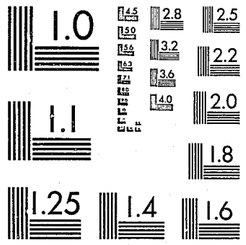






MF-I

*September 1980*

*Final Task Report*
*7543-80-FR-103*

# COMMUNICATIONS CENTER STAFF--A REVIEW OF CURRENT TRAINING AND EMPLOYMENT PRACTICES, WITH RECOMMENDATION FOR IMPROVEMENT

*By:* W. W. BEAMAN T. I. DAYHARSH

*Prepared for:*

BUREAU OF JUSTICE STATISTICS
U.S. DEPARTMENT OF JUSTICE
WASHINGTON, D.C. 20531

CONTRACT J-LEAA-010-8

SRI Project 7543
Task 4.5

*Final Task Report*
*7543-80-FR-103*

*September 1980*

# COMMUNICATIONS CENTER STAFF--A REVIEW OF CURRENT TRAINING AND EMPLOYMENT PRACTICES, WITH RECOMMENDATION FOR IMPROVEMENT

*By:* W. W. BEAMAN T. I. DAYHARSH

*Prepared for:*

BUREAU OF JUSTICE STATISTICS
U.S. DEPARTMENT OF JUSTICE
WASHINGTON, D.C. 20531

CONTRACT J-LEAA-010-8

SRI Project 7543
Task 4.5

This work was supported by Contract J-LEAA-010-8 awarded to the Center for Systems Development, SRI International, by the Law Enforcement Assistance Administration, U.S. Department of Justice, under the Omnibus Crime Control and Safe Streets Act of 1968, as amended. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

*Approved by:*

JOHN P. McHENRY, *Director*
*Systems Development Department*

DAVID A. JOHNSON, *Executive Director*
*Technology and Systems Development Division*



SRI INTERNATIONAL, 333 Ravenswood Avenue, Menlo Park, California 94025
(415) 326-6200, Cable: SRI INTL MPK, TWX: 910-373-1246

ABSTRACT

Implementing improved citizen-access facilities in public safety agencies does not, in itself, assure improvement in agency responsiveness. The operational skills of those who staff communications facilities directly affect service to the public.

This report is a result of a two-year study begun in 1978 by SRI International for the Law Enforcement Assistance Administration (LEAA), and is designed to develop improved staff selection and training approaches, thereby resulting in improved service to the public. In performing this task, it was necessary to identify the functions performed by communications staff members and the training requirements indicated by those functions.

Screening processes, functional job specifications, and training approaches used by representative agencies were documented and carefully examined. Present training approaches utilize on-the-job methods with trainee and instructor on the agency payroll. A high percentage of trainees do not become successful staff members, becoming lost investments to the agency. The on-the-job training methods involve utilizing trainees to handle emergency communications for the public, although under close supervision. To train emergency communications center staff members at greatly reduced cost, establishment of a formal educational course is recommended. This report outlines a general training course, to be made available through trade schools and/or colleges. The proposed course would train personnel at their own expense in all typical functions of communications centers. An alternative volunteer arrangement also is discussed and recommended for development in rural areas which could not justify a more formal training course.

CONTENTS

CONTENTS (concluded)





ILLUSTRATIONS



TABLES

ACKNOWLEDGMENTS

The authors wish to express their appreciation to the following persons and their agencies for their assistance and cooperation during the course of this study:

Darrel Bartz, Section Director
Bureau of Communications
Division of State Police
Department of Law Enforcement
State of Illinois
601 Sangamon Avenue
Springfield, Illinois 62702

Mary Lou Bean
Employment Services Division
Personnel Department
County of Santa Cruz
701 Ocean Street
Santa Cruz, California 95060

Rollie C. Brooks, Operations Administrator
Bureau of Communications
Division of State Police
Department of Law Enforcement
State of Illinois
601 Sangamon Avenue
Springfield, Illinois 62702

Joseph Folkert
Director of Operations
MARCER
20 West 9th Street
Kansas City, Missouri 64105

Terry Foreman, Director
Telecommunications Program
Lake Land College
Route 45, South
Mattoon, Illinois 61938

Bob Gordon, Director
Communications Department
County of Santa Cruz
701 Ocean Street
Santa Cruz, California 95060

ACKNOWLEDGMENTS (concluded)

Don Gordon, Project Assistant
911 Communications Project
Illinois Commerce Commission
527 East Capitol Avenue
Springfield, Illinois 62706

Wayne Jackson, Training Administrator
Bureau of Communications
Division of State Police
Department of Law Enforcement
State of Illinois
601 Sangamon Avenue
Springfield, Illinois 62702

Carol M. Odell
Operations Manager
Radio Communications Department
State of New Mexico
Santa Fe, New Mexico 87502

Margaret Perry
Chief Communications Dispatcher
Communications Department
County of Santa Cruz
701 Ocean Street
Santa Cruz, California 95060



# CHAPTER I. INTRODUCTION

This report, one of a series of documents developed by SRI International for the Law Enforcement Assistance Administration (LEAA) under contract J-LEAA-010-8,* reviews current staff training and employment practices in communications centers and provides recommendations for improvement.

## A. Communications Center Function

Most communities are served by emergency services that have been established to protect lives and property. Because events which threaten life and property usually become worse quickly without intervention of trained and equipped emergency services personnel, immediate reporting of these events is vital to protecting life and property. Yet, the public usually has:

- Limited experience and training in coping with emergencies.
- Limited experience and training in recognizing the scope of emergencies.
- Limited experience and training in reporting emergencies.

Despite these limitations, a person detecting an event which may threaten life or property is immediately faced with questions: Is this really an emergency? Can I handle it? Should I report it? Would I look silly or be accused of sounding a false alarm if I report it and it's not an emergency? If I report it, who should I tell--fire, police, or medical services? Will I be criticized or blamed if I don't report it? Will I have to be a witness? What information will they want?

This person desperately needs a prompt means of reaching someone who is trained to assist with these questions. Many communities have established 911 or another emergency service telephone number, and have instructed citizens to call this number to report events that appear to be emergencies. As part of 911 service, trained call answerers interview the caller, decide the nature of the emergency, advise the caller, and initiate appropriate emergency services responses. This arrangement relieves the caller of decision making and greatly improves the promptness and accuracy of emergency services.

Typically, a 911 center will consist of both 911 call answering and emergency response unit dispatching. A communication center's staff includes call answerers, dispatchers, and supervisory personnel; however, the work of call answerers and dispatchers may be assigned to a single person and, in some cases, that person may function without direct supervision.

*The Bureau of Justice Statistics (BJS) assumed 911 responsibilities from the LEAA with the enactment of the Justice System Improvement Act (JSIA) of 1979.

B. Problems

1. Personnel training. The vital nature of communications center service demands highly trained professional staff. Communications center personnel training currently involves both high cost and long periods of time before personnel become effective in the center. Current training methods are similar to apprenticeship methods in that they rely heavily on individual instruction and have only partial reliance on classroom training and other group methods.

2. Personnel turnover. Even moderate personnel turnover becomes a serious factor when a 911 center is required to provide high levels of personnel on-the-job training. If personnel are trained at their own expense, as is the case in many professions, the turnover rate (while still of concern) would be less costly to the center.

The reasons for personnel leaving 911 centers include reasons such as moving, better opportunities, etc. However, job stress, working conditions, and working hours also cause attrition, and indicate that the employment process may need improvement. As untrained individuals apply and are employed in 911 centers, they may not be aware of the special demands of the job such as time pressures, working conditions and working hours. Because of the lack of trained personnel, many communications centers rely on a probationary training period to eliminate unsuited applicants, thus effectively making the probationary period part of the employment screening process (this in turn, may artificially inflate apparent turnover).

C. Purpose of this Study

The important objective of having highly trained 911 center staff available is adversely affected by high training costs, long training periods, high staff turnover, and inadequate employment practices. This study focuses on communications center staff training and employment practices in order to identify current methods and possible alternatives. This study is exploratory in nature and is not intended either to provide in-depth considerations of turnover or to develop new training and employment practices. It is intended to identify training requirements, current training methods, and employment practices, and to provide appropriate recommendations for improvement. Follow-on effort to develop and incorporate screening and training recommendations will be required before any substantive effect on communications centers occurs.



## CHAPTER II. EMPLOYMENT PRACTICES

A. Overview

Typically, the communications center's hiring agency prepares job descriptions of call answerer and dispatcher positions according to their internal procedures. Job descriptions contain general requirements for the job, including typical duties, required knowledge, descriptions of the required skills, and the organizational level of the position.

Some position requirements may reflect adverse working conditions, such as weekend and holiday work and odd-hour shifts.

Other requirements may emphasize experience and educational background; however, these have been reduced in recent years--in the interest of providing equal opportunity and ease of proving direct applicability to the job--to the extent that they are of little value in selecting the most qualified person for a position. For example, many agencies once required candidates to pass a typing test in order to be employed as call answerers or dispatchers. It was suggested that this was an arbitrary test to eliminate some otherwise competent persons who had not learned typing, and so typing requirements were reduced or dropped.

Advertisements for personnel are prepared from the job description (usually as an abbreviated form of the job description) with the addition of the agency's salary and benefit program. Other items often included in job advertisements are: a description of the screening process (various tests), where to apply, forms required for application, special requirements (foreign language capability, etc.), and the closing date for applications.

Job descriptions are part of the screening process because some who read them may decide not to apply because of some aspect of the job which they view as negative (e.g., salary range, benefits, working hours). Some potential applicants may be discouraged from applying because of their lack of experience or fear of the employment screening process. Oral boards are often part of the screening process and may frighten those who have never experienced them.

Personnel advertisements may not reach all persons who might be interested. Trade publications will not normally reach those who would apply for trainee positions; however, they usually suffice for openings that require experienced personnel. Media serving the general public (such as newspapers) are often used to generate applicants for trainee positions.

Personnel selection is usually based on various criteria in the job specification which help identify those applicants who have the best chance of successfully performing the work. The statements on the application form, the applicant's resume, test results, and interviews provide information for comparison to job criteria.

A degree of subjectivity exists in the screening process that is primarily related to the amount of effort an agency expends to thoroughly test applicants. Effective written tests require considerable effort to prepare and therefore are not as widely used as oral boards and interviews. Mechanical aptitude testing requires equipment to simulate, as closely as practical, actual on-the-job mechanical operation of communications center equipment. The number of candidates requiring testing does not justify the purchase of simulation equipment for most agencies. A typical agency with staff of 16 persons and annual turnover of 20% may need to test from 6 to 15 candidates per year, hardly enough to justify special equipment. Use of a part of the operating center for the tests is precluded by operational requirements in most agencies. Some larger agencies have established effective simulated work positions for testing, and in some cases provide a testing service to smaller agencies. This cooperation offers a functional and cost-effective method of testing candidates for mechanical aptitude.

Given a lack of simulation equipment, agencies may rely heavily on probationary periods during which temporary employees are observed and evaluated. Probationary periods usually will be lengthy and result in apparent high turnover rates when in actuality the temporarily employed candidate is still being tested. Some agencies combine this observation period with training activities on a one-to-one basis. Agencies using observation as a screening activity can expect to have an apparent high turnover rate as potential call answerers and dispatchers are eliminated after employment, rather than before.

B. Employment Process

Figure 1 illustrates a typical screening process used in selecting call answerers and dispatchers beginning from the closing date for accepting job applications.

The process begins with Step D-1, which requires the employer to decide whether there are special considerations connected with this employment action (an especially qualified candidate or whether the position requires an employee with special capabilities). Exiting D-1 via "candidate-qualifications" leads to A-2, which suggests evaluation of the candidate qualifications. A returning ex-employee with experience and who performed adequately may be able to bypass portions of the screening process, such as testing.

After consideration of the candidate qualifications, D-2 requires the employer to determine if the qualifications warrant special handling,



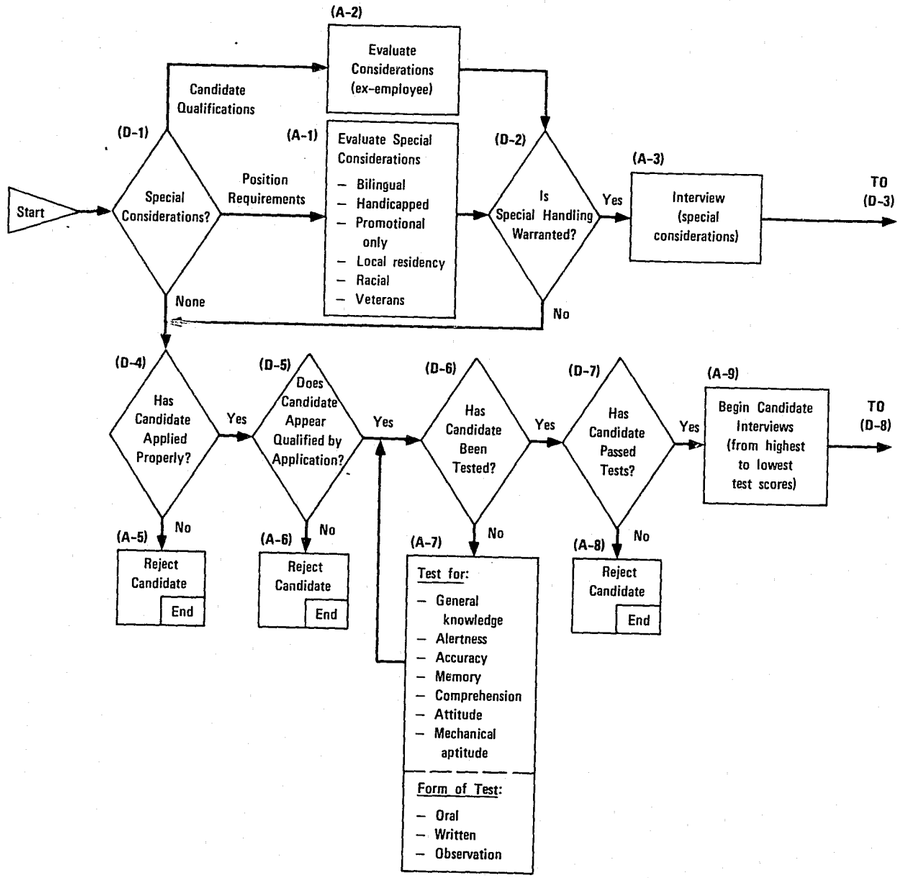


FIGURE 1 911 CALL ANSWERER AND DISPATCHER TYPICAL EMPLOYMENT SCREENING PROCESS BEGINNING FROM CLOSING DATE OF APPLICATIONS

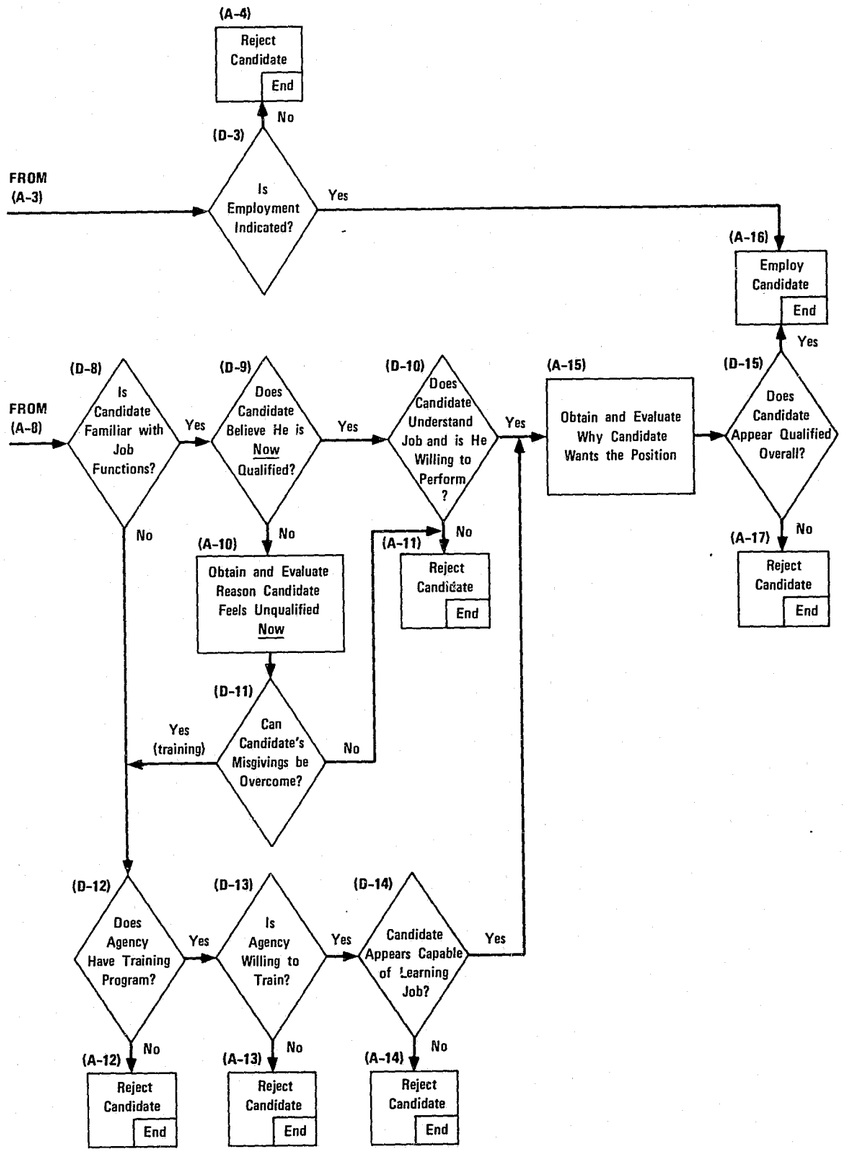


FIGURE 1 (Concluded)



and, if so, suggests that the employer interview the candidate based on the candidate's special qualifications (A-3). After the interview (exiting A-3), D-3 requires the employer to determine whether the candidate should be employed.

Exiting D-3 via "yes" leads to A-16, which suggests the candidate be employed. Exiting D-3 via "no" leads to A-4, which suggests the candidate be rejected. The candidate may be rejected completely or may be rejected as a "special consideration" case and then could enter the regular employment screening process. For example, a candidate with 20 years experience as a law enforcement officer may not warrant special consideration, but may be employed if a full screening process indicates this person possesses adequate qualifications to perform the work.

Exiting D-1 via "position-requirements" leads to A-1, which suggests the employer evaluate special job requirements such as bilingual capability, "handicapped preferred", whether the position is open only to present employees, local residency requirements, or affirmative action requirements. The center may need a bilingual employee and be willing to accept a trainable bilingual person over other trained applicants. Alternatively, the center may have a compelling reason to employ persons who are handicapped and be willing to employ a trainable handicapped person over a trained person.

A "promotional-only" job requirement may exist for some openings. For example, the center could have a progression of call answerer or dispatcher levels (such as Dispatcher Trainee, Dispatcher I, Dispatcher II, Senior Dispatcher) and require that all Dispatcher II and Senior Dispatcher openings be filled only by those persons already employed in the communications center.

Exiting A-1 also leads to D-2, requiring employers to determine whether special handling is warranted, and if so, to interview candidates based on these considerations.

Exiting D-1 ("special considerations") via "none" leads to the beginning of the regular screening process at D-4. D-4 requires the employer to determine whether each candidate applied properly. If a candidate did not apply on time, or provide all required information, or use the prescribed form, rejection may occur at this point. Exiting D-4 via "yes" leads to D-5, which requires the employer to determine, from the information supplied on the application form and any attachments, whether the candidate appears to meet the job specifications. Exiting D-5 via "yes" leads to D-6, which questions whether the candidate has been tested. Exiting D-6 via "no" leads to A-7, which suggests the candida e be given various screening tests. Exiting D-6 via "yes" leads to D-7 which, if the candidate passed the tests, leads to candidate interviews (D-7).

D-8 through D-14 and A-10 through A-15 describe some considerations involved in a typical interview. D-15 requires the consideration of all factors by the interviewer and final employment decision.

Each agency applies its own level of importance to each phase of the screening process. While one agency may rely heavily on the results of testing, another may rely heavily on the interview. Since the probationary/training period occurs after employment, it is not shown in Figure 1; however, the activity in A-7 and subsequent screening activities in this figure are ongoing during this period, leading to a final employment decision. In the case of one specific agency, an in-house study showed an operations turnover rate of 75% in one year (1979). A re-examination revealed that 8 of the 11 employees terminating were trainees. This supports the theory that probationary periods act as part of the screening process for new employees.

Developing and applying detailed candidate tests prior to employment involves considerable cost; however, the probationary screening method may be far more expensive.



# CHAPTER III. CURRENT TRAINING PRACTICES

## A. Overview

A representative number of training arrangements were reviewed in the process of this study. Most training approaches utilize one or more of the following arrangements:

- On-the-Job Training
- Peer Group Discussions
- Classroom Instruction
- Training by Simulation
- Training by Publications.

Current training approaches rely on the professional expertise and teaching abilities of instructors. However, instructors generally are very knowledgeable in the field of their instruction, but usually are not trained in teaching techniques. Since current training tends to make minimal use of texts, and since course outlines generally are prepared by call answerers, dispatchers, or their supervisors, group training efforts lean toward "workshop" approaches (most participants are employees of communications centers and view training activities as "continuing education").

Some agencies have developed courses in conjunction with colleges or academies. These institutions generally use guest instructors, provide organization and facilities, and conduct one- or two-week courses. These institutions may charge for the course, may allow college credit, or may issue certificates of completion. For example, New Mexico offers a certified course taught by instructors of the State Law Enforcement Academy.

Lake Land College in Mattoon, Illinois, has been providing a two-year training course for operations personnel. The course is intended to be a general course. Graduates receive an Associate of Applied Sciences degree. Students receive certificates for completion of specific subjects (when they do not take the entire course). Some subjects are taught by guest instructors who first are instructed by the college program director so that course presentations are reasonably consistent, although different instructors may be used. The college is expanding use of the course through offering extension and correspondence classes, and would like to share the course with other educational institutions.

Evaluation of the effectiveness of the instruction is not common. Some agencies with in-house courses use written tests as a method of evaluating the students. In order to evaluate the students' training in handling stress, one test includes scrambled and trick questions to be answered by students while they are exposed to typical communications center sounds. The agency calls this a "stress" test.

B. On-the-Job Training

The most comprehensive training occurs using on-the-job approaches. These involve assigning a trainee to work with an experienced staff member. By this approach, the trainee is exposed to the variety of events reported to the center and learns how to handle these events. The trainee's responsibility and degree of direct supervision are gradually adjusted as the trainee gains job proficiency. A trainee's probationary period generally reflects the average time required to train the new employees in most aspects of the center's work.

On-the-job trainees have several advantages over trainees in other programs, including:

- Exposure to a center's working environment and equipment.
- Individualized instruction.
- Work with actual served-area geographical features.
- Exposure to job demands.
- Opportunity to develop relationships with other staff members.
- Exposure to actual field operations.
- Exposure to actual served-agency requirements, procedures and capabilities (many of which may be unwritten).
- Opportunity to learn while being paid (a disadvantage to the agency).

However, on-the-job training has several disadvantages, including:

- High cost.
- Trainee learns only one method of center operation.
- Trainee and instructor may have personality differences which could affect trainee's effectiveness.
- The instructor may not be qualified to train another person.
- The instructor may want extra salary for training responsibilities.
- Trainee turnover rate may be high, imposing a cost burden on the agency.



On-the-job training involves a "sink or swim" approach, either providing effective communications center personnel or eliminating potentially capable employees.

C. Peer Group Discussions

Peer group discussions are used as a form of continuing education, and deal more with new procedures rather than basic material. For example, the advent of a new law enforcement computerized information system normally would involve implementing new procedures. Peer group discussions may occur on a formal or informal basis and may be limited to center staff or open to staff from other centers. Peer group discussions often occur at chapter meetings of the Association of Public Safety Communications Officers, Inc. (APCO), although only a limited number of operational personnel are allowed to attend these meetings.

D. Classroom Instruction

Classroom training approaches usually take the form of workshops in that the students are employed operations personnel who have experience to contribute to the group.

A more traditional classroom approach may be used for certain specific subjects. For example, the implementation of a new communications capability or the center's acceptance of a new responsibility may require a specific course to be taught by an instructor with little contribution from students.

The classroom training activities for operations personnel usually presuppose basic knowledge of operations, and so are not suitable to non-operations personnel who may wish to learn the basics.

E. Training by Simulation

Training by simulation involves the use of movies, equipment mockups, and textual descriptions of scenarios to allow the trainee to experience a variety of operations activities.

These simulations are designed to increase the trainee's knowledge, expose the trainee to uncommon events, and improve the trainee's ability to handle actual situations.

Simulation techniques involving equipment and visual aids (movies, mockups, etc.) are expensive. The advent of low-cost video equipment (cameras, tape recorders, and monitors) could reduce the cost of visual simulations. There remains, however, high costs involved in the planning, formatting, and staging of simulations. Mockups of communications centers or equipment are expensive and may be outdated by new equipment. These mockups are of relatively little value without detailed plans, scenarios, and simulators.

Because of the high cost, single agencies may find the use of simulations impractical.

F. Training by Publications

The most useful publications for operations personnel are those that are developed as procedure and policy manuals of communications centers. These are usually sufficiently detailed to serve as training aids. However, these publications have portions that deal with the specific agencies and therefore are only partially transferable to other communications operations.

Although certain trade and professional publications may assist operations personnel by increasing their understanding of field services, equipment, operation designs, and staffing, they do not by themselves constitute effective operational training aids.

Published policy guidelines and procedures of emergency services agencies may be considered training aids for operational personnel and may guide the development of communications center procedures. Instruction manuals and information bulletins published by computer information system management agencies (NCIC, NLETS, etc.) can provide information to operators on proper access, use, and operation of those systems.

Reported results of communications studies may discuss some of the tradeoffs between operational methods and equipment choices. However, these reports, while informative, also are in themselves not useful for operational training.



# CHAPTER IV. TRAINING COSTS

All efforts at training personnel for communications center staffing usually are directed at persons already employed in a center. Employees in training may attend courses under various pay arrangements, including:

- Courses that are paid for by the agency employing the trainee.
- Courses that the trainee attends during working hours, and for which they receive pay and expenses.
- Courses that the trainee attends on his own time, with expenses paid by the employee agency.
- Courses that the trainee attends during non-working hours with compensatory time off allowed.
- Courses that a trainee attends under a combination of the previously mentioned arrangements.

It should be noted that students attending courses during their normal working hours may have to be replaced by a normally off-duty staff member who is paid at an overtime rate, thus raising the overall training costs. Also, when compensatory time off is taken, an overtime replacement may be required. Obviously, considerable cost savings could be achieved by agencies if they could employ persons who had obtained training at their own time and expense.

Peer group discussions are a form of continuing education for operations personnel and usually involve small costs, even when they are conducted on a formal basis. Some APCO chapters sponsor one-day meetings with presentations followed by discussions. Costs for these meetings are relatively low, and usually involve travel and living expense. Operations personnel often attend these meetings under various pay arrangements or at their own expense.

At regional and national APCO meetings, more extensive peer group activities occur. These sessions are a mixture of group discussions, classroom presentations, and workshop activities. The cost of sending personnel to these meetings, however, tends to limit attendance to local agency personnel.

Employee training sessions at colleges or academies vary in length and cost. Sessions may last from one week to an entire semester. Some students attend at their own expense, while others are reimbursed by the agency employing them. Partial support for these courses may be available through college or academy funding sources.

An agency's budget often includes costs of tuition, training manuals, travel and living expenses, and similar items. Since personnel in training usually are paid employees, total training costs also should include their salaries. In addition, overtime paid to stand-in staff should be included in the total training cost. Because salary costs related to training are difficult to identify, budgets usually do not reflect true training costs.

Figure 2 provides a diagram of the time involved in on-the-job training of new staff members. As shown in the graph, training periods vary in length, depending on the trainee's experience and learning rate.

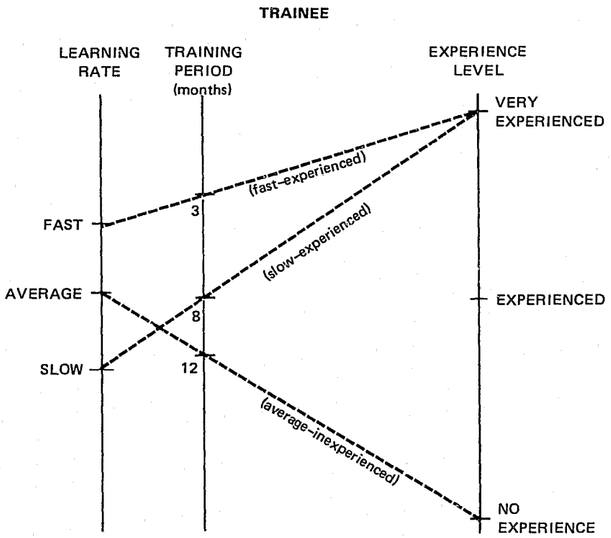


FIGURE 2 EXAMPLE OF THE EFFECTS OF TRAINEE EXPERIENCE AND LEARNING RATE ON THE TRAINING PERIOD

Figure 3 compares the total work output of two experienced staff members to that achieved jointly by a trainer and a trainee. If one experienced staff member is assigned a trainee, their work output will not equal the work output of one experienced staff member; therefore, a curve of joint work output of the trainee and trainer must start below the work output of one person.

Figure 4 illustrates a similar curve when the trainee has previous experience. The experienced trainee requires a shorter training period before full output is produced.



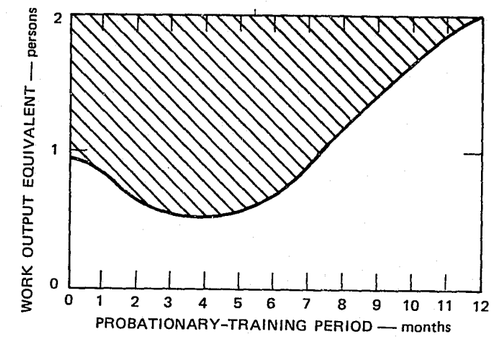


FIGURE 3 EXAMPLE OF TRAINING PERIOD WORK OUTPUT
(instructor and inexperienced trainee)

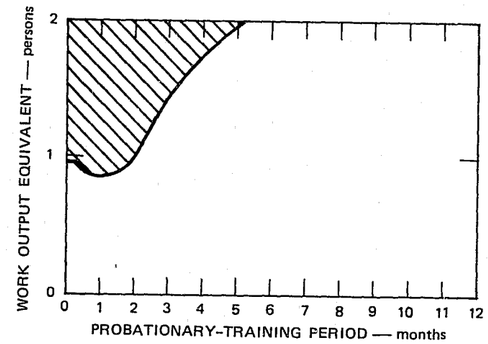


FIGURE 4 EXAMPLE OF TRAINING PERIOD WORK OUTPUT
(instructor and experienced trainee)

These curves are drawn to show the fact that the trainee's output is essentially zero at the beginning of training, and that the trainer's function as an operator decreases as training demand increases during this period. The curve shows work output increasing until the end of the training period, when the trainee assumes a full workload.

The crosshatched areas of the rectangles represent the cost of training in terms of lost output capacity. Since the center does not control its workload, the center may need to compensate for this loss by adding personnel.

The graph in Figure 5 has been rescaled to represent salary costs of training an inexperienced employee (assuming typical costs of $12,000 for the trainee and $18,000 for the trainer over a 12-month probationary period). The crosshatched area of the graph represents the value of work lost in training (approximately $12,000 to $15,000 per trainee). Note also that the loss of a trainee during the training cycle requires that the process begin again with the next prospective employee; therefore, the further the trainee is in the training cycle at the point of termination, the greater the cost to the agency.

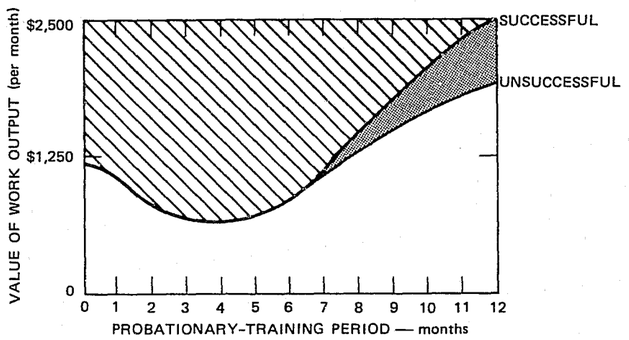


FIGURE 5 EXAMPLE OF TRAINING COST

Obviously, the trainee's learning rate and experience greatly affect the shape of the curve and therefore the cost to the agency. The trainer's instructional ability will affect the shape of the graph's curve in a similar way (the curves shown are knowledgeable estimates of the probable training pattern for an average trainee and trainer).

One Northern California County has a 911 center with a staff of 21 call answerer/dispatchers. This center experienced a turnover of 11 staff members during 1979. Of these, eight terminated during their one-year probationary/training period. Replacements were hired as terminations occurred. Considering that 11 replacements required training, and applying a figure of $13,500 per trainee, the training cost over the one-year period totaled $148,500. The agency's annual budget for a staff of 21 is approximately $347,000, which means that approximately 43% of the budget was spent for training. No correlation was made between these costs and the agency's overtime costs and level of service to determine the adverse effects of this turnover.

This analysis shows the possible savings in agency costs that could be achieved by employing trainees who had received most of the basic training in college, trade school, or another means at their own expense.



While the pay scales for this work appear attractive, agencies are having difficulty filling open positions as well as retaining current employees due to job requirements and pressures. The lack of an approved course of instruction to provide comprehensive training of individuals at their own expense leaves agencies with no alternative but to employ those who appear most trainable, train them at agency expense, and try to retain them as employees.

The skill exercised by an agency in identifying the most trainable candidates (and those who will remain employees) directly influences the employee turnover rate and, consequently, agency training costs.

# CHAPTER V. PERSONNEL JOB FUNCTIONS

Development of training requirements for communications center staff requires that job functions be identified and compared to the knowledge and ability of the center's staff to carry out these functions. This section discusses the requirements of staff job functions to establish a basis for training.

## A. Call Answerer Job Functions

The call answerer can be considered a "sorter" in that a number of calls appear which the answerer must interpret and place in an appropriate category. The call answerer must question the caller, record the event data, evaluate this data and decide on the response simultaneously, and then advise the caller, initiating a response. This process must occur in seconds with high accuracy, thus requiring highly skilled answerers.

The call answerer must commit to memory specific and general knowledge that will enable an instant response to emergency service requests. The knowledge and abilities required of a call answerer are itemized below:

- Authority, duties, and responsibility of call answerer
- Operation of call answerer's equipment
- Specific procedures for:
  - Law enforcement
  - Fire
  - Emergency medical service (EMS)
  - Call tracing
  - Disaster
- General procedures
- Laws and ordinances
- Resources for emergency responses
- Area geography
- Call answerer supervisor's duties which have direct and immediate impact on the effectiveness of the center's call answering functions
- Interrogate callers and record event data
- Comprehend event data and interpret the event in relation to procedures.

In order to define the training requirements for this communications staff position, it is necessary to itemize the actions that must be performed by call answerers. For our purposes, it is sufficient to list the steps involved in making a required action or decision, and the knowledge needed to perform these functions. This will allow identification of the training necessary to assure that call answerers are able to perform effectively.

In the course of their jobs, it is necessary for call answerers to answer incoming calls, interrogate callers to obtain information, record the information obtained, interpret this information to determine a course of action, and then carry out this course of action.

The call answerer also may be required or expected to perform additional functions that relate to emergency calls in only an indirect manner, such as maintaining records of call volume and center information sources. These indirect job functions vary widely between communication centers and therefore cannot be easily covered by any general training course for 911 call answerers.

Because the communications center may be the only 24-hour operation in an area, the call answerers may be required to perform job functions not related to their specific duties. These job functions will also vary widely between 911 centers. Unrelated functions may include answering emergency alarms from elevators, answering or monitoring burglar alarms or fire alarms, or maintaining call-out lists of non-emergency personnel.

The following subsections provide an itemization of call answerer duties in direct, indirect and unrelated categories to determine those items applicable to a training effort. Training in a site-specific course will involve all of the following functions.

1. Call answerer's direct work functions. The following activities are performed by call answerers and relate directly to 911 calls:

- Answer telephone calls for emergency services appearing on assigned 911 lines.
- Interrogate callers for required information.
- Transfer callers to appropriate secondary answering points.
- Relay calls for emergency services to other agencies according to protocol.
- Refer non-emergency callers to correct telephone numbers, according to protocol.
- Provide assurance to callers with emergencies.
- Assist other answering positions which become overloaded.



- Record required information on each call.
- Assign event priority according to protocol.
- Transfer recorded information to appropriate dispatcher.
- Utilize 911 center information sources as needed (reverse directories, street index files, maps).
- Maintain listings of emergency telephone numbers for relaying calls.
- Initiate call-tracing procedures according to protocol.
- Provide advice to callers according to training and protocol.
- Refer calls from news media and public for information according to protocol.
- Operate 911 and standard telephone equipment.

2. Call answerer's indirect work functions. The following activities are performed by some call answerers, but do not directly involve call answering:

- Maintain 911 center records of calls as required.
- Maintain 911 center information as required (such as reverse directories, maps, listings, and street index files).
- Fill-in for answering point immediate supervisors on a temporary basis.
- Report equipment failures.
- Handle citizen complaints on 911 service.
- Provide training assistance to new answerers.

3. Call answerer's unrelated work functions. The following activities may be assigned to call answerers, but are not related to primary call answering activities.

- Answer "emergency" lines from elevators.
- Accept citizen reports on non-emergency events (such as burglaries, thefts, or traffic signal light burned out).
- Monitor alarm panels.
- Monitor closed-circuit televisions.
- Perform clerical activities (such as reports, records, and typing).

- Answer business telephones.
- Handle complaint-desk activities.

B. Call Answerer Functional Flow Diagram

Figure 6 presents the overall functions of call answerers in the sequence typically followed in most communications centers. Actual functions and their sequence will vary between centers, but will closely resemble this figure. Handling an emergency call through this entire call answerer sequence will take less than 60 seconds on the average.

When an emergency call comes in, the answerer must determine the nature of the call (A-1) and decide whether it is of an emergency, urgent, or non-emergency nature (D-1). Exiting D-1 via "no" to D-2 (for non-emergency, non-urgent calls), which requires the answerer to decide whether an incident report is needed and, if so, to transfer the caller to a report clerk, thereby ending the answerer's involvement. If no report is needed, the answerer should refer or advise the caller (A-2) and end the call. This diagram does not show rare cases such as a bomb threat, a threat to answering personnel, or a felon wishing to surrender.

Returning to D-1 and exiting through "yes" to D-3 requires the answerer determine if this emergency or urgent event needs police, fire, or EMS (or a combination of the three), or some other emergency service. Exiting D-3 via "no" leads to A-3, which suggests the answerer transfer the caller to another emergency service. These other emergency services could include such services as suicide prevention, rape hot line, and a parental hot line. Exiting D-3 via "yes" indicates that the answerer has made a preliminary decision that the event requires dispatching of police, fire, or EMS services.

At A-5 the call answerer first must determine the geographic location of the event before moving to D-4. At D-4 the answerer must determine the type of service needed for the event. Many events will require the services of police, fire, and EMS; but in most cases, the need for the services of one agency (police, fire, or EMS) is paramount and the other services are supportive. The combination of the event location (A-5) and the primary nature of the event (D-4) allows the answerer to identify the proper agency to handle the event. As shown in D-5, D-11, and D-17, the answerer--knowing the agency that should respond and how that agency receives its calls--may handle many calls by transferring them to that agency's dispatch or answering point.

Note that some call answerers will not have a choice in selecting an agency to handle an event and therefore might transfer all police or all fire or all EMS calls immediately upon ascertaining the primary nature of the event. Since other call answerers have a choice as to which agency will handle the event, the location will be required for identifying the



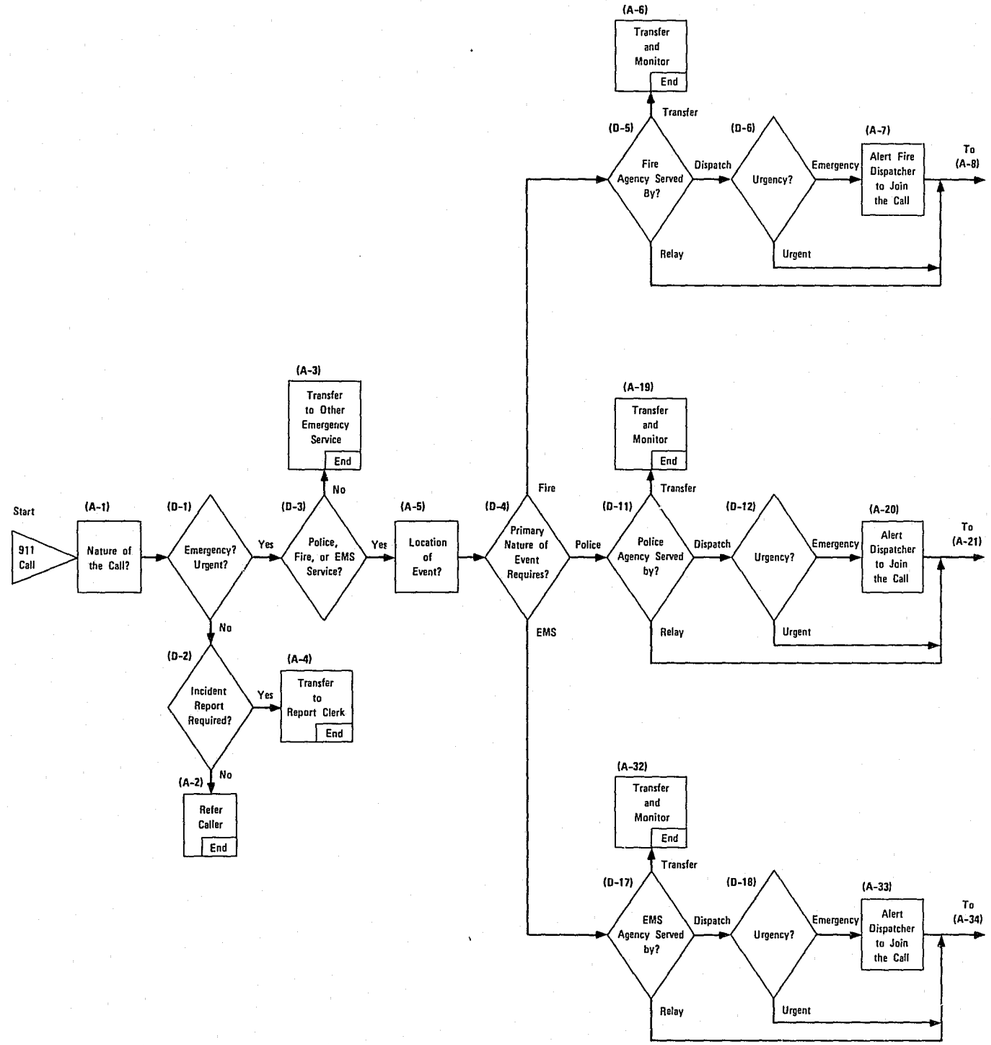


FIGURE 6 911 CALL ANSWERER TYPICAL FUNCTIONS

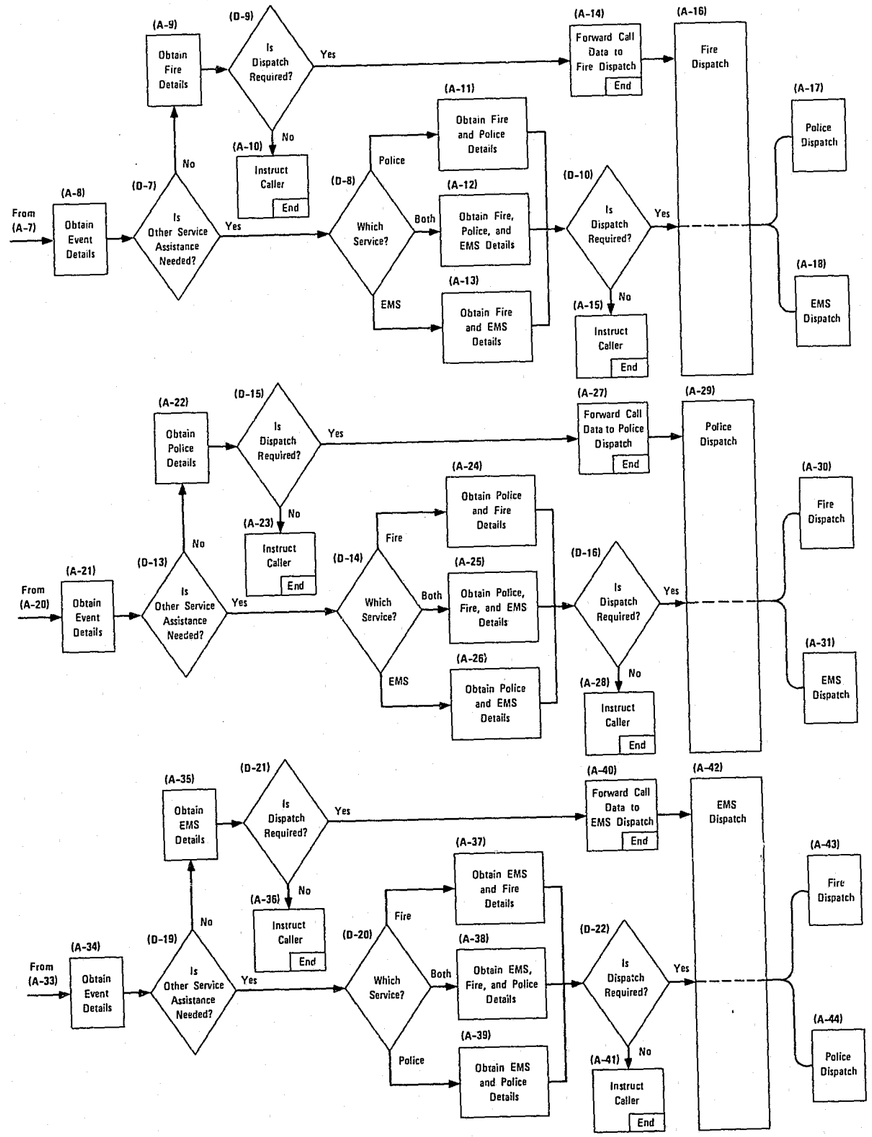


FIGURE 6 (Concluded)



proper agency. In other cases, an answerer may have no choice of police agencies, but have a choice of five fire agencies to handle a specific event.

Returning to D-4, exiting via "police" leads to D-11, which requires the answerer to recall whether the police agency serving this geographic location is served by transfer, dispatch, or relay. Exiting D-11 via "transfer" leads to A-19, which suggests the answerer transfer the call, monitor the call to be sure the police agency answerer is able to communicate with the caller, then disconnect from the call. The call answerer also may relay the initial call data to the secondary answerer to reduce the secondary answerer's interrogation time. For example, the initial answerer could state "This caller is reporting a robbery in progress at Fifth and Main," thus establishing the nature of the event, its timing, and location.

Alternatively, exiting D-11 via "dispatch" leads to D-12, which requires the answerer to determine the urgency of the event, and, if it is an emergency call, to alert the dispatcher (A-20) to listen to the call as the event information is acquired. At this point the call answerer may inform the dispatcher, "This caller is reporting a bank robbery in progress at Fifth and Main" then continue to interrogate the caller. While listening to the caller relate further details, the dispatcher can review the status and location of units near the event's location, and can contact the appropriate unit(s) and give them the event's known information. During this time, vital event details may change. These details must be forwarded to the response units immediately so they can adjust their response.

Exiting D-12 via "urgent" would bypass A-20 and lead to A-21, which suggests that the answerer obtain event details before involving the dispatcher. For example, an urgent event would be one where the caller reports his car stolen within the last ten minutes, but he does not know the direction of travel. A time savings of a few seconds will not matter in this case; therefore, the dispatcher would be notified at the conclusion of the call.

Returning to D-11 and exiting via "relay" would bypass D-12 and A-20 and lead to A-21. For relayed call data the call answerer usually would obtain all details, then call the agency dispatcher and relay all critical call data immediately at the end of the call.

Exiting A-21 to D-13 requires the answerer to decide if the police response will require any support from fire, EMS, or both. Exiting D-13 via "no" leads to A-22, which suggests that the answerer obtain all details needed for a police dispatch. Exiting A-22 to D-15 requires the answerer to determine whether a response unit should be dispatched. If not, A-23 suggests that the answerer advise the caller of this fact plus any other information required.

Exiting D-13 via "yes" leads to D-14, which requires the answerer to decide which support service is needed. Exiting D-14 via any route leads to A-24, A-25, or A-26, which suggests the answerer obtain details appropriate to a police dispatch and the selected support service(s).

Exiting to D-16 requires the answerer to decide whether dispatch of a response unit is appropriate or not. If not, A-28 suggests the answerer advise the caller of this. Exiting D-16 via "yes" leads to the police dispatcher. All call data would be given to this dispatcher, who would review the data and dispatch units according to local procedures, and request and coordinate the support services as needed.

Returning to D-4 and exiting via "fire" or "EMS" leads to a sequence of functions similar to the functions that occur by exiting D-4 via "police"--with one essential difference. Exiting via "fire" leads to the fire dispatcher, since the primary nature of the event requires fire services and may require police or EMS support. The fire dispatcher would review the call data, dispatch units according to local procedure, and request and coordinate the support services as needed. Exiting via "EMS" leads to the EMS dispatcher, who would dispatch and coordinate the responses in a similar way.

Figure 6 is simplified by not itemizing in detail all of the steps which may occur. Figures 8 and 9 expand boxes A-9, A-22, and A-35 to illustrate additional call answerer functions which may occur in the process of obtaining fire, police, and EMS details.

1. Fire details flow diagram. Figure 7 expands on the call answerer's function for a fire dispatch. The call answerer must obtain information to determine whether the event involves a threat to property, a threat to life, or a request for fire assistance (D-1). Exiting D-1 via "threat-to-property" leads to D-2 and D-3, which require determining whether the threat is due to fire, explosive materials, flooding, chemicals, or other hazards. Steps A-2 through A-6 suggest that the call answerer obtain more details on the event. Exiting A-2 through A-6 leads to D-11, which requires the call answerer to decide whether a dispatch is warranted. Exiting D-11 via "yes" leads to A-24, which suggests the call answerer forward all reported information to the dispatcher with the call answerer's decision. Exiting D-11 via "no" leads to A-23, which suggests that the caller instruct the caller that: (1) a response will not occur, and (2) any other appropriate information or advice.

Returning to D-1 and exiting via "threat-to-life" leads to D-4 through D-7, which require the call answerer to obtain more details to determine if the threat is due to fire, explosive materials, airborne materials, medical problems, falling, flooding, chemicals, entrapment, and related events. Exiting D-4 through D-7 by any choice leads to a step which suggests the call answerer obtain more details. Exiting any action box (A-7 through A-15) leads to D-11, which again requires the call answerer to determine whether a dispatch is warranted.



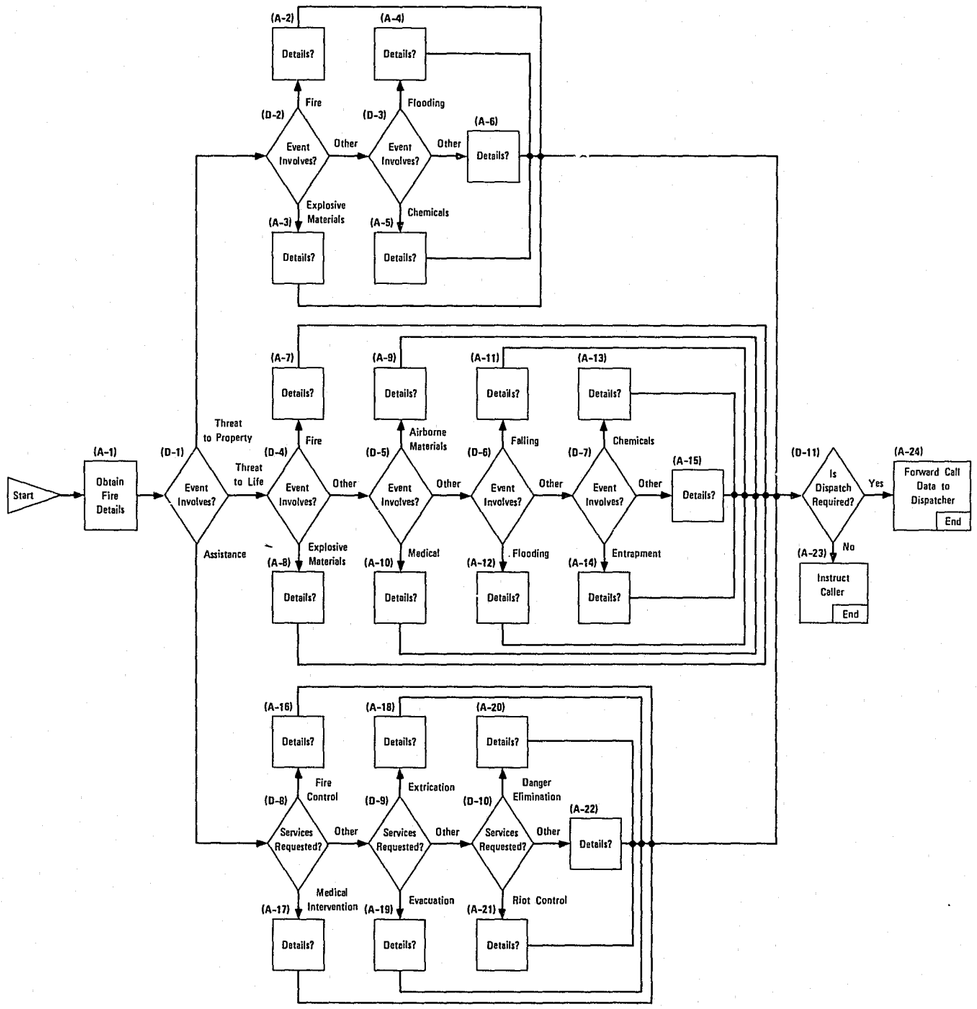


FIGURE 7 EXPANSION OF 911 CALL ANSWERERS' TYPICAL FUNCTIONS FOR OBTAINING DETAILS FOR FIRE DISPATCH

Returning to D-1 and exiting via "assistance" leads to D-8 through D-10, which require the call answerer to determine whether the assistance requested is for fire control, medical intervention, extrication, evacuation, danger elimination, riot control, or other assistance. Exiting D-8 through D-10 via any choice suggests that the call answerer obtain more details. Exiting any box (A-16 through A-22) leads to D-11, which again requires the call answerer to determine whether a dispatch is warranted.

2. Police details flow diagram. Figure 8 expands the call answerer's functions for a police dispatch. The call answerer must obtain information to determine whether the event involves only people, people and property, or a request for police assistance (D-1). If the event involves only people, D-2 requires the call answerer to decide whether the activity is a mischief, misdemeanor, or felonious situation, and then obtain the details to determine whether dispatch is indicated. D-3 expands the process of obtaining details on a felony by three categories: bodily injury, personal property (robbery, burglary, auto theft, etc.), or threats (personal harm, bomb, etc.). Each of these categories is expanded (as more details are obtained) to determine whether a dispatch is indicated, and if so, the scope of that dispatch.

Exiting D-1 via "people-property" leads to D-5, which requires the call answerer to determine whether the event involves private or public property, or vehicles. Exiting D-5 via "vehicle" leads to D-6, which requires the call answerer to obtain more details to determine if the vehicle was stolen, involved in an injurious accident or a non-injurious accident; A-11 through A-13 suggest that more details may be needed to determine whether a dispatch is indicated.

Exiting D-1 via "assist" leads to D-8, which requires the call answerer to determine who needs assistance and the type of assistance being requested. A-16 through A-19 suggest that the call answerer obtain additional details to determine whether a dispatch is indicated and, if so, the scope of that dispatch.

The call answerer should so instruct the caller, as suggested by A-7, A-14, and A-20, for each event which does not justify a dispatch.

3. EMS details flow diagram. Figure 9 expands the call answerer's functions for an EMS dispatch. (Most communications systems will use alphanumeric codes to indicate the type of medical emergency; however, since these codes are not standard, this figure uses the generic names to indicate the type of medical emergency.) Boxes D-1 through D-4 require the call answerer to determine the type of medical emergency. Boxes A-2 through A-10 require the call answerer to obtain additional details, including number of persons involved, how long the medical problem has persisted, patient information (age, sex, name), drugs or poisons involved,



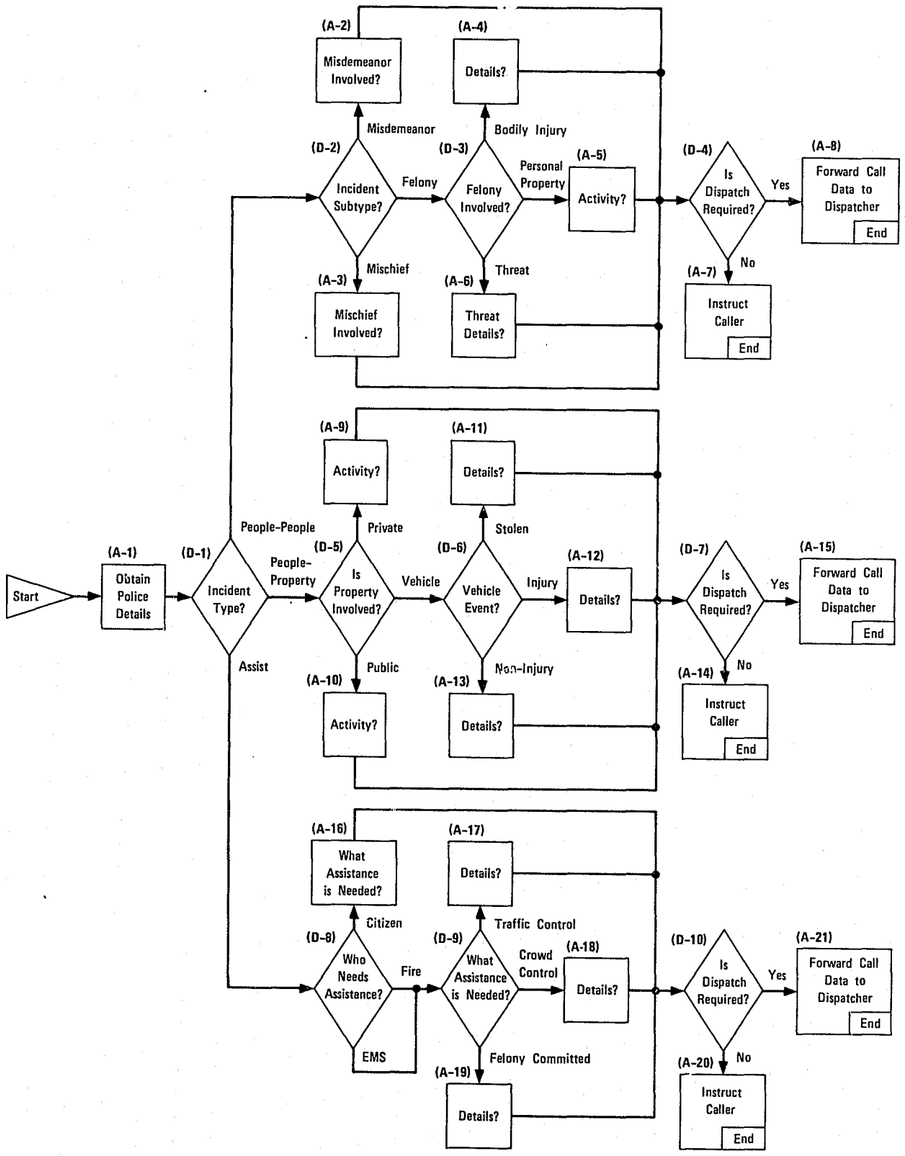


FIGURE 8 EXPANSION OF 911 CALL ANSWERERS' TYPICAL FUNCTIONS FOR OBTAINING DETAILS FOR POLICE DISPATCH

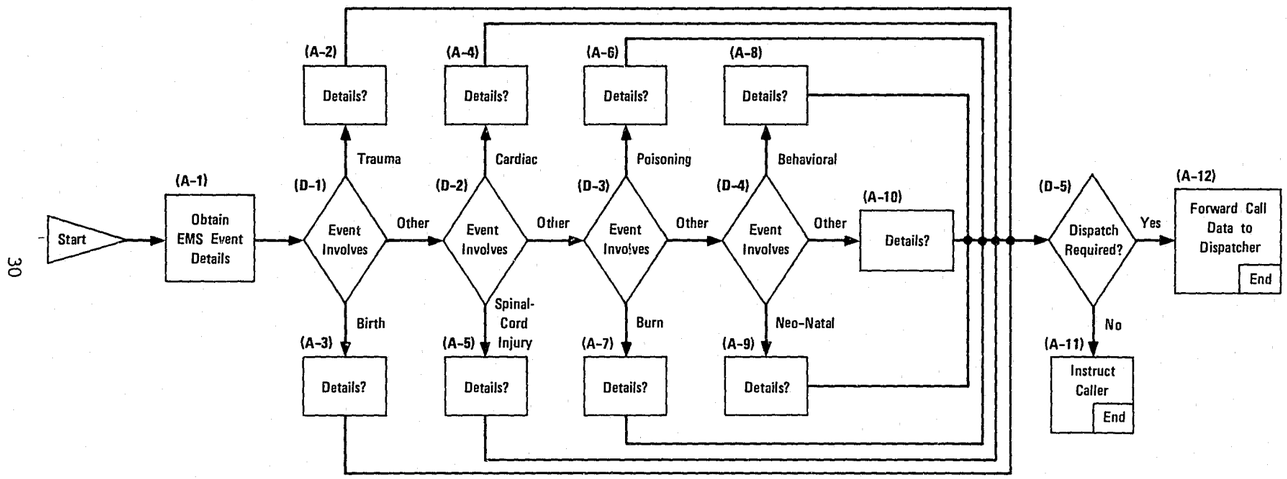


FIGURE 9 EXPANSION OF 911 CALL ANSWERERS' TYPICAL FUNCTIONS FOR OBTAINING DETAILS FOR EMS DISPATCH

visible medical signs, cause of medical problem, etc., to determine whether dispatch is indicated and, if so, the scope of the dispatch.

4. Vehicle details flow diagram. Figure 10 expands the call answerer's function in events involving vehicles. D-1 requires that the answerer determine if the vehicle is private or public and, if public, whether the vehicle involves passengers or freight. If the event involves a private vehicle, the answerer must obtain the details (A-1), determine whether a dispatch is indicated, and if so, the scope of that dispatch. Additional details on private vehicles may include: single-vehicle accident (with or without injury), hazard to other motorists, multiple-vehicles, stolen vehicle, hit-and-run, etc. Additional details on passenger-transport vehicle events may include mode of transportation (airplane, bus, train, as suggested by D-2), number of passengers or vehicles involved, injuries, fire, possible hazards (fuel spills, other chemical spills, blockage), hijacking, threats, etc. The call answerer must determine whether dispatch is indicated, and if so, the scope of that dispatch.

Additional details on freight vehicle events may include: mode of transportation (airplane, highway vehicle or rail vehicle, as suggested by D-4), spillage of transported materials (fuel, chemical, explosives, paint, general freight, radio active material, building materials), fire, multiple numbers and types of vehicles, etc., to determine whether dispatch is indicated, and if so, the scope of the dispatch.

If dispatch is not indicated by event details, the call answerer should inform the caller. The report of an event in which there are no human injuries and no immediate threat or hazard to human life, or where there is no injury or threat to property, may justify instructing the caller that no response of emergency services will be made and perhaps include a suggestion that the caller request other services from a private business firm (such as a tow truck).

Where dispatch is indicated, the call answerer should provide all pertinent call data to the dispatcher for handling. Since the scope of the event determines the resources required, it is important that the call answerer determine the number of injured, additional hazards created by the incident (such as spilled fuel), and similar facts which determine the services required to cope with the event.

## C. Dispatcher Job Functions

In response to an emergency event, ideally the dispatch center always would assign a resource having the proper capability, availability, and proximity to the event. However, this ideal can be achieved in only a few cases. Because each dispatch center controls only limited resources--some of which will not always be at a good location from which

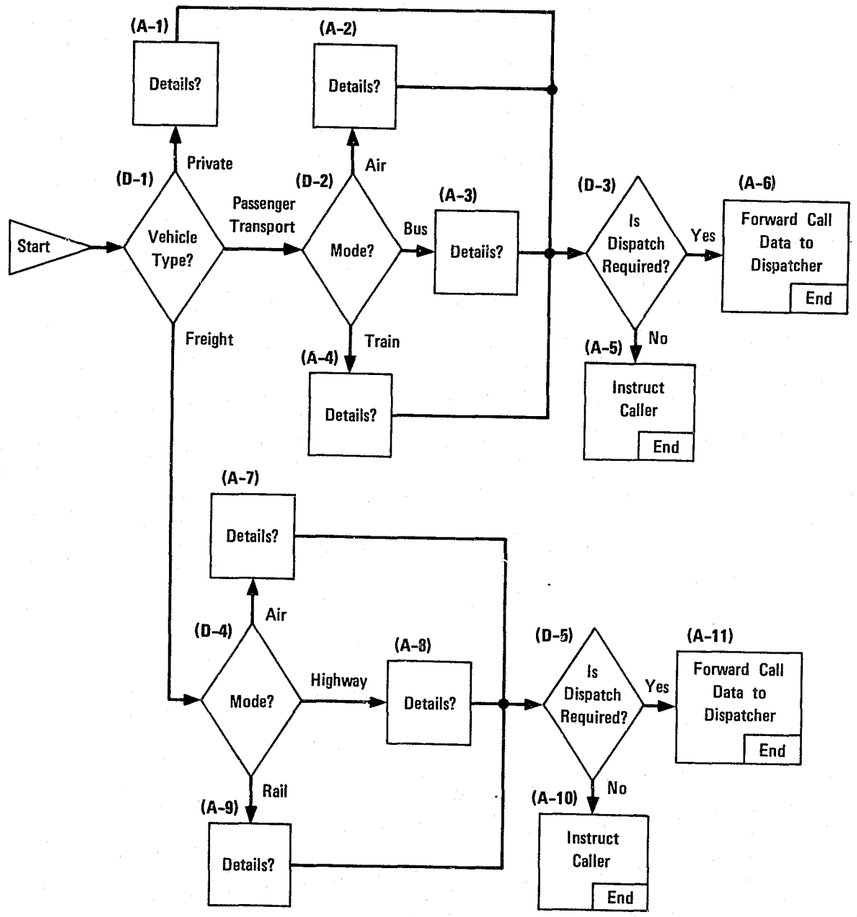


FIGURE 10 EXPANSION OF 911 CALL ANSWERERS' TYPICAL FUNCTIONS FOR OBTAINING DETAILS OF EVENTS INVOLVING VEHICLES



to make the quickest response--many responses will be less than ideal. The accuracy and efficiency of a dispatcher directly affects the percentage of effective responses.

When a resource is assigned to an event, it becomes unavailable for another event until its assignment is complete. Even assuming that a dispatcher could identify the exact capability required to meet the needs of the event, having a unit available with that capability would be rare. Frequently, a unit is dispatched that has greater capability than an event demands; or, the first unit sent may provide only partial capability to meet actual needs, thereby necessitating dispatch of a second unit to provide the remaining needed capability.

The dispatcher must be able to interpret the call data to identify an appropriate response and a priority for responding to that event. The dispatcher must have the ability to relate the event location to jurisdictional boundaries and assigned response units in order to decide the most appropriate response. After determining this response, the dispatcher must be able to operate the assigned equipment to activate that response. The dispatcher must have the ability to prepare, update, and conclude the records of all dispatch actions and responses (and their results) involved in the event.

The dispatcher must commit to memory specific and general knowledge that will enable an instant response to emergency service requests including:

- Authority, duties, and responsibilities of dispatchers
- Operation of dispatcher's equipment
- General dispatch procedures
- Specific dispatch procedures
- Disaster and other emergency plan-activation procedures
- Equipment failure reporting procedures
- Mutual aid procedures
- Dispatch center information sources, location, and use
- Dispatcher supervisor's duties which have direct and immediate impact on the effectiveness of the center's dispatching functions
- General familiarity with emergency-service field operations
- Special knowledge of:
  - Laws and ordinances
  - Emergency medical policy and procedures
  - Fire policy and procedures
  - Law enforcement policy and procedures

From the dispatcher's point of view, a situation is usually very fluid in that various resources become available for assignment, are assigned to incidents, complete their tasks, and then become available again. Sometimes, reserve resources may exist which are not utilized until regular resources are unavailable. In some cases, dispatch procedures may assign reserve units to strategic locations early to assure rapid responses.

In the quiescent state, all resources are available and in proper positions to allow prompt response to the first event in each area. Subsequent responses required prior to completion of that first event must be handled with fewer resources. As the number of events builds to the maximum capacity of the response system, the choice of resources to allocate to an event becomes smaller, thereby often creating long response times.

It can be seen that a dispatcher is faced with a constantly changing situation which requires constant awareness of the status of all resources, their current locations, and their capabilities. In addition, as each event is reported, the relative location of the event compared to available resources must be known in order to allow the most reasonable response.

A multiagency center may dispatch a wide variety of resources and/or may coordinate responses to events requiring multiple services. Reviewing examples of some typical resources allows a further understanding of the scope of dispatcher activities. Rather than trying to classify these typical resources by service capability (a complex analysis), the table below identifies typical resources according to their general service, staffing, method of transportation, and typical special features. This table illustrates the scope of resources available to a multiagency dispatch center. A dispatcher's choice of possible responses to an event may include one or more items from each column of this table, for example, (1) one person, on foot, with canine; and/or (2) two persons, in a helicopter.

Law Enforcement

| Staffing | Means of Transportation | Special Features |
|---|---|---|
| One person | Walking | Canine |
| Two persons | Vehicle:<br>- Automobile<br>- Motorcycle<br>- Horse<br>- Helicopter<br>- Rescue van | Rescue equipment<br>Medical training<br>SWAT capability |



Fire

| Staffing | Method of Transportation | Special Features |
|---|---|---|
| One person | Automobile | Medical training |
| Two persons | Small van | Self-contained<br>- Water tank<br>- Pump and hose<br>- Ladder<br>- Axe |
| Three persons | Straight truck | |
| Four persons | Large truck or van | |
| Five persons | Helicopter | Pumper truck |
| More than five persons | Airplane | Ladder truck |
| | | Chemical retardants |
| | | Rescue equipment |
| | | Tanker |

Emergency Medical Services

| Staffing | Method of Transportation | Special Features |
|---|---|---|
| One person | Small van ambulance | Training<br>- First aid<br>- EMT-1<br>- Paramedic |
| Two persons | Modular* ambulance | |
| Three persons | Helicopter | Rescue equipment |
| | | Medical equipment |
| | | Medicines |
| | | Communications equipment |

In addition to these emergency service response units, most centers have access to additional, normally non-emergency, response units for disaster relief and special services. Public works departments may provide assistance such as trucks, graders, sweepers, and bulldozers. Military Assistance to Safety in Traffic (MAST) and Coast Guard helicopters can provide rescue and emergency medical transportation. Forest rangers, park rangers, and game wardens can assist centers. Animal control facilities commonly work with dispatch centers. Transit and school districts also can provide special services.

The dispatcher typically will have a wide variety of communications means with which to dispatch or alert these various resources; however,

*According to U.S. Department of Transportation ambulance design criteria

it is not uncommon to find that each communications means requires a somewhat different operating procedure.

In order to reduce the variety of choices open to the dispatcher, it is common to provide specific procedures to be followed when allocating resources to different types of events. Such procedures are extremely helpful for accurate dispatching, since it is not generally practical for a dispatcher to become sufficiently knowledgeable of each service's needs and response capabilities so as to make the proper choice in every case. By classifying events and providing specific procedures to the dispatcher, an agency can achieve the preferred response in a high percentage of cases. A dispatcher can become effective more quickly by learning procedures rather than by experience alone. However, it is usually not practical to develop a procedure for every possible emergency; therefore, some guidelines are necessary.

The following subsections list dispatcher duties in direct, indirect, and unrelated categories. Training of dispatch personnel in a site-specific course will involve all aspects of dispatch center operation. Examining each dispatcher function will permit determining which items may be applicable to a general training course.

1. Dispatcher's direct work functions.

- Operate radio and telephone communications equipment.
- Dispatch emergency services units.
- Maintain status and location information on each dispatched unit.
- Assist dispatched units utilizing center information sources.
- Determine appropriate response for each call.
- Obtain and provide information for dispatched units.
- Record dispatch information.
- Coordinate dispatches with other agencies.
- Request and coordinate mutual aid with other agencies.
- Backup 911 answering positions.
- Activate emergency or disaster plans.
- Manage communications on radio channels.
- Dispatch or request non-emergency units.
- Complete event records.
- Call-out backup personnel.
- Call-out supervisory personnel.



2. Dispatcher's indirect work functions.

- Report equipment/system failures.
- Handle requests for other services from field units.
- Maintain dispatch center information sources.
- Call-out non-emergency personnel.
- Maintain status information on non-emergency units.
- Maintain general location information on non-emergency units.
- Provide general assistance to all field units as requested.

3. Dispatcher's unrelated work functions.

- Answer business telephones.
- Monitor alarm panels.
- Monitor closed-circuit televisions.
- Control electric locks on doors or gates.
- Accept citizen reports on non-emergency events.
- Provide training assistance to new dispatchers.
- Fill-in for immediate supervisor on temporary basis.
- Communicate with non-emergency services units.
- Answer special telephones (hotlines, National Advanced Warning System (NAWS) lines, unlisted lines).
- Operate paging and public-address equipment.

D. Dispatcher Functional Flow Diagram

Figure 11 illustrates the overall functions of a dispatcher. Boxes A-1 and A-2 suggest that dispatchers may receive requests for emergency services via two-way radio, standard and hotline telephones, as well as through a 911 system. Requests for dispatch of emergency services via any radio or telephone arrangement must include sufficient information to permit appropriate dispatch; Boxes D-1 and D-2 require deciding if information is sufficient to request emergency services.

Exiting D-1 or D-2 via "yes" leads to D-3, which questions whether the dispatcher comprehends the location of the event, and if not, suggests the use of maps, files, or street indexes. The dispatcher must comprehend the location of the event in terms of the jurisdictional area involved, and that jurisdiction's emergency response-unit area assignments. In addition, the dispatcher must comprehend the event location in terms of probable response routing of candidate response

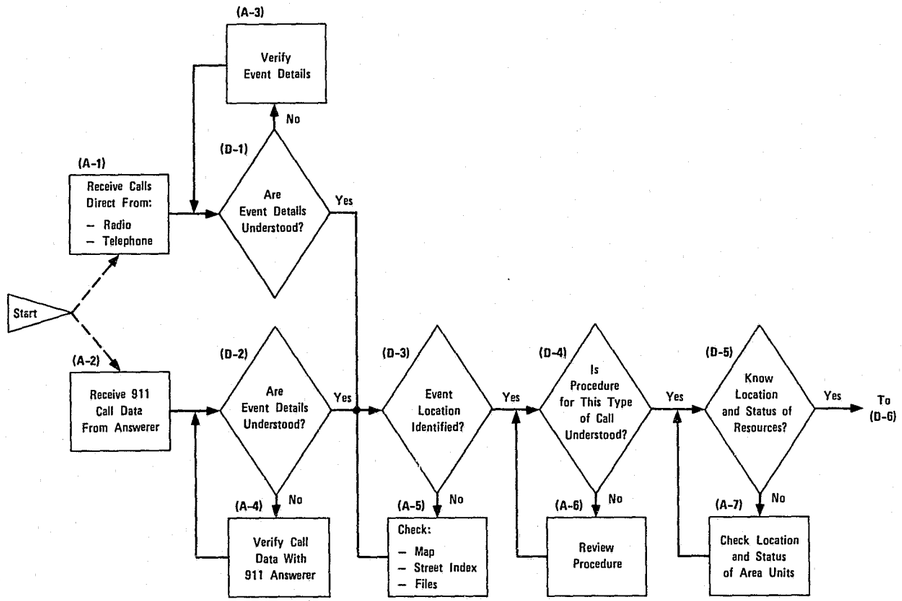


FIGURE 11 TYPICAL DISPATCHER FUNCTIONS



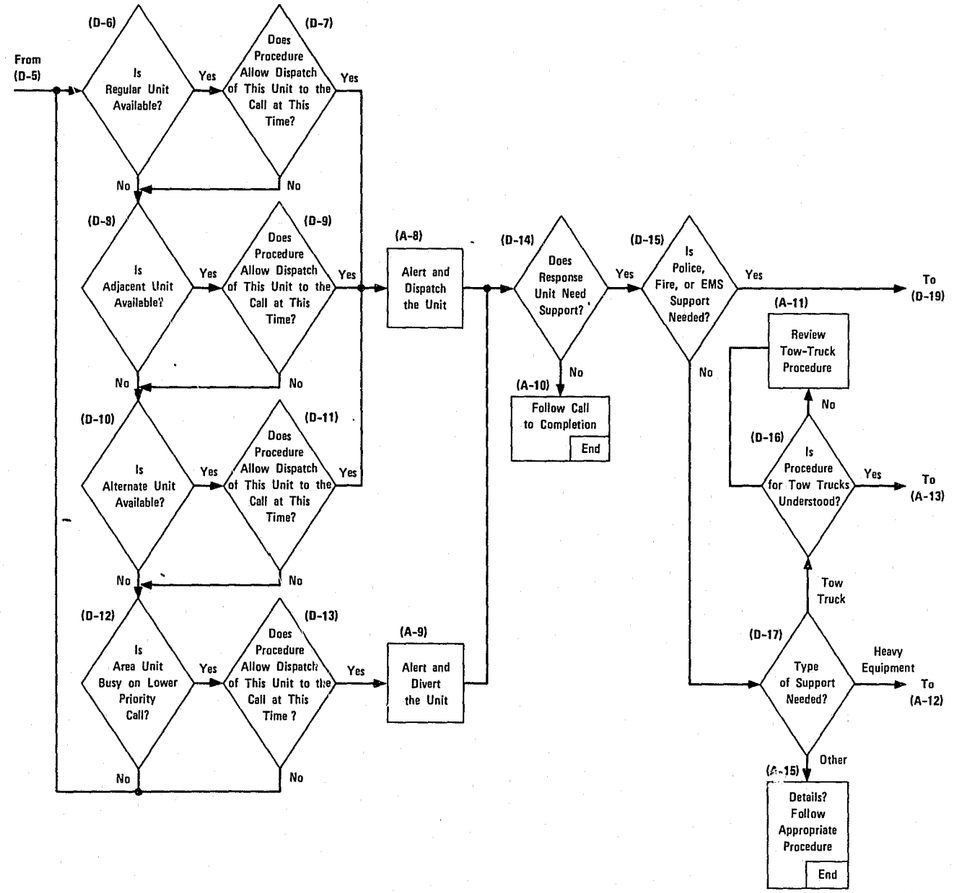


FIGURE 11 (Continued)

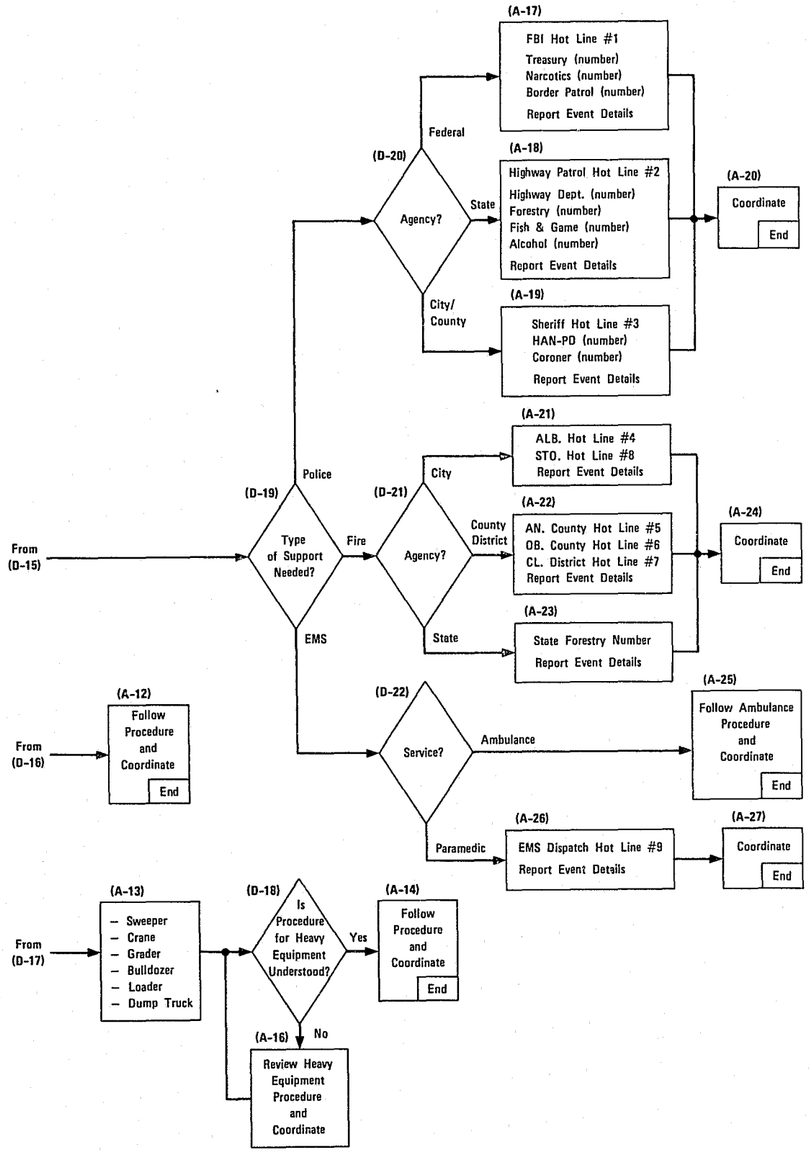


FIGURE 11 (Concluded)



units. Again, the dispatcher should pass through A-5 only once, then request more information if the event location is still not understood. A "yes" answer at D-3 allows exiting to D-4, which questions whether the dispatcher understands the procedure for processing this type of call for this jurisdiction.

Understanding this procedure allows exiting D-4 via "yes" to D-5, which questions the dispatcher's current knowledge of the status and location of probable response units. If status and/or location of these units was not known, the dispatcher would exit D-5 via "no" and ascertain the status of these units. Once the status and location of the units is known, exiting D-5 via "yes" leads to the interlooping series of steps (D-6 through D-13) which illustrate the process of selecting an available or divertable, properly equipped response unit.

Until an appropriate response unit is found, the dispatcher cannot exit this interlooping series of steps (D-6 through D-13); therefore, the dispatch is delayed by the amount of time devoted to this process. Each time the dispatcher considers a unit that is available, the question of procedure arises. Agency procedures may not allow dispatching the last unit in an area under particular circumstances. For example, a police unit assigned at a strategic location might be divertable to a robbery in progress but not to a minor automobile accident.

A dispatcher may exit the interlooping steps via "yes" when a unit has been selected for dispatch. Upon dispatch of the unit, Step D-14 requires the dispatcher to determine if the dispatched unit needs assistance. If not, the dispatcher would follow the event to its conclusion. If assistance is needed, D-15 questions needed assistance will be police, fire, EMS, or another service.

Exiting D-15 via "yes" leads to D-19, which questions whether the need is for police, fire, or EMS assistance. The emergency event could require all three (police, fire, and EMS) responses, in which case D-19 would be exited via all three routes. If police assistance is needed, D-20 questions whether that assistance should come from federal, state, or city/county agencies.

Steps A-17 through A-19, A-21 through A-23, and A-26 contain information on contact names and numbers for requesting assistance. Steps A-20, A-24, A-25 and A-27 require the dispatcher to coordinate the assisting services with the original dispatched response unit to jointly handle the event.

Returning to D-15, if assistance other than police, fire, or EMS is required, exiting via "no" leads to D-17, which questions what type of other assistance is needed. Exiting D-17 via tow truck leads to D-16, which questions whether the dispatcher understands the procedure for tow trucks and suggests review if the procedure is not understood. Exiting D-16 via "yes" leads to A-12, suggesting the dispatcher follow the tow truck procedure and coordinate the response with the original dispatched unit.

Returning to D-17 and exiting via "heavy equipment" leads to A-13, which lists possible heavy equipment that might be needed. If assistance can be provided by one of the listed options, D-18 questions whether the dispatcher understands how to request the heavy equipment. Exiting D-18 via "yes" leads to A-14, which suggests that the dispatcher request heavy equipment and coordinate its response with the original dispatched unit.

Returning to D-17 and exiting via "other" leads to A-15, which suggests that the dispatcher obtain details on the specific assistance required, then follow appropriate procedures and coordinate any additional responses with the original dispatched unit.

E. Communications Center Supervision

The following subsections present an itemization of the functions involved in call answerer and dispatcher supervision in direct, indirect, and unrelated categories to determine those items applicable to a training effort. Training of supervisory personnel in a site-specific course will involve all of the following functions.

1. Call answerer supervisor's direct work functions.

- Supervise call answerers.
- Back up call answerers during busy periods.
- Monitor calls-in-progress as requested by call answerers.
- Monitor calls-in-progress as spot-check on call answerers capability.
- Call out additional call answerers when needed.
- Monitor status of all call answering positions.

2. Call answerer supervisor's indirect work functions.

- Instruct call answerers in procedures and center policy.
- Maintain list of call answerer's home telephone numbers.
- Maintain call answering point magnetic tape.
- Change magnetic tapes on master logging recorders.
- Maintain expendable communications center supplies.
- Handle citizen complaints on communications service.
- Review call answerer performance and prepare evaluation reports.
- Prepare reports on communications center activities.



- Investigate, recommend, administer corrective discipline to answerers.
- Establish or recommend call answerer work schedules.
- Assure adequate number of call answerers will be on duty for next shift.
- Maintain communications center information.

3. Call answerer supervisor's unrelated work functions.

- Accept citizen reports on non-emergency events.
- Monitor alarm panels.
- Monitor closed-circuit televisions.
- Answer business telephones.
- Control electric locks on doors and gates.
- Answer emergency lines from elevators or similar facilities.
- Handle complaint desk activities.
- Perform clerical duties.
- Make copies of taped events for evidence.
- Fill-in for immediate supervisor on a temporary basis.

4. Dispatcher supervisor's direct work functions.

- Supervise dispatching of emergency resources.
- Back up dispatchers during busy periods.
- Monitor dispatcher activities as spot check on dispatcher performance.
- Call out additional dispatchers when needed.
- Monitor on-going status of all dispatch positions.

5. Dispatcher supervisor's indirect work functions.

- Instruct dispatchers in procedures and center policy.
- Maintain current list of dispatchers' home telephone numbers.
- Maintain dispatch center records of operations.
- Maintain proper rotation of dispatch center magnetic tape.
- Change magnetic tapes on master logging recorders.

- Maintain expendable dispatch center supplies.
- Handle complaints on dispatch service.
- Review dispatcher performance and prepare evaluation reports.
- Prepare reports on dispatch center activities.
- Investigate, recommend, administer corrective discipline to dispatchers.
- Establish or recommend dispatcher work schedules.
- Assure adequate number of dispatchers will be on duty for next shift.
- Maintain dispatch center information.

6. Dispatcher supervisor's unrelated work functions.

- Accept citizen reports on non-emergency events.
- Monitor alarm panels.
- Monitor closed-circuit televisions.
- Answer business telephones.
- Control electric locks on doors and gates.
- Answer emergency lines from elevators or similar facilities.
- Handle complaint desk activities.
- Perform clerical duties.
- Make copies of taped events for evidence.
- Fill-in for immediate supervisor on a temporary basis.



# CHAPTER VI. TRAINING AND EMPLOYMENT ALTERNATIVES

## A. Summary of Problems

The objective of emergency communications centers is to provide highly skilled communications personnel to accept calls requesting emergency services resources, and to allocate and dispatch those resources in an efficient and effective manner.

Providing such personnel is difficult and expensive due to the combination of current requirement for extensive on-the-job training and the high employee turnover rate experienced by many communications centers. For example, with a training period of one year and turnover rate of 25%, one-fourth of an agency's staff is not available to handle emergency communications traffic at the planned level of service because they are trainees. That portion of the experienced staff who are engaged in training are also partially unavailable for their primary function of handling emergency communications traffic, because trainees require up to 100% supervision during their training.

Therefore, an agency turnover rate of 25% could result in up to 50% of the agency staff (trainees and instructors) being diverted from service functions. This places extra workload and increased pressure on the remaining staff members, which may cause them to resign, thus compounding the staffing problem.

Increasing staff size does not immediately alleviate the situation since the additional staff members must also be trained.

Presently used employment practices appear to have a high failure rate in selecting those candidates who can successfully accept training and perform this work. Many persons who are attracted to the positions are not able to complete the training successfully, creating a need for the agency to provide training to two or three persons in order to gain one skilled call answerer or dispatcher.

## B. Alternatives

The following alternatives have been identified to improve this situation:

- Employment of only experienced personnel.
- Establishment of a volunteer trainee program.

- Establishment of a certified training program through colleges and trade schools.

These alternatives are discussed below.

1. Employment of only experienced personnel. This may appear to be an impossible alternative; however, it is used effectively by some agencies. For example, an agency may offer wages and working conditions (lower workload, less pressures, or reduced stress) in order to attract experienced personnel from other agencies. The agencies offering the lowest wages or least desirable combinations of wages and working conditions can attract only nonexperienced personnel; therefore, these agencies become, in effect, the training facilities for the other agencies.

It may be possible for related experience in communications to be accepted as qualifying experience for communications center personnel. For example, since the successful call answerer or dispatcher must be capable of performing simultaneous functions, other industry experience requiring similar capability might be applicable to the duties of call answerers and dispatchers, thereby allow hiring of at least partially experienced personnel.

2. Establishment of a volunteer trainee program. A formal program could be designed to attract persons who want to become call answerers or dispatchers. This program would allow applicants to train in communications centers--either without pay or at very low pay--and consequently would reduce the agency's training cost. Such training would not have to be completed within a finite period of time, such as a probationary period. Individual volunteers could train at almost any hour and day of the week, limited only by the communications center workload. Therefore, the trainee would learn the requirements, pressures, and stresses of the job and could drop out of the program without significant cost to the agency if necessary. A program similar to police reserves, volunteer firemen, and volunteer rescue squad programs is envisioned.

The agency could recruit, train, and, in some cases, provide limited funding (such as insurance or small wages) to trainees, and could require volunteers to attend a specific training course at their own expense.

Then, when job openings occur a pool of trained or partially trained persons would be available for employment. Those selected would be more likely to remain as long-term employees because of their prior familiarity with the job and their personal investment in their training.



While agency cost would be greatly reduced, the training of volunteers would require some agency investment, such as:

- Agency staff time for instruction and supervision
- Agency training materials
- Advertising costs for recruiting volunteers
- Security or other investigation/clearance efforts
- Identification cards
- Any wages paid

Utilizing agency staff for training during slow periods would allow the training to occur without working other staff members on overtime and would keep instructional costs to a minimum.

An agency could offer various encouragements to volunteers, including increased starting salary to those who become employees through the volunteer program.

A well-designed program should successfully recruit a number of volunteers such that one to two years after starting the program the communications center would have a pool of skilled job candidates as openings occur.

The agency would have to consider questions of legal liability, insurance requirements, security, privacy, and related factors in designing the program. However, the potential benefits of this training approach should be sufficient to justify the cost and effort to establish such a program.

3. Establishment of certified training program through colleges and trade schools. Most skilled personnel obtain career education by attending a college or trade school. A diploma or other certificate is granted for successful completion of the prescribed course of study, and is accepted as evidence of proficiency, thus greatly simplifying, or at least reducing, the employment screening process. In addition, graduates have been made aware of job requirements, demands, and pressures and, moreover, have made a personal investment in their careers. For these reasons, they are more likely to become long-term employees.

An established, certified communications training program in colleges and trade schools would raise the overall level of professionalism in communications centers by assuring that personnel are well trained prior to employment. Course graduates would require only additional training in the unique features of their employing center.

Personnel, upon completion of the course, could be given a certificate or diploma as recognition of their achievement and evidence of their capability. Overall cost to governmental operations should decrease since the classroom instruction is a more cost effective training method than on-the-job training.



# CHAPTER VII. DEVELOPMENT OF A GENERAL TRAINING COURSE

## A. Introduction

Development of a general training course for communications center personnel must focus on the job functions of call answerers and dispatchers. Certain knowledge and ability are necessary for proper performance of these job functions. Therefore, the general training course must include instructional methods that permit the student to acquire these necessary job skills.

Training course topics must have application to the general function of all communications centers. This can be accomplished by applying the following criteria to the course:

- Eliminate from study (or include only as a brief overview) all topics that are unrelated to emergency call answering and dispatching.
- Include as a brief overview those topics that relate indirectly to emergency call answering and dispatching.
- Include in-depth study of topics that relate directly to emergency call answering and dispatching.
- Generalize directly related topics that have high variability among different communications centers by using "typical" items. Highly variable items include: communications center equipment, served-area geographic features, jurisdictional policy, and methodology.

Using the topic selection procedures described above will provide course designers with a means of properly emphasizing all topics in which call answerers and dispatchers should be trained. It is not possible to train individuals in all variations of call answering and dispatching; however, students who successfully complete the training course should be able to make the transition to an actual communications center quickly and efficiently.

## B. General Course Content

Table 1 and Table 2 relate the call answerer and dispatcher job functions to training objectives, general training course content, and supplemental on-the-job training requirements. The general course content can meet major portions of each training objective through the use of typical equipment, geography, policies, procedures, plans and priorities.

Table 1

RELATIONSHIP OF CALL ANSWERER'S JOB FUNCTIONS TO TRAINING OBJECTIVES, GENERAL COURSE CONTENT, AND LOCAL ON-THE-JOB TRAINING

| CALL ANSWERER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| OPERATE EQUIPMENT<br>Telephone<br>Transfer equipment<br>Data System<br>CRT (CAD)<br>Cards/conveyor<br>Time stamps<br>Recorders<br>Relay equipment | Develop proficiency in use and operation of:<br>- telephones<br>- transfer equipment<br>- data system<br>- terminals<br>- cards/forms<br>- conveyors<br>- time stamps<br>- recorders<br>- call relay equipment | General theory and operation of:<br>- telephone switches<br>- audio devices<br>- typing keyboard<br>- time stamp<br>- recorders<br>- relay equipment<br>- telephone<br>- radio<br>- data system | Operation of specific assigned equipment |
| INTERROGATE/RECORD DATA<br>Procedures<br>Question caller<br>Calm caller<br>Listen for facts<br>Record facts<br>Write down facts<br>Operate keyboard | Develop proficiency in:<br>- answering calls<br>- forming questions<br>- listening for facts<br>- geographic features<br>- jurisdictional and service related information needs<br>- recording data | Interrogation processes<br>Typical agency procedures<br>Use of forms/formats Accuracy/legibility in recording data<br>Typical use of incident and priority codes | Specific local procedures<br>Local geographic features<br>Local priorities |

Table 1 (continued)

| CALL ANSWERER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| INTERPRET DATA/DECIDE ACTION<br>Emergency<br>Urgent<br>Non-emergency<br>Jurisdiction<br>Response:<br>- Law enforcement<br>- Fire<br>- EMS<br>- Other<br>Disposition:<br>- Dispatch<br>- Transfer<br>- Relay<br>- Referral<br>Priority | Develop proficiency in identifying:<br>- Types of calls<br>- Area streets<br>- Jurisdictions<br>- Agency responses<br>- Dispositions of calls<br>- Agency call handling procedures | Typical definitions of:<br>Events:<br>- Emergency<br>- Urgent<br>- Non-emergency<br>Jurisdictions<br>Typical response by type of call<br>Typical disposition by type of call<br>Typical priorities<br>Typical agency service by:<br>- Dispatch<br>- Transfer<br>- Relay<br>- Referral | Specific local procedures |
| CARRY OUT RESPONSE<br>Assign priority<br>Send data to dispatcher<br>Transfer caller | Develop proficiency in:<br>- Assigning priorities<br>- Routing data<br>- Agency call handling procedures | Typical priority codes and definitions<br>Typical data routing means | Specific priorities and data routing means<br>Specific call handling procedures |

Table 1 (concluded)

| CALL ANSWERER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| Relay information<br>Refer caller | - Recognizing proper referral agencies<br>- Locating referral agency numbers | | Specific local agencies |
| COPE WITH PERSONAL FACTORS<br>Job stress<br>- Time pressures<br>- Public pressures<br>- Fast change of pace<br>- Working hours/shifts<br>- Family needs<br>- Personal needs<br>Supervisor pressures<br>Physical discomfort | Develop understanding of:<br>- Stress<br>- How to reduce or live with stress<br>- How to adjust to abnormal working hours<br>- In-place exercise<br>- How to accept criticism objectively | Ability to cope with job stress from time, boredom, public criticism, or accusations<br>Ability to quickly react to calls<br>Ability to adjust personal and family needs<br>Ability to accept assistance and job criticism<br>Ability to relieve physical discomfort from staying in one posture for long periods | None |

Table 2

RELATIONSHIP OF DISPATCHER'S JOB FUNCTIONS TO TRAINING OBJECTIVES, GENERAL COURSE CONTENT, AND LOCAL ON-THE-JOB TRAINING

| DISPATCHER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| OPERATE EQUIPMENT<br>Radio control consoles<br>Telephones<br>Data systems, including:<br>- CRT (CAD)<br>- Cards/conveyors<br>- Time stamps<br>- Recorders<br>Criminal Justice Information Systems | Develop proficiency in use and operation of:<br>- Radio control equipment<br>- Telephones<br>- Audio devices<br>- Data terminals<br>- Time stamps<br>- Recorders | General theory, use, operation of:<br>- Radio control consoles<br>- Telephones<br>- Audio devices<br>- Data terminals<br>- Time stamps<br>- Recorders | Operation of actual assigned equipment |
| MANAGE RADIO CHANNELS<br>Control traffic<br>Provide information<br>Maintain status<br>Maintain locations | Develop proficiency in operation of:<br>- Radio transmitters, receivers, and channels<br>- Status/location keeping devices, equipment, and systems<br>Develop understanding of:<br>- FCC rules and regulations<br>- Dispatcher's authority | General theory, use, operation of:<br>- Radio transmitters<br>- Radio receivers<br>- Radio channels<br>- FCC rules and regs<br>- Status/location keeping devices and systems<br>- Dispatch authority | Local procedures |

Table 2 (continued)

| DISPATCHER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| DISPATCH UNITS<br>Determine responses<br>Dispatch emergency units<br>Dispatch/request support units<br>Assist units | Develop understanding and instant recall of policy and procedures:<br>General<br>Specific:<br>- Police<br>- Fire<br>- Medical<br>- Agency<br>- Disaster<br>- Other<br>- Alphanumeric codes<br>Dispatchers':<br>- Authority<br>- Responsibility<br>Develop knowledge of availability and use of:<br>- Reference maps and materials<br>- Computer files | Typical policies and procedures:<br>General<br>Specific:<br>- Police<br>- Fire<br>- Medical<br>- Agency<br>- Disaster<br>- Other<br>Responsibility<br>Authority<br>Alphanumeric codes<br>Reference manuals<br>Computer files | Specific local policy and procedures<br>Specific local codes<br>Specific reference manuals and computer files |

Table 2 (continued)

| DISPATCHER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| RECORD ACTIONS ON CALLS<br>Actions<br>Responses<br>Results<br>Timing | Develop proficiency (with stress on accuracy, completeness, and speed) in the use of recording forms:<br>- Cards, forms, formats<br>- Entering data<br>- Color coded forms<br>- Legible handwriting<br>- CAD keyboards | Typical records systems<br>Hardcopy:<br>- Cards<br>- Sheets<br>- Notebooks<br>Data systems:<br>- Cards<br>- Keyboards<br>- Formats<br>- Access | Specific local records systems |
| COORDINATE:<br>- Dispatches with other agencies<br>- Mutual aid responses | Develop Understanding of procedures and equipment for coordination between:<br>- Comm. centers<br>- Police and fire<br>- Police and EMS<br>- Fire and EMS<br>- Mutual aid | Typical procedures:<br>- Interagency<br>- Interservice<br>- Mutual aid | Specific local procedures |

Table 2 (continued)

| DISPATCHER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| ACTIVATE EMERGENCY PLANS FOR:<br>- Disaster handling<br>- Riot control | Develop Understanding of:<br>Disaster Plans:<br>- Purpose and scope<br>- Comm. procedures<br>- Activation authority<br>Special plans:<br>- Multi-casualty<br>- Riot control | Typical plans and procedures for:<br>- Disaster<br>- Multi-casualty<br>- Airplane crash<br>- Train crash<br>- Bus crash<br>- Riot control | Specific local plans and procedures |
| ASSIST CALL ANSWERERS WITH:<br>- Overload<br>- Staff shortage<br>- Equipment failure | Develop understanding of communications center procedures for operation when center has:<br>- Call overload<br>- Staff short<br>- Equipment failure | Typical emergency procedures<br>Typical emergency operations equipment | Specific local procedures |
| CALL OUT BACKUP PERSONNEL:<br>- Dispatchers<br>- Supervisors<br>- Other/personnel | Develop understanding of the need for the center to maintain a list of key personnel and procedures for call-out in emergencies | Personnel lists:<br>- Name/function<br>- Telephone number<br>- Address<br>- Working schedule<br>Typical procedures | Specific local procedures |

Table 2 (concluded)

| DISPATCHER JOB FUNCTIONS | TRAINING OBJECTIVES | GENERAL COURSE CONTENT | LOCAL ON-THE-JOB TRAINING |
|---|---|---|---|
| COPE WITH PERSONAL FACTORS<br>Job stress, including:<br>- Time pressures<br>- Public pressures<br>- Fast change of pace<br>- Working hours/shifts<br>- Family needs<br>- Personal needs<br>Supervisor pressures<br>Physical discomfort | Develop understanding of:<br>- Stress<br>- How to reduce or live with stress<br>- How to adjust to abnormal working hours<br>- In-place exercise<br>- How to accept criticism objectively | Ability to cope with job stress from time, boredom, public criticism, or accusations<br>Ability to quickly react to calls<br>Ability to adjust personal and family needs<br>Ability to accept assistance and job criticism<br>Ability to adjust to relieve physical discomfort from staying in one posture for long periods | None |

For example, training in map reading can test and improve the student's ability to comprehend maps without extensive knowledge of the geographical area in which the student may become employed, thereby assuring that the student has the ability to learn specific area geographical features quickly.

Necessarily, the site-specific equipment, geography, policy, procedures, plans, and priorities (since they are variable among agencies) must be covered in local training, either through on-the-job training or as local addenda to the general training course. The general course should utilize classroom techniques for efficiency in instruction and effectiveness in testing to assure that the student has assimilated the instruction and demonstrated the capabilities required of a successful call answerer and/or dispatcher. Call answerers and dispatchers often are subject to stress from time and accuracy requirements, exposure to emergency events, exposure to simultaneous critical events, and physical discomfort from being confined in a work position for long periods. Therefore, the course should be structured to include elements of stress.

The course should include considerable laboratory activities to allow students to practice and be tested for what they have learned in the classroom. Performance in laboratory practices should weigh heavily in assessing the student's capabilities.

The course should include field trips (or other arrangements) in which students observe actual operating public safety communications systems from both the field (patrol units) and communications centers.

C. Course Outline

The following section presents an outline of a general training course for call answerers, dispatchers, and their supervisors. The outline lists the course subjects and specific laboratory activities to help students develop and prove their skills as call answerers and dispatchers. Since call answerer, dispatcher, and supervisor functions are often the duty of one person, the general course includes the general subjects needed for all three functional positions.

1. Introduction to telecommunications in public safety.

   a. Public safety services.

      - Law enforcement
      - Fire
      - EMS.

   b. Public access to safety services.



   c. Communications center objectives.

   d. Dispatch services to field units.

   e. Records.

   f. FCC and other legal requirements.

2. Communications centers.

   a. Missions, authorities, and responsibilities.

   b. Organization and staffing for continuous operation.

   c. Equipment and capabilities.

   d. Functions.

      - Directly related to emergency services
      - Related to non-emergency services.

   e. Survey of indirect and unrelated functions typically assigned.

   f. Reference materials.

      - Policy manuals
      - Procedure manuals
      - Street index files
      - Run cards
      - Reverse telephone directories
      - Special purpose maps
      - General purpose maps
      - Personnel call-out lists
      - Disaster plans and procedures
      - Special plans and procedures.

   g. Critical demands on emergency communications.

      - Importance of timing
      - Importance of accuracy
      - Value of policy and procedures
      - Value of records.

h. Computer aids.

- Street index and other geographic-based files
- Call information processing and routing
- Data files (vehicle, arms, criminal history, stolen articles)
- Response unit current status and location information
- Switching systems
- Agency event records (police, fire, and medical).

3. General theory, operation and use of communications equipment.

a. Telephone systems and equipment.

b. Radio systems and equipment.

c. Computer systems and equipment.

d. Electronic recording systems and equipment.

e. Miscellaneous communications center equipment.

4. Communications techniques.

a. Proper use of audio interface devices.

b. Language preferences.

c. Phonetic alphabet.

d. Repetition.

e. Speech clarity (enunciation and inflection).

f. Homonyms and sound-alikes.

g. Alphanumeric codes.

h. Self projection.

5. Handling emergency calls.

a. Answerer's typical authority and responsibility.

b. Interrogation processes.

- Listening/questioning/controlling
- Projecting/interpreting/matching event to criteria for response.



c. Recording event information.

d. Decision making/disposing of calls.

6. Dispatching emergency response units.

a. Dispatcher's typical authority and responsibility.

b. FCC and other legal requirements.

c. Maintaining current status and location of response units.

d. Matching event needs with response unit capabilities, locations (relative to the event) and travel times.

e. Purpose and use of alphanumeric codes.

f. Familiarity with field activities of safety services.

g. Coordination of mutual aid and joint responses.

7. Coping with personal factors.

a. Time pressures.

b. Event pressures.

c. Physical discomfort from fixed positions.

d. Boredom.

e. Abnormal working hours.

f. Peer pressures.

g. Dissatisfactions related to work environment.

8. Laboratory activities.

a. Field trips.

- Visits to local communications centers.
  - Various shifts
  - Various safety services
  - Various call handling arrangements

- Familiarize students with safety services field activities by response unit ride-alongs.
  - Law enforcement units
  - Fire units
  - Emergency medical units.
- Familiarize students with disaster operations.
  - Visits to emergency operating centers
  - Participation (as an observer) in disaster exercises
  - Examination of mobile communications centers.

b. On-campus.

- Exercises (using typical or simulated communications equipment) that use scenarios to provide communications interplay (1) between students (using simulator and reactor roles), and (2) between instructors and students.
  - Interrogation processes
  - Use of typical reference material
  - Use of response unit status and location memory aids
  - Selecting and dispatching response units
  - Recording event and response data
  - Handling simultaneous events
  - Coordination of joint and mutual aid responses.
- Exercise thought and decision processes by having students listen to tape recorded communications dealing with actual events. Tapes should be edited as much as practical to remove decision information, with the student required to record the event data and decide a course of action within a time limit.

9. Supervising communications personnel.

a. Personnel evaluation.

b. Disciplinary measures and practices.

c. Assigning work and scheduling workers.

d. Delegating limited authority.

e. Personnel accountability.

f. Complaint handling.

- Employees
- Public



g. Dealing with news media inquiries.

h. Developing operating policy and procedures.

i. Personnel motivation.

j. Personnel employment interviewing.

k. Establishing realistic level-of-service standards.

l. Maintaining security (facilities and information).

m. Personnel training methods.

D. Course Presentation

The training course should include the use of safety services training films--many of which may be available from local public safety agencies or associations, to further familiarize students with safety services field activities.

The course also should include simulation of the working environment and conditions of communications centers which constitute stress factors on telecommunicators.

As the course progresses, the level of intensity of stress factors should be increased. This allows the student to gradually adjust to communications center pressures.

The methods of presenting material and tests are very important to the goal of having graduates that can perform efficiently in a communications center.

# CHAPTER VIII. CONCLUSIONS AND RECOMMENDATIONS

This section contains primary and secondary recommendations based on the conclusions reached in this study.

## A. Primary Recommendations

State and local governments should develop a general training course for public safety-telecommunicators based on the previous outline. Course development should focus on training that has universal application to safety services communications and a diploma or certificate should be granted as evidence of successful completion of the course.

Representative telecommunicators should be solicited for their advice on course details and presentation methods. Experts in education and training should be funded to develop textbook material, lesson plans, and other details of the course. A representative urban area with an interested local college should be selected as a test-bed to deliver and participate in evaluation of the course. Course effectiveness should be determined by whether graduates become productive employees with significantly shorter periods of local training.

These recommendations are supported by the findings in the body of this report. As noted earlier, communications centers train personnel through the use of costly on-the-job training approaches; both the instructor and student are employees of the center but produce limited useful work output while training. Because authorized staffing levels in centers are usually based on reasonably productive personnel, having on-the-job trainees either creates a heavier workload for other personnel or a reduction in the level of service to the public and served agencies. Significant cost savings for the public could be achieved if the major portion of personnel training occurred prior to employment through a well-designed, general training course. Some portions of training must remain on-the-job activities, but a graduate of the general training course would become productive more quickly, thereby reducing agency cost while maintaining or raising the level of service.

Current screening methods appear inadequate to select employees who can successfully learn and perform communications center work and who will become long-term employees after training. This general training course can enhance the screening process by: (1) eliminating those persons unable to learn and perform communications center work, and (2) providing a diploma or certificate as evidence that a candidate has successfully learned and practiced the skills required for a communications center job. This allows the employer job specifications to

stipulate minimum qualifications of direct work experience or evidence of completion of the general course. Interestingly, the FCC in July 1980 eliminated their Third-Class Radio Telephone Operator License category (by Docket 20817). Most dispatchers hold such licenses as part of their qualifications, and some employers require dispatchers to possess or obtain this license prior to permanent employment. In effect, this FCC action has eliminated a useful employment screening filter, thus increasing the value of a general training course diploma or certificate in the employee selection process.

B. Secondary Recommendations

State and local governments should encourage design, development, and testing of programs to establish methods whereby a local communications center could recruit and train volunteers who are interested in becoming public safety telecommunicators, thus establishing a pool of potential employees.

As stated earlier, providing training to volunteers is an alternative method of reducing agency training costs and assisting in the employment screening process. Interested persons would train on their own time (or receive a small incentive pay), would become familiar with the agency's working conditions and environment, and would be considered for full-time employment as openings occur.

Because of the minimum practical class size required to justify presentation of a general training course, rural areas may not be able to take full advantage of the recommended general course. However, many rural inhabitants are often willing to volunteer their time and ability in support of public safety services--as evidenced by volunteer fire departments, rescue squads, and police reserves. Not all volunteers are interested in becoming employees, but SRI believes a well-designed program would assist in establishing a pool of trained personnel who are interested in becoming employees. These personnel would understand communications centers work before employment and would likely become long-term employees. In addition, the volunteers could be valuable during a disaster or work-stoppage activity.

While the program could be reasonably effective in urban areas, a rural area should be selected as a test-bed because of a probable lack of students for a training course and the fact that rural residents appear more willing to volunteer their time to support public safety services.

State and local governments should fund programs to design, develop, and test the volunteer program in rural areas by working in conjunction with a local communications center that also is interested in the program. After effectiveness of the program is proved, a guideline manual and other assistance could be provided for use by interested communications centers.



BIBLIOGRAPHY

Barker, G. E., T. I. Dayharsh, S. C. Ivy, T. J. Yung, and R. E. Bratsberg, An Assessment of the Implementation and Operation of 911 with Selective Routing, Automatic Number Identification, and Automatic Location Identification in Alameda County, California, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (September 1980).

Barker, G. E., C. W. Terndrup, and T. J. Yung, An Assessment of the Implementation and Operation of 911 Selective Routing, Automatic Number Identification, and Automatic Location Identification in the City of Chicago, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (September 1980).

Barker, G. E., D. Y. Richardson, C. W. Terndrup, and I. M. Wadsworth, New York City 911 System Perspective, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (August 1980).

Beaman, W. W., and T. I. Dayharsh, Communications Center Staff--A Review of Current Training and Employment Practices, with Recommendations for Improvement, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (August 1980).

Dayharsh, T. I., Review of "An Evaluation of the Mandated Statewide Emergency Telephone (911) Program" by the Legislative Analyst, State of California, Dated May 1979, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (August 1979). Information contained in this report has been incorporated into a report of the same title by the Federal 911 Task Force of the EMS Communications Interagency Workgroup dated February 1980.

Ivy, S. C., T. I. Dayharsh, and P. H. Bruce, 911 Public Education: Assessment and Guidelines, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (August 1980).

Yamaoka, B. K., and T. J. Yung, A National Directory of 911 Systems, Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (June 1980).

Yung, T. J., and T. I. Dayharsh, The Design and Costing of 911 Systems--A Technical Manual. Final Task Report, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (June 1980).

911--A Primer for Planners, Brochure, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (June 1980).

Update on 911 the Emergency Telephone Number, Audiovisual Presentation, Contract J-LEAA-010-8, SRI Project 7543, SRI International, Menlo Park, California (September 1979).

Note: The items listed in this bibliography are not available from SRI International. Requests for copies should be directed to:

911 Clearinghouse for Law Enforcement
P.O. Box 2355
Philadelphia, PA 19103
Phone: (215) 299-2595

END

END