine whether an arms room will be successfully protected against attack. Factors that influence a thief to conclude that a particular arms room is vulnerable can be determined. Arms room architectural standards can be reviewed in terms of the impact of construction on intrusion detection, and vice versa. Military police practices can be reviewed in terms of the

response interface. In short, the military can rethink its security directives without the burden of dependency on conflicting practices and cross currents of the alarm industry.

Now, I'm sure everyone has taken comfort so far in the fact that the DSPG program has addressed itself only to military arms rooms. This orientation was very clear throughout the program and in fact, attempts to generalize the results to other applications were resisted. On the other hand, it is hard to escape the obvious parallels in the private sector; intrusions always have the same harmful effect and are usually just as destructive; detection systems look the same and use the same equipment; police acceptance of alarm equipment is no better in the private sector than in the military.

This being the case it is reasonable to assume that obvious improvements in the one area have their parallel in the other and that things can be done to improve the quality of physical security practice. I'll name just a few:

First and foremost, it is mandatory that steps be taken to establish meaningful standards for performance and quality. There is so much questionable equipment on the market and it's sold so aggressively that even the

industry sometimes professes dismay. The problem is more one of quality and application than technology however. Reliability has to be improved and the design features that affect the real usefulness of a device as an element of a protection system have to be emphasized. It has been our observation that R&D has to be directed not so much toward new methods of detecting intrusions as toward methods for not detecting everything else.

Second, and in direct support of this first point, it is necessary to educate the user to the criteria that justify the use of intrusion detection equipment. Does an XYZ device attached to the door of a cleaning establishment really accomplish an improvement in the security? At the risk of overlooking much that has been done, it appears to us that many personnel in the industry need as much education in this area as do the users.

Third, and this is perhaps the hardest task of all, the whole question of security protection in the private sector has to be dealt with as a system problem. It is no longer adequate simply to demonstrate that an alarm will be tripped when an intruder crosses a threshold. Either the industry is going to determine what else it takes or the public will establish its own standards.

UNITED STATES DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
WASHINGTON, D.C. 20530

OFFICE OF THE ADMINISTRATION

December 9, 1971

Colonel Thomas H. Brain
Building 56
U.S. Naval Observatory
34th and Massachusetts Avenue, N.W.
Washington, D.C.

Dear Colonel Brain:

On December 16 and 17, 1971, this Agency is convening a conference involving representatives from the private security sector, the alarm industry, and related areas. The purpose of this conference is to discuss the research and development efforts of this Agency in the private security field and to identify the problems which currently exist.

Because of your work in the evaluation of numerous types of alarm systems, I would like to have you make a 30 minute presentation to this conference on December 17, 1971. Your presentation should include a general summary of your work in alarm system evaluation and a forward look to the needs for research and development in this area. The session to which you will make the presentation begins at 9:00 a.m.

If for any reason you cannot make this presentation, please contact Mr. Robert R. Donlan of my office.

Sincerely,

Clarence M. Coster
Associate Administrator

cc: Marshall Esler
Law Enforcement Standards Laboratory

Martin Danziger

APPENDIX II

AGENDA

PRIVATE SECURITY CONFERENCE

December 16, 1971

9:00 – 9:30 Opening Comments—Jerris Leonard, Administrator
Law Enforcement Assistance Administration

I. Relationship between LEAA and Security Industry

A. Nature of Relationship—Clarence M. Coster
Associate Administrator
Law Enforcement Assistance
Administration

1. What should it be to produce the most optimistic results

2. LEAA—Industry Liaison Committees

10:30 – 11:30 B. Parallel Effort of LEAA and Security Industry to Control and Prevent Crime

1. The Institute equipment program

Marc A. Nerenstone
National Institute of Law Enforcement and
and Criminal Justice

2. Project NI 70-064: Burglary: A Study of Its Character, Correlates, Correctives and Causes

Dr. Harry A. Scarr
Human Sciences Research, Inc.
McLean, Virginia

3. The LEAA impact plan

Martin B. Danziger
Acting Assistant Administrator
National Institute of Law
Enforcement & Criminal Justice

11:30 – 1:00 LUNCH

1:00 - 3:00 II. Utilization of Industry Experience in Crime Detection and Prevention

Louis A. Mayo
National Institute of Law Enforcement & Criminal Justice

A. Project NI 70-057: Private and Auxiliary Public Police in the United States

Mr. Sorrel Wildhorn
Rand Corporation

B. Home Alarms—How, when, how much?

Louis A. Mayo
National Institute of Law Enforcement & Criminal Justice

3:00 - 5:00 C. Contractual activity of LEAA in security field

Robert R. Donlan
Executive Assistant to the Associate Administrator
Law Enforcement Assistance Administration

1. LEAA procedures
2. Contracts—RFPs—Dissemination of Information
3. Review of Sylvania contract, purpose objective process of award
4. Review of Cedar Rapids grant
5. Jackson, Mississippi contract

December 17, 1971

9:00 - 10:30 III. Suggested improvements—Clarence M. Coster

1. Minimum training standards for private security forces
2. Coordination between private security forces and governmental units
3. Need for research and development in private security sector—

Warner Eliot
Department of Defense

Marshall Esler
Law Enforcement Standards Laboratory

4. SBA Study—Chester Smith, Esq.
General Counsel
Senate Small Business Committee
5. Possible licensing for private security forces and alarm services

10:30-11:30 IV. Project NI 70-082: Physical Design for the Improvement of Security in Residential Environments

Professor Oscar Newman
Graduate School of Public Administration
New York University

11:30-12:30 V. General discussion of identified problems and recommendations, summary and close of meeting

APPENDIX III

Private Security Conference
December 16 & 17, 1971

LIST OF PERSONS WHO ATTENDED

Jerome Banack
Honeywell, Inc.

Roger Battie
Burns Electronics Security Services, Inc.

Richard Bugbee
American District Telegraph Company

William Byer
Alarm Device Manufacturing Company

Jack Caulfield
White House

F. S. Chance
Brinks, Inc.

Frank Cole
Wells Fargo Alarm Services

William L. Cole
Brinks, Inc.

Robert Conklin
Holmes Electric Protective Company

William Cornforth
Systron Donner Corporation

Clarence M. Coster
LEAA

James J. Cusack
American Courier Service

Martin Danziger
LEAA

Garis Distelhorst
National Burglar & Fire Alarm Association

Robert R. Donlan
LEAA

Robert O. Donnelly
American District Telegraph Company

Robert Douglas
Emhart Corporation

Warner Eliot
Department of Defense

Marshall Isler
Law Enforcement Standards Lab

A. R. Frye
Wackenhut Corporation

Eugene L. Fuss
Honeywell, Inc.

Harold Gray
Pacific Fire Extinguisher Company

A. J. Gross
ADT Company

James C. Hensler
Wells Fargo Alarm Services

John J. Horan
Pinkerton's, Inc.

Jerris Leonard
Administrator, LEAA

William Lutz
Burns Electronics Security Services, Inc.

Louis Mayo
LEAA

Marc A. Nerenstone
LEAA

Professor Oscar Newman
New York University

Gene A. Pack
Burns International Security Services, Inc.

Norval Poulson
Certified Burglar Alarm Systems, Inc.

Martin H. Reiss
Alarmtronics Engineering, Inc.

Norman Rubin
Supreme Burglar Alarm Corporation

Dr. Harry Scarr
Human Sciences Research, Inc.

Fritz Schumacher
Walter Kidde and Company, Inc.

R. W. Shirley
Merchants Police Alarm Corporation

Chester Smith, Esq.
Senate Small Business Committee

Wallace Smith
Alarm Industry Committee for Combating Crime

Richard W. Velde
LEAA

Ralph Ward
Mosler Electronic Systems

George Weinstock
Morse Signal Devices, Inc.

Sorrel Wildhorn
Rand Corporation

Francis E. Wilkie
Biebold, Inc.

John A. Willis
Pinkerton's, Inc.

Victor R. Zahn
Wells Fargo Signal Systems, Inc.

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