Improving Police Productivity

VOLUME I

ROUTINE

National Institute of Law Enforcement
Law Enforcement Assistance
United States Department

PRESCRIPTIVE PACKAGE

Improving Patrol Productivity

Volume I

ROUTINE PATROL

by

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ABSTRACT

Improving patrol productivity depends upon the efficient utilization and management of patrol officers' time. A thorough workload analysis, a precise, up-to-date characterization of a jurisdiction's crime problems, and the close coordination of routine and specialized patrol operations are viewed as the essential underpinnings of an effective patrol operation.

Routine Patrol, Volume I of this report, focuses upon the general patrol division, recommending specific steps which departments of all sizes can take to improve the efficiency and effectiveness of its operations. Included are detailed discussions of patrol workload analysis as the basis for developing efficient and effective deployment schemes; the management of call for service workload and the prioritization of calls for service; the use of crime analysis in support of routine patrol operations; and the conduct of preplanned and directed prevention, deterrence, and apprehension activities. The volume concludes with the presentation of selected case studies of departments which have implemented many of the approaches outlined, and with a discussion of the major issues faced in planning, implementing, and evaluating changes in the patrol function.

Specialized Patrol, Volume II of this report, focuses upon the appropriate use and effective operation of specialized patrol units. It emphasizes that specialized patrol should be considered when the best efforts of routine patrol officers to cope with particular crime problems are being frustrated by call for service response demands and by the inability of uniformed officers to employ the appropriate crime related tactics. The volume includes a thorough discussion of and presents specific recommendations regarding the planning, implementation, deployment, tactics, and evaluation of specialized patrol operations.

Because of the essential interrelationship between routine and specialized patrol, because they represent different approaches to the attainment of similar goals, the two volumes should appropriately be used in conjunction with one another.

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PREFACE

This is the second volume in a two-volume publication on routine and specialized patrol operations. Its goal is to assist departments in improving the productivity of their patrol operations, the single most costly aspect of policing.

Routine and specialized patrol share the principal goals of criminal apprehension and crime deterrence. Routine patrol operations seek to realize these goals by implementing deterrence and apprehension tactics while providing mobile responses to citizen calls for service. Specialized patrol units, whether they are established on an *ad hoc* basis or on a permanent basis, are relieved of call for service responsibilities in order to concentrate on apprehension and deterrence. Routine patrol units are able to use *only those* short-term tactics which can be employed in periods of time in between calls for service responses, while specialized units are able to employ additional tactics which require longer and more continuous time commitments. Whether routine or specialized patrol represents the most appropriate response to a particular crime problem depends upon the nature of the problem and the tactics which are determined to be most effective in dealing with it. It is essential that patrol administrators understand that specialized patrol operations are conducted within the context of the general patrol division and that the two aspects of patrol must cooperate with one another and coordinate their activities:

- Routine and specialized patrol share the common goals of apprehension and deterrence;
- They have a common concern for generating a high degree of community satisfaction with police services; and
- The tactics employed by each type of patrol can either reinforce or interfere with the tactics of the other.

In addition, both routine and specialized patrol operations must seek to coordinate their activities with those of the detective division.

Volume I of this report, *Routine Patrol*, focuses upon the major issues of patrol productivity and recommends a number of concrete steps patrol administrators can take to improve both

the efficiency and effectiveness of uniformed patrol operations. It includes discussions of how to analyze the patrol workload, develop efficient deployment schemes, and manage the service call workload so that officers will have time to implement pre-planned prevention, deterrence, and apprehension oriented activities. It describes how crime analysis can be used to focus routine patrol operations and suggests a number of anti-crime tactics that can be used by patrol officers when they are not responding to calls for service. Finally, the volume outlines the major issues patrol administrators will face in planning, implementing, and evaluating changes in the patrol function.

Volume II, *Specialized Patrol*, presents a discussion of the appropriate use and effective operation of specialized patrol. It points out that specialized patrol should be considered when the best efforts of routine patrol officers to cope with particular crime problems are being frustrated due to frequent interruptions by call for service demands and the inability of uniformed officers to employ certain types of tactics. The volume provides recommendations regarding the planning, implementation, deployment, tactics, and evaluation of specialized patrol operations.

Because of the close interrelationships between routine and specialized patrol, and because they represent different, yet complimentary, approaches to achieving similar goals, the two volumes of this report should appropriately be used in conjunction with one another. Patrol administrators should review the two volumes and reflect carefully upon the ways in which the recommendations and suggestions presented in them might help to improve their patrol operations.

The approaches presented in both volumes in this report, are applicable to departments of various sizes. Departments with more than 20-30 sworn officers should be able to implement most of the recommendations. Smaller departments will also find many useful insights which will help them in improving their patrol operations. The implementation of the approaches and programs discussed in these two volumes requires a firm commitment by the administrators of a department. However, in general, it demands little, if any, commitment of additional funds. In many cases, departments will find that the implementation of the deployment and workload management recommendations contained in Volume I will provide the time needed to undertake a vigorous proactive crime prevention, deterrence, and apprehension program. By operating more efficiently, many departments have found it possible to mount an aggressive anti-crime program using both regular uniformed officers and specialized units without increasing the number of patrol personnel or the patrol budget.

This two-volume document presents a comprehensive set of recommendations for improving some of the most critical aspects of the patrol process. These recommendations are based on a state of the art review of patrol operations in many police departments throughout the country and a through assessment of recent research and commentary on patrol. Readers who wish to pursue the analytical and empirical underpinnings of many of these recommendations should refer to the following reports prepared under the auspices of the Phase I National Evaluation Program, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration:

- Traditional Preventive Patrol;
- Neighborhood Team Policing;
- Specialized Patrol;
- Crime Analysis in Support of Patrol

These reports are available in microfiche or on loan in hard copy from the National Criminal Justice Reference Service, P.O. Box 24306, Washington, D.C. 20024.

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Finally, Ms. Louise Hunter deserves a special note of appreciation. Her research work and clerical support made a tremendous contribution to the successful completion of this project.

We sincerely believe that the project benefited greatly from the contributions of all those individuals and departments we have mentioned. Needless to say, the project staff is solely responsible for the contents of these volumes.

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CHAPTER 1

INTRODUCTION: THE PATROL SYSTEM

The importance of patrol to a community cannot be overestimated. Whether it be gauged in terms of the number of police patrol personnel, the portion of the budget allocated to patrol operations, or the fact that the uniformed officer is frequently the most visible component of the law enforcement network, patrol is the mainstay of police work. Depending upon the level of specialization, between 60 and 70% of the sworn personnel are usually assigned to patrol operations.[1] While other divisions have frequently been accorded more prestige and status, patrol officers have usually acted as the initial and primary contact between the public and the criminal justice community. The manner in which patrol officers carry out their responsibilities affects not only the quality of justice, but also citizens' perceptions of law enforcement and the criminal justice system.

During the 1960's and early '70's, law enforcement agencies were able to greatly expand their level of service delivery by increasing manpower and purchasing new and frequently expensive equipment. Much of the expansion can be traced to the eagerness of municipal and county officials to attack the mounting crime problem and to the creation of the Law Enforcement Assistance Administration, which has provided substantial financial resources to improve police operations. In recent years, however, many police agencies have experienced a reluctance on the part of local officials to continually increase the police budget. Whereas expansion had been a characteristic of police funding in the past, many departments now receive only marginal budget increases, while others have cut back service and personnel.

The continually rising need for law enforcement services, coupled with the hesitancy of municipal and county officials to increase law enforcement budgets, has heightened police agencies' concern with increasing the effective utilization of available resources. Patrol has frequently been singled out as a focus for efforts to improve police productivity because it accounts for a major portion of a department's expenditures and activities. Between 60 and 70% of the sworn personnel are typically assigned to patrol, and the patrol budget amounts roughly to an equal share of the total departmental budget.

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[1] This range is based upon our review of patrol operations in a number of departments. This range is similar to that reported in G. Douglas Gourley, Patrol Administration, 2nd Edition (Springfield, Illinois: Charles C. Thomas, 1974), p. viii.

As the emphasis in many departments has shifted from acquiring more manpower and equipment systems to making better use of existing resources, patrol administrators have tried various approaches to increasing productivity. Departments in jurisdictions as diverse as Los Angeles, California, and Charlotte, North Carolina, have experimented with team policing as an organizational method to improve patrol effectiveness. San Diego, California, has placed additional decision-making responsibilities upon beat officers, while Rochester, New York, has increased the investigative duties of its patrol officers. Worcester, Massachusetts, and Miami, Florida, have analyzed their call for service workload and have determined that expensive and highly-trained sworn officers can be replaced by non-sworn personnel to respond to a large number of non-crime related calls for service. Each of these approaches to improve patrol productivity has challenged a number of long-held working assumptions about patrol operations. They also indicate a willingness among police administrators to experiment with novel and risky programs in an effort to increase police productivity. *A major purpose of this report is to indicate ways in which patrol operations can be reoriented and restructured to increase productivity and meet the challenge of limited police resources.*

A. A Traditional Model of Patrol

Patrol operations have traditionally been designed to provide a multitude of both crime and non-crime related services. The goals of patrol reflect this multiplicity of purpose. They include crime prevention and deterrence, the apprehension of criminals, the provision of non-crime related services, the provision of a sense of community security and satisfaction with the police, and the recovery of stolen property.

With few exceptions, patrol is performed by uniformed officers and sergeants assigned to marked patrol vehicles. In some larger departments, uniformed officers are assigned to scooter and foot patrol in heavily populated residential and business areas. The primary emphasis of uniform patrol has been to establish a high sense of police visibility and presence in the community as a means of deterring and preventing crime, responding quickly to calls for service in order to apprehend suspects, and providing timely responses to non-crime service demands. Occasionally, departments have also recognized the apprehension utility of plain clothes specialized stake-outs and decoy activities, and have assigned patrol officers to these tasks.

What does the officer do on patrol? Workload analysis in a number of departments indicates that patrol activity can be divided

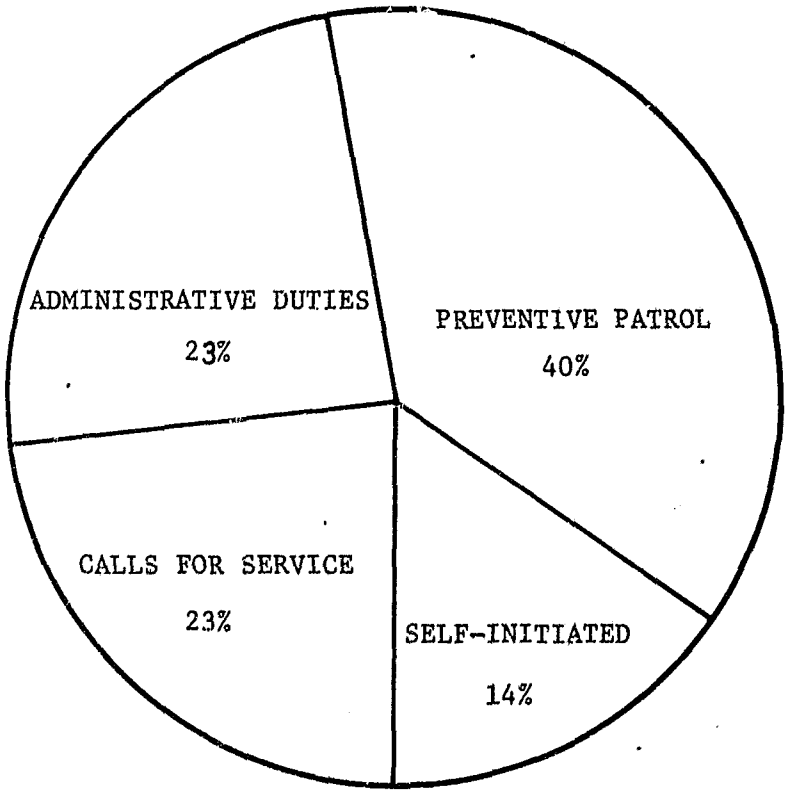
into four basic functional categories:

1. calls for service;
2. preventive patrol;
3. officer-initiated activities; and
4. administrative tasks.

Exhibit 1 presents a daily workload breakdown of the patrol function in one precinct of a major urban department, which reflects what is believed to be a rather typical distribution of activities. Although preventive patrol is the most time-consuming element in the patrol workload, calls for service are the most important factor for directing the use of patrol resources.

EXHIBIT 1

PATROL WORKLOAD ANALYSIS



1. Calls for Service

With the advent of the two-way radio, service calls have become the single most important element for structuring and directing patrol operations. Deployment decisions are normally based upon an analysis of the call for service workload with rather little attention paid to the officers' use of noncommitted time (the time spent by officers when not responding to service calls).[2] In fact, noncommitted time has frequently been regarded as a residual having little function other than to insure the availability of officers to repond quickly to service calls.

The extent to which calls for service direct patrol operations is pervasive. With few exceptions, a radio dispatch takes precedence over most other patrol activities. For example, if an officer is engaged in preventive patrol or a self-initiated activity and is dispatched on a call, these activities may have to be discontinued. In many departments even the most mundane non-crime service call can interrupt and effectively end an officer's random patrol or self-initiated activities -- activities which may have been designed to prevent and deter crime.

Calls for both crime and non-crime related services typically constitute from 25 to 40% of all patrol time. In the example precinct cited in Exhibit 1, patrol officers devoted about 23% of their time to service calls.[3] This would indicate that the effective use of non-committed time -- of the approximately 30-40% of the time devoted to patrol -- may result in substantial positive impacts upon the attainment of a department's goals.

A basic assumption of this document is that the attention focused upon rapid response to all service calls and the closely related performance measure of response time have retarded the development of productive patrol strategies which can be employed when officers are not responding to calls for service.

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[2] O. W. Wilson and R. McLaren, Police Administration, 3rd Edition (New York: McGraw-Hill Book Company, 1972), Appendix K.

[3] Officers in the Kansas City Preventive Patrol Experiment devoted approximately 40% of their time responding to calls for service. George L. Kelling, *et al.*, The Kansas City Preventive Patrol Experiment: A Summary Report (Washington, D.C.: Police Foundation, 1974), p. 40. And in Worcester, Massachusetts, it was shown that approximately 1/3 of all calls for service could be effectively handled by non-sworn personnel. See Chapter 3 of this report.

A primary goal of this report will be to describe how response to service calls can be managed more effectively in order to permit better utilization of non-committed patrol time.

2. Preventive Patrol: Noncommitted Time

A principal assumption underlying preventive patrol has been that the deployment of highly visible and mobile patrol units could prevent and deter criminal activity. Thus, when officers are not responding to calls for service, they are engaged in preventive patrol: quasi-random movement through their beats. Although the activity might account for 30 to 40% of an officer's time, it is frequently fragmented into small segments of time separated by service calls and the performance of administrative duties.

In the typical department, officers are given total discretion with regard to how they use preventive patrol time. Sergeants will sometimes identify priorities for officers during roll call; and, occasionally, a department will supply patrol officers with crime trend analysis which can be used to plan self-initiated activities. In most instances, however, officers are free to use this time as they want and receive little direction from their immediate supervisors or other patrol managers. *This report will indicate how patrol managers can more effectively structure and use preventive patrol time in order to accomplish specific patrol objectives.* In our sample precinct, approximately 40% of an officer's time was noncommitted and devoted to preventive patrol.

3. Administrative Tasks:

Administrative duties generally account for approximately 1/4 of the patrol workload. These activities typically include preparing the patrol vehicle, transporting prisoners and papers, writing reports, running departmental errands, and appearing in court. It also includes personal business. Experience in a number of departments suggests that by carefully monitoring these activities, it is possible to limit the amount of time they take away from patrol.

Some departments have developed procedures which have substantially cut the time officers spend preparing their vehicles for patrol; some have placed restrictions upon the use of sworn officers to run errands and prepare reports; and some have adopted new procedures which drastically reduce the amount of time required to prepare reports. *This report will suggest methods that can be used to control and limit the amount of time administrative tasks detract from patrol operations, thereby increasing the amount of time available for other activities.*

4. Officer-Initiated Activities:

Officer-initiated activities usually occur as a result of observations that an officer makes while engaged in preventive patrol. In some cases, this activity is a direct result of an officer's observing an illegal activity which can lead to an arrest. In a majority of instances, officer-initiated activities may be focused on community relations or crime prevention activities like citizen contacts and car and building checks. If, for example, an officer observes a suspicious action or an order maintenance problem, his/her presence or field interrogation may be sufficient to prevent or deter a criminal act.

Although officers have always been encouraged to initiate community services as well as anti-crime measures while patrolling, these activities have played a secondary role in the total patrol officer workload. Because of the need to be available for radio dispatches, officers have been hesitant to undertake crime prevention and deterrence activities that might take them away from their radio car and interfere with their ability to respond rapidly to service calls.

Until the advent of the hand-held radio, technology dictated that the officer's activity be closely confined to the patrol vehicle. The hand-held radio has freed the officer from this constraint, allowing patrol personnel to rely less upon mobile patrol and to initiate more activity out of and away from the patrol vehicle. Yet few departments have developed new tactics and policy guidelines which encourage better utilization of the flexibility permitted by portable radio units. Self-initiated activity accounts for only a small portion of the patrol workload. In the example cited, approximately 14% of the officers' time was devoted to self-initiated activities.

A major purpose of this report will be to present a discussion of directed patrol activities which can be engaged in by officers when they are not responding to service calls. A basic assumption of this report is that the directed and structured use of otherwise "noncommitted" time will enable departments to realize a greater level of goal attainment then hitherto experienced. By restructuring patrol time and through changing a department's orientation toward preventive patrol, response to service calls, and administrative tasks, a department will create the opportunity for officers to engage in meaningful directed patrol activities.

B. New Directions In Patrol:

Patrol has usually been performed on a rather haphazard basis. The patrol officer is seldom provided with systematic information about the problems on his beat and, because of this information void, has usually patrolled in a random, sometimes haphazard manner. Likewise, supervisors have not usually had the information needed to develop specific patrol strategies for the beats under their control. The development of crime and problem analysis techniques and the availability of this information to patrol supervisors is gradually leading to the displacement of random patrol with pre-planned patrol activities. The identification of law enforcement problems and the development of specific activities that the patrol officers can use to solve these problems appear to be a most promising trend in patrol operations.

The implementation of a directed patrol program (patrol where officers undertake pre-planned activities in order to reach specific objectives rather than merely reacting to problems after their occurrence) requires a department to rethink its policy of permitting calls for service to "run the street", and it demands that patrol supervisors assume a major role in analyzing beat problems and planning patrol activities. *To be effective directed patrol must be closely linked to crime analysis and must have equal priority with calls for service as a patrol function.* A major goal of this report will be to include a description of directed patrol activities, suggesting them as alternatives to the random patrol orientation of most departments. It is our belief that directed patrol can increase police effectiveness and raise departmental productivity by making better use of hitherto uncommitted patrol time.

Several experiments with patrol operations and studies of patrol have raised questions about traditional patrol practices. These studies, coupled with our observations of patrol in over 26 police and sheriff agencies, have played an important role in developing the ideas presented in this prescriptive package. The development of more effective patrol strategies presented here is based upon an examination of:

1. the relationship between calls for service and other patrol functions; and
2. the way non-committed or preventive patrol time is utilized.

C. Rethinking Calls for Service:

It has been pointed out that the current driving and organizing force behind patrol operations in most departments has been the felt need to respond to all citizen calls for service. Since the advent of the patrol car and the widespread use of the radio to direct patrol activity,

police have increasingly relied upon response time as the principal measure of patrol effectiveness. Most patrol managers believe that apprehensions increase significantly as the response time is reduced. A major consequence of this line of thinking has been for departments to automatically dispatch a patrol unit to any crime related call as quickly as possible and to stipulate that all calls for service must be responded to within a certain and usually relatively short period of time. Few attempts have been made to prioritize calls according to the seriousness of the threat of the criminal activity or personal service need. In fact, some departments have elevated all calls for service to the level of emergency status. In general, the effect of these service goals has led to the policy that

1. a patrol unit must be dispatched to the scene of all service calls;
2. calls cannot be delayed and must be answered as quickly as possible;
3. service calls take priority over all other patrol activities; and
4. preventive patrol, officer-initiated activities, and directed patrol must be organized around calls for service activity.

Studies of response time in Kansas City and Syracuse suggest that response time needs to be examined carefully. The Kansas City Response Time Study, although limited to Part 1 crimes, suggests that rapid response time is critical to only a limited number of calls for service, such as crimes in progress and medical emergencies. This careful study addresses a hitherto unexplored facet of providing emergency services. The rapid response of police to a citizen request for service has rested upon the assumption that there is no lapse of time between the occurrence of an incident and a citizen's request for assistance. In fact, however, the study reports that the victim frequently will notify others -- a friend, a neighbor -- before calling the police.[4] *The result of this citizen inaction, or slow response, is that the time between an event's occurrance and the notification of the police often exceeds the police response time by a factor of from 2 in the case of commercial robberies to a factor of approximately 5 in the case of residential and street robberies.*

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[4] A more extensive study of response time is currently being completed in Kansas City, Missouri. Preliminary findings of the study will be forthcoming. More detailed information concerning this study is available from Chief Marvin Van Kirk of the Kansas City, Missouri, Police Department; and Bill Saulsbury of the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration.

Exhibit 2 presents the typical citizen and police response time patterns for robberies that were reported by the Kansas City study.[5] Elliot, in a less rigorous study of citizen crime reporting in Syracuse, New York, reached similar conclusions. He found that in 70% of the crime-related service calls, citizens waited ten or more minutes before notifying the police.[6]

EXHIBIT 2

PROPORTIONAL TIME FROM INCIDENT OCCURRENCE TO ARRIVAL OF POLICE (ROBBERY)[7]

a	b	c
.84	.07	.09

a = reporting interval
b = communications interval
c = response interval

The findings of the Kansas City Response Time Analysis study and of Elliot in Syracuse indicate that the rapid response by police to reported crimes may be effective in apprehending a felon in only a small number of cases. This analysis suggests several strategies that a department might consider to adapt call response policies to the reality of citizen-police notification patterns. First, departments must take more responsibility for educating citizens about the importance of notifying the police as soon as a crime is detected. Past efforts to reduce response time have successfully focused upon improving communications and dispatch systems and insuring the availability of response units. It appears that new efforts must be directed toward motivating the citizen to rapidly notify the police.

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[5] Deborah K. Bertram and Alexander Vargo, "Response Time Analysis Study: Preliminary Findings in Kansas City." The Police Chief, May, 1976, pp. 74-77.

[6] James F. Elliot, Interception Patrol (Springfield, Illinois: Charles C. Thomas, 1973).

[7] Deborah K. Bertram and Alexander Vargo, "Response Time Analysis Study: Preliminary Findings on Robbery in Kansas City," The Police Chief, May, 1976, p. 76.

Secondly, the dispatcher should screen all calls and prioritize them according to when they have occurred. In-progress crimes, crimes where evidence might be destroyed, and medical emergencies would certainly be accorded a high priority. Cold crimes and those in which the threat of harm or loss of property has passed would be assigned a lesser priority.

A second study of response time in Kansas by Pate examined the relationship between response time and citizen satisfaction with police services. The report concluded that it is possible for the police to control and delay service call responses and still maintain a high level of citizen satisfaction.[8] The critical factor in citizen satisfaction is not that a unit be dispatched immediately, but rather that an officer arrives at a time designated by the dispatcher. It seems possible, according to this study of response time, to control citizen expectations by having the dispatcher indicate when a unit will arrive at the scene of the incident. Citizens were found to be equally satisfied with response time whether a unit arrived in five minutes or in 45 minutes, when notified of the approximate arrival time. If response time is longer than expected, however, citizen satisfaction is reduced. *This finding suggests that dispatchers can control the response time expectations of citizens, thereby permitting departments to prioritize calls and "set appointments" with citizens for handling low priority calls.*[9]

The implications of the several response time studies for patrol operations are extensive and have played an important role in shaping this document. Basically, they suggest that patrol operations do not have to be entirely structured around the ability to respond rapidly to all citizen requests for service. In addition, they indicate that patrol managers and officers have the flexibility to schedule and implement problem-oriented tactics that need not be continually interrupted by dispatch assignments. This fact provides the basis for restoring a balance between the need to provide "timely and appropriate" responses to calls for service and the need to control police activities and direct them on the basis of crime analysis in order to deter crime and apprehend offenders.

D. Rethinking Preventive Patrol

The attention paid by police managers to calls for service and response time has not been matched by an equal commitment to understanding and improving officer activities when they are performing

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[8] Tony Pate, Amy Ferrara, Robert A. Bowers, and Jon Lawrence, Police Response Time: Its Determinants and Effects (Washington, D.C.: Police Foundation, 1976).

[9] *Ibid*, p. 49.

preventive patrol (approximately 40% of their time) rather than handling dispatched calls. Although police publications and patrol handbooks have extolled the virtue of visible patrol in preventing crime and deterring and apprehending criminals, scant attention has been paid to the specific tactics an officer might use while patrolling.

The attention given to preventive patrol has ranged from referring to it as a residual activity -- something that is done when not handling service calls -- to encouraging officers to engage in activities like community contact, field interrogations, suspect oriented patrol, etc. Although more departments are adopting an aggressive crime fighting role, our review of patrol operations has identified several significant and rather pervasive shortcomings in the way uniform patrol is carried out.

First, most police administrations have assigned a rather low priority to preventive patrol. The tendency in many departments to treat preventive patrol as a residual has meant that it is usually fitted around other activities. Preventive patrol can be and is frequently interrupted at any time for minor service calls, administrative duties and personal chores. The constant interruption of preventive patrol has discouraged officers and sergeants from planning specific prevention, deterrence, and apprehension oriented activities that can be done while patrolling. Until patrol managers are able to analyze the entire patrol workload and assign higher priorities to preventive patrol assignments, the full benefit of preventive patrol time will not be realized.

A second problem which has hindered the devolopment of effective preventive patrol programs has been the absence of a tactics manual to guide preventive patrol operations during noncommitted time. For example, if an officer has identified a crime, order maintenance or community relations problem, there is usually no departmental resource that (1) describes tactics appropriate to address the problem, and (2) contains step-by-step instructions of what an officer can do while on patrol to implement each tactic. This shortcoming has seriously impaired the ability of patrol supervisors and officers to effectively use their noncommitted preventive patrol time.[10]

Finally, most departments have not developed systematic patrol goals and objectives than can be used by patrol managers and first line supervisors to prioritize the patrol workload and develop an effective patrol program. In many departments patrol is mobilized primarily by citizen requests for service and is regarded as a reactive response force. In general, few departments have defined the patrol mission clearly enough so that effective anti-crime and order maintenance strategies can be implemented by patrol officers. What is clearly needed is for police administrators to outline specific patrol objectives, develop tactics to accomplish these objectives and use a large portion of noncommitted patrol time to implement these tactics.

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[10] The ability to plan preventive patrol operations can also be hampered by the lack of detailed and up-to-date crime analysis.

The highly controversial Kansas City Preventive Patrol Experiment can provide a base for understanding the extent and nature of noncommitted patrol time. Although the Kansas City Preventive Patrol Experiment has been justly criticized on methodological grounds, it still contains some valuable descriptions of patrol operations and provides insights into the feasibility of patrol innovations. The experiment suggests that it is possible to make considerable changes in the conduct of preventive patrol without seriously jeopardizing community security and citizen satisfaction with police services.[11]

The Kansas City experiment involved the manipulation of the level of random preventive patrol within 15 beats which were divided into three matched groups: *reactive beats*, in which officers responded only to service calls and preventive patrol was eliminated; *control beats*, in which preventive patrol was maintained at a normal level; and *proactive beats*, in which preventive patrol was increased to two or three times its normal level. The experimenters reported that the different levels of preventive patrol appeared to have little effect on the levels of police services and citizen feeling of security.[12]

The Kansas City experiment indicates that a department can take a flexible approach to patrol and experiment with patrol operations without damaging community security. Our review of patrol operations suggests that the major focus of experimentation should take place with noncommitted patrol. Most departments have ample noncommitted patrol time that can be used to develop a more effective patrol program. In the Kansas City experiment approximately 60% of the patrol time was found to be non-committed while in our review of patrol workloads in other departments 40% was an approximate average.[13] A principal goal of this document is to describe and illustrate how noncommitted patrol time can be used more effectively.

In recent years, a number of departments have experimented with the way in which noncommitted or preventive patrol time can be used more productively. There are a number of programs that have sought to supplement and strengthen preventive patrol by assigning patrol officers specific tasks to perform during time previously devoted to random patrol.

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[11] Kelling, *op. cit.*, p. vi.

[12] Kelling, *op. cit.*, pp. 3-4.

[13] The Kansas City figure seems artifically high because the 60% contains time devoted to administrative matters and to lunch breaks. A more realistic estimate of noncommitted time would be 35-45%. We are aware that officers frequently complain of constantly being busy. However, this may be due to the unpredictable occurrence of service calls rather than a heavy workload.

At the present time there appear to be three general types of programs designed to more effectively utilize noncommitted patrol time.

1. Community-Oriented Policing

The San Diego Police Department has instituted a program that gives patrol officers the principal responsibility for analyzing police-related problems on their beats and developing and implementing measures to cope with them. The community-oriented policing program has provided officers with the responsibility and the tools (census data, crime trend analysis, traffic information) to organize and plan goal-oriented activities for their noncommitted patrol time. The department has also developed a new officer evaluation system that supports these new initiatives. Although the focus of the San Diego program has been upon improving police-community relations, this system of decentralized planning and increased officer initiative can be applied to a wide range of law enforcement problems.

2. Directed Deterrent Patrol

The directed patrol programs currently being operated by New Haven, Connecticut, and suburban communities that make up the South Central Connecticut Criminal Justice Supervisory Area have focused upon supressing crime through directed police visibility. The directed deterrent programs were a product of growing crime problems, financial constraints on police budgets, and a feeling among criminal justice planners and police managers that routine random preventive patrol was not very effective in deterring crime. The directed deterrent program relies almost entirely upon visible preventive patrol. This patrol activity is directed by detailed crime analysis. The program contains three important components:

a. identification through rigorous crime analysis of the places and times when crimes are occurring and are likely to occur in the future;

b. preparation of written directions describing in detail the way problem areas are to be patrolled;

c. activation of these patrol directions at specific times determined by crime analysis.

The directed deterrent runs (D-runs) are performed during time that was formerly devoted to random patrol. In addition, D-runs have been assigned the same priority as dispatched calls for service. Once officers are assigned to a D-run, the run can only be cancelled under extraordinary circumstances. These directed activities have enabled patrol managers to more effectively use patrol time and, in many instances, to achieve saturation levels of patrol in problem areas without increasing

the number of patrol personnel or patrol costs. As will be described in Chapter 5, Kansas City, Missouri and Cleveland Heights, Ohio have structured directed patrol programs in very different ways and achieved similar results.

3. Directed Apprehension Patrol

Wilmington, Delaware, has developed a split patrol program to more effectively utilize time that was committed to random preventive patrol. By abandoning equal shift staffing, scheduling officers according to service demands, and prioritizing calls, Wilmington has been able to adequately answer calls for service while enabling approximately 1/3 of its patrol division to engage in directed patrol activities. The assignment of officers to the directed or structured unit on a rotating basis ensures that every patrol officer will have a chance to engage in a wide variety of activities designed to increase criminal apprehension.

The driving force behind the Wilmington program is the application of crime analysis to the day-to-day operation of the structured patrol force. Structured officers work high crime areas, use both visible patrol tactics designed to apprehend criminals. The close coordination of crime analysis and operations has resulted in marked increases in the effectiveness of the patrol divisions without increasing the number of patrol personnel.

Although the programs described above use different methods and have attacked different police problems, each displays a similar view of patrol. All grew out of dissatisfaction with random patrol operations and a feeling that patrol productivity could be improved without increasing expenditures or personnel. The first step in the process was the identification of problems the department was experiencing in carrying out its mission. San Diego focused upon community relations, while New Haven and Wilmington directed their attention to rising crime. After these problems had been identified, patrol officers were encouraged or directed to carry out specific adtivities designed to ameliorate the problems. In most departments directed activities were given the same priority as dispatched calls for service.

The result of these directed approaches to patrol has been a substantial change in the way preventive patrol is carried out. Patrol is no longer a random activity that fills the gaps between calls for service, but has become a carefully thought-out process that links police and community concerns through careful problem analysis to what the officer does while on patrol. As a result, these departments are realizing improved patrol effectiveness and efficiency.

The purpose of this manual will be to describe a way of looking at patrol and planning patrol activities in order for departments to improve their utilization of patrol resources and effect a greater realization of community and departmental goals. In sum, the purpose of this manual is to transfer knowledge regarding the effective utilization of patrol time to police and sheriff departments throughout the country.

E. Nature of this Report

The ideas and information presented in this report were drawn from a wide variety of sources. An extensive review was made of literature relating to patrol operations, as well as reports describing and evaluating many innovative programs that have been supported by the Law Enforcement Assistance Administration and the Police Foundation. Pertinent materials in the areas of planned change were reviewed in order to develop guidelines for the effective implementation of change.

Site visits were made to 26 different departments in order to review innovative patrol programs and to develop an understanding of the departmental context in which they were implemented. In addition, telephone interviews with other departments, regional criminal justice planners, state planning agency personnel and program evaluators were used to further develop this report. Finally, in preparing this volume and its companion volume on specialized patrol, the authors relied heavily on the National Evaluation Reports in the area of patrol operations.[14] Although some of the programs described in this volume have not been extensively evaluated, the authors carefully reviewed programs with departmental personnel and regional planners to validate their effectiveness. Only program elements that have been carefully validated by the project staff are presented in this manual.

The purpose of this report is to present some practical, operational-oriented recommendations for analyzing, planning, and implementing patrol programs that can raise departmental productivity. This manual reviews what is known about efforts to improve the efficiency and effectiveness of patrol in a variety of departments and describes the analytical and planning processes a department must go through in order to implement the content of this manual. The authors recognize that change is frequently a slow and difficult process and that the extent and pace at which the ideas in this manual can be implemented will vary among departments. At the very least, this report will acquaint patrol administrators with the problems involved in increased patrol productivity, thereby enabling them to focus more directly upon ways to increase the efficiency and effectiveness of their patrol operations. The information presented has been divided into the following six chapters.

Chapter 2, *Efficient Utilization of Patrol Time*, describes ways to relate available personnel resources to workload demands. The goal of this chapter is to describe a series of actions that patrol administrators can take to more efficiently deploy officers and assign tasks to patrol personnel. The administrative actions prescribed in this chapter are the key to the implementation of the tactical programs designed to improve patrol

14 Theodore H. Schell, *et al.*, National Evaluation Program Phase I Summary Report: Traditional Preventive Patrol (Washington, D.C.: U.S. Department of Justice, NILECJ, LEAA, 1976); Kenneth W. Webb, *et al.*, National Evaluation Program Phase I Summary Report: Specialized Patrol (Washington, D.C.: USDOJ, NILECJ, LEAA, forthcoming); and William G. Gay,

effectiveness that are described in later sections of this manual. All of the deployment techniques described have been successfully implemented and used by a variety of departments. This chapter will discuss alternate approaches to workload analysis and deployment procedures, including the 168-hour graph, and performance-oriented computerized allocation programs.

Chapter 3, *Managing the Service Call Workload,* builds upon the previous chapter by prescribing a number of decisions administrators can make to better utilize patrol time. The chapter recommends that departments very carefully analyze the service call workload and classify calls according to their seriousness and need for an immediate response. By prioritizing service calls and developing alternative response patterns, patrol administrators will be able to create the "blocks of patrol time" needed to carry out directed patrol assignments. In addition, the chapter describes several procedural changes patrol managers can adopt to control the amount of time officers must devote to administrative detail.

Chapter 4, *The Effective Utilization of Patrol Time,* is a logical extension of the previous chapter which described ways in which to increase the availability of officers to perform both crime- and non-crime-related functions. The purpose of this chapter is to describe patrol tactics that can improve operational effectiveness. A principal theme is that crime analysis must be used to develop and direct patrol tactics at specific crime targets in order to enhance the prevention, deterrence, and apprehension effectiveness of the department. The chapter discusses a variety of directed patrol activities designed to address specific order maintenance, crime, and traffic problems.

Chapter 5, *Variations in Directed Patrol Programs,* describes the rather wide-ranging approaches departments have used in developing directed patrol programs. Although the programs have been implemented in departments with as few as 30 officers and as many as a thousand and have involved participant decision-making as well as highly centralized planning, these programs have all sought to replace random and sometimes haphazard preventive patrol with specific planned activities that are based upon detailed problem and crime analysis. The individual case studies in this chapter illustrate how directed patrol programs can be adapted to different organizational and management styles.

Chapter 6, *Implementing a Directed Patrol Program,* is concerned with what patrol administrators can do to facilitate the implementation of a directed patrol program. The chapter briefly describes the complexity of the patrol system and indicates how the various goals and objectives of patrol can be related to specific patrol activities. The chapter also recommends a number of concrete steps administrators can take to insure the successful implementation of a directed patrol program.

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et al., National Evaluation Program Phase I Summary Report: Neighborhood Team Policing (Washington, D.C.: USDOJ, NILECJ, LEAA, 1977).

The final chapter, *Program Evaluation,* discusses a variety of process and impact measures that can be used to assess a directed patrol program. The goal of this chapter is to discuss measures and analytical techniques that will permit patrol supervisors to actively participate in the evaluation process. The measures provide information about the extent to which directed activities are being used as well as crime and arrest data designed to measure program effectiveness.

F. Relating Routine and Specialized Patrol

Because of the many complexities of patrol operations, this report on patrol is being presented in two separate volumes. The routine preventive patrol and the specialized patrol manuals are companion volumes. This volume on preventive patrol focuses upon the activities of uniformed officers whose primary function has been to respond to calls for service and provide visible uniformed patrol. Specialized patrol is conducted within the context of routine patrol operations and is designed to supplement this patrol by focusing upon particular crime problems Although specialized officers seldom respond to service calls, use plainclothes tactics and may be involved in investigative work, they are usually patrol officers and are directed by patrol managers.

The two volumes of this report should be used in conjunction with one another. However, it should be emphasized that the first volume on routine patrol should be read and its recommendations considered before a department establishes a specialized patrol unit. Only when a department has achieved the best possible results with its routine patrol force should it consider the formation of a specialized unit to address specific problems that routine patrol cannot handle.

The chapters of the routine patrol volume which describe how patrol time can be better organized and used more effectively are particulary applicable to specialized patrol. Departments that are able to match resources to workload and prioritize service calls will find that patrol officers previously committed to routine preventive patrol can be used for either directed uniform patrol activities or for specialized patrol operations. The key factor is not so much the structure within which officers operate but how noncommitted patrol time can be used for directed patrol activities.

Departments using directed patrol activities have experimented with a variety of organizational modes. New Haven's directed patrol has been entirely within the confines of the routine patrol structure. Some might argue that Wilmington's structured patrol unit is really a specialized patrol function. Other departments have clearly separated routine and specialized operations into distinct organizational units. The point is that, although a variety of organizational methods have been used, they have implemented similar programs and adopted similar goals.

Many of the programs and methods described in the specialized patrol volume could be performed by officers assigned to routine patrol. The organizational structure used to implement directed patrol activities will vary depending upon the size of the department, the type of problem encountered, the magnitude of the problem, and the organizational preference of patrol administrators.

The focus of the routine patrol volume is to suggest that patrol functions can be reorganized so that officers can participate in a wide range of directed activities. The specialized patrol volume describes these activities in more detail and suggests how they can be coordinated with both the random and directed efforts of uniform patrol officers. The aim of both volumes is to present a range of options that patrol administrators can use to develop an effective crime prevention, deterrence and criminal apprehension program.

CHAPTER 2

EFFICIENT DEPLOYMENT OF PATROL PERSONNEL

In recent years, many state and local governments have been challenged by two overriding dilemmas: a rising level of demand for both crime and non-crime related services, and ever-tightening governmental resources as the costs for all municipal and county services increase. Between fiscal years 1970 and 1974, the costs for police protection alone increased by 60% from $3.8 billion to nearly $6 billion.[1] In many departments the costs to add a full-time unit around the clock can range from $80,000 for a one-officer unit to over $150,000 for a two-officer unit. Although costs for law enforcement services are certainly increasing, departments need not be totally at the mercy of increasing service demands and costs. Some agencies, by adopting efficient deployment and operational procedures, have been able to provide effective police services within the constraints of relatively fixed police budgets. A cursory examination of selected urban police budgets indicates substantial variation in police costs among cities of comparable size and socio-economic make-up.

During 1974, the per capita costs for law enforcement among 30 selected cities with populations over 100,000 ranged from a low of $19 to a high of $120.[2] Although no attempt has been made to judge the effectiveness of these departments in controlling criminal activity, a comparison of police costs in two communities suggests that increased police expenditures

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[1] Law Enforcement Assistance Administration, National Criminal Justice and Statistics Service, Expenditures and Employment Data for the Criminal Justice System, 1969-1970 (Washington, D.C.: U.S. Government Printing Office, 1972); and Law Enforcement Assistance Administration, National Criminal Justice and Statistics Service, Expenditures and Employment Data for the Criminal Justice System, 1974 (Washington, D.C.: U.S. Government Printing Office, 1976), Table M.

[2] *Ibid.*, 1974, Table 25; U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States (Washington, D.C.: U.S. Government Printing Office, 1975), Table 24.

do not necessarily guarantee a high level of law enforcement service.

A recent study of law enforcement costs and agency effectiveness by Repetto in two matched and similar cities suggests that the way officers are trained, deployed, and managed has a substantial, if not primary, impact upon police productivity. Although police expenditures in the first city were more than double those in the second city, the latter city had a lower overall crime rate. The first city had nearly 4.6 police employees per 1,000 citizens and spent nearly $45 per capita on law enforcement, while the second agency had 2.1 officers and spent only $19 per capita. In addition, and more importantly, the second city cleared substantially more crimes and had a significantly higher officer arrest rate. *A number of organizational factors including deployment and call response patterns, specific patrol activities, as well as supervisory and training practices, were determined to account for the higher efficiency and effectiveness of the second department.*[3] A major purpose of the next two chapters will be to indicate ways patrol administrators can analyze the patrol workload, particularly calls for service, and then develop operational procedures designed to increase patrol productivity.

A. Patrol Workload Model - Calls for Service

The most important resource available for patrol managers is personnel. Like most social service-related organizations, much of the service provided by a police agency is supplied by either sworn officers or other appropriately trained civilian personnel. Because patrol personnel constitute a substantial portion of all police personnel, any attempt to enhance the efficiency of patrol operations must carefully examine the role of the patrol officer. Addressing the question of how patrol officers are deployed and what they do while on patrol is important for patrol managers and agency heads.

Because of the preponderant role that calls for service have played in organizing patrol operations, any attempt to improve patrol productivity must first analyze the way service calls are handled. Although service calls usually account for between 25% and 40% of the patrol workload, they have invariably

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[3] Thomas A. Reppetto, "The Influence of Police Organizational Style on Crime Control Effectiveness," Journal of Police Science and Administration, Vol. 3, No. 3, pp. 274-279.

become the dominant factor in directing patrol operations. In most departments, when a citizen call for service is received, a patrol unit is dispatched as quickly as possible.

This orientation toward service calls has had at least two adverse effects upon police operations. First, in many departments patrol managers have adopted response time as the major criteria for evaluating patrol effectiveness. In an attempt to reduce response time, these managers have steadfastly refused to implement patrol strategies which might interfere with their ability to rapidly answer to all service calls. Secondly, patrol officers have frequently adopted a similar pattern of behavior. The high priority given to service calls has discouraged officers from initiating crime prevention, deterrence, or apprehension activities that might be interrupted at any moment by a citizen's call for service.

A principal goal of this report is to restore some balance between the need to respond to citizen calls for service and the need for the uniform patrol division to systematically and regularly implement prevention, deterrence and apprehension tactics. The next two chapters will indicate how the call for service workload can be analyzed and how patrol time can be restructured to increase the amount of time officers can devote to pre-planned or directed patrol operations. The underlying assumption behind the approach presented here is that by using the techniques described in the next two chapters, departments will be able to uncover blocks of under-utilized time that can be devoted to prevention, deterrence, and apprehension activities.

The better utilization of patrol personnel revolves largely around the questions of deployment and the priority response assigned to different types of calls for service. On the whole, deployment questions deal with the problem of relating the temporal and geographic assignment of officers to daily changes in the call for service workload. Departments will need to analyze their call for service workload and address several questions:

- How many watches should there be, and at what times should each watch begin?
- How many patrol units should be assigned to each watch?
- How should beat boundaries be constructed to reflect temporal fluctuations in the daily workload and the number of officers deployed on each watch?

As later sections of this chapter will illustrate, these deployment questions can profoundly affect both the efficiency and effectiveness of a patrol program. *When officers are deployed according to workload demands, patrol costs can be dramatically reduced, or the attention of officers can be directed to pre-planned activities.* An efficient deployment scheme will ensure that during peak periods, calls for service are answered promptly and a high level of routine and directed patrol activities are carried out.

The prioritization of calls for service offers departments a second lever to exercise control over the workload. The tendency of many departments to assign approximately equal priority to most service calls has had a detrimental effect upon preventive patrol activities. Analysis of service calls in a variety of departments indicates that citizen calls are diverse and that departments can exercise considerable discretion in determining how and when service calls should be answered. In developing a response to service calls that permits more effective utilization of patrol time, departments need to address several questions:

- Which calls for service represent truly emergency situations?
- For which service calls is a delayed or scheduled response appropriate?
- Do all service calls deserve a mobile response by a sworn officer?
- Which preventive patrol and officer-initiated activities should take precedence over which calls for service?

The way in which patrol managers answer these questions can play a significant role in developing more effective patrol strategies. Some departments have put all their eggs in the service call-response time basket and, as a result, have not developed the varied patrol strategies needed to control criminal activity. Other departments, on the other hand, have learned that *by matching the appropriate patrol response to different types of service calls, more time can be devoted to prevention, deterrence, and apprehension activities.* Chapter 3 describes a method for analyzing service calls and developing alternative response patterns that enhance the utility of noncommitted patrol time.

B. Traditional Deployment Problems

Analysis of workload demands and patrol allocation schemes in a number of departments indicate that a department's orientation to deployment can have a dramatic effect upon the efficient utilization of patrol personnel. In spite of the fact that police handbooks have urged departments to carefully analyze workload and crime trends and to deploy officers accordingly, many departments have failed to analyze workload factors while others have not used this information to develop efficient deployment schemes.

The remainder of this chapter will discuss progressively more sophisticated methods to analyze the patrol workload and develop officer scheduling systems. The final section of this chapter describes several computerized deployment schemes. Our review of workload data and deployment schemes in numerous cities revealed that departments can free patrol personnel for the performance of directed and/or specialized patrol operations by implementing deployment patterns that correspond to the spatial and temporal distribution of calls for service. In some instances, proper deployment has enabled departments to handle rising workloads without increasing patrol budgets or hiring additional patrol personnel. Departments have found that by matching deployment to workload demands, response times have improved, time allowed for preventive patrol has increased, officers have been able to devote more time to directed patrol activities, and, in some cases, patrol costs have decreased.

The principal allocation problem in many departments is that an equal number of patrol officers are assigned to each shift. This would be acceptable were it not for the fact that calls for service and criminal activity are not distributed equally around the clock. Workload and crime analysis indicate wide and predictable fluctuations in the level of activity during a 24-hour period. Generally, the afternoon watch generates the most activity, followed by the day and the night watches.

A recent survey of patrol operations in over 300 departments highlights the extent to which many departments have failed to deploy officers according to fluctuations in the daily calls for service workload.[4] In spite of the fact that less

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[4] This survey was conducted by the University City Science Center during the preparation of the volume on Traditional Preventive Patrol for the Law Enforcement Assistance Administration's National Evaluation Program.

than one-quarter of the patrol workload is generated during the night watch (12 a.m.-8 a.m.), and more than 40% of patrol activity occurs during the evening watch (4 p.m.-12 p.m.), many departments continue to deploy an equal number of officers to each watch.

Exhibit 3 presents a summary of the findings of this survey. Nearly one-half of the departments deploy approximately an equal number of patrol officers to each shift. Although departments with more than 1,000 officers assigned to patrol appear to have developed deployment schemes that coincide with fluctuations in the workload, most smaller departments have not attempted to match deployment to workload realities.

EXHIBIT 3

SHIFT STAFFING PATTERNS OF 321 POLICE AGENCIES

Departments Size # of Patrol Officers	% Departments with Equal Shift Staffing	% Departments with fewer than 29% of Patrol on Night Watch (12:00 p.m. to 8:00 a.m.)
0 - 24	54%	11%
25 - 74	53%	24%
75 - 99	53%	36%
1000+	10%	80%
ALL DEPARTMENTS	49%	30%

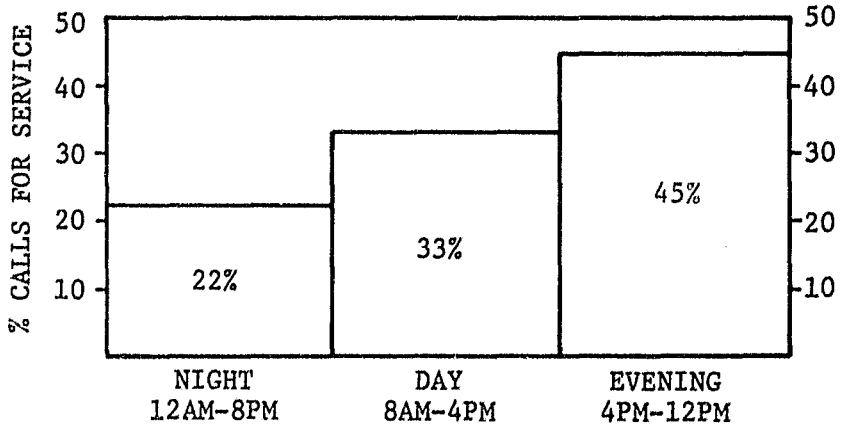
The results of the survey suggest that equal shift deployment is popular, even though *departments of all sizes have the ability to alter shift deployment patterns and to staff each watch according to workload demands*. A number of departments in each size category have been able to deploy the number of officers to the night watch that most workload analysis suggests is an optimal proportion. Approximately 30% of the departments surveyed deployed less than 29% of their officers on the night watch. Although this figure is impressive, the potential exists

for a still larger number of departments to carefully examine workload patterns and to develop an allocation plan proportional to these workload demands.[5]

Deployment without regard to workload patterns can have adverse effects upon the ability of a department to handle service calls and provide routine patrol services. Exhibit 4 shows the distribution of the patrol workload among the various watches in a typical department. When a department ignores

EXHIBIT 4

TYPICAL DISTRIBUTION OF THE CALL FOR SERVICE WORKLOAD



the temporal distribution of the workload and assigns an equal number of officers to each shift, the level of patrol on each shift -- the time available for random patrol when not answering calls for service -- will vary considerably. Dispatchers have noticed, for example, that cars are more available during the night watch for assignments and that response times are generally

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[5] Conversations with patrol managers in a variety of departments revealed a number of reasons why officers are not deployed proportional to workload demands. Some police administrators have felt a need to provide a given level of coverage on each shift, and some have failed to keep workload records or analyze these records to identify patterns of activity. Some departments have simply taken the easy scheduling option: they have eliminated the scheduling and rotation problems that can occur when watches are differentially staffed. Some departments have caved

lower. Because officers have fewer calls for service to answer during the night watch, the amount of time devoted to preventive patrol on that watch is quite high. Just the opposite effect occurs on the evening watch. During hours of peak workload (4 p.m.-12 p.m.), service calls are often stacked, and officers are able to devote only a small portion of their time to preventive patrol. *When criminal activity is highest, departments that deploy an equal number of officers to each shift are frequently unable to carry out effective preventive and directed patrol activities.*

The deployment of an equal number of officers to each shift can also have an adverse impact upon the morale of patrol personnel. It is not uncommon for patrol officers in busy communities to run from call to call during the evening watch while officers on the night watch are assigned few service calls and have large amounts of non-committed time. Conversations with officers in a number of departments with equal shift staffing plans revealed that officers assigned to the evening watch often felt overwhelmed by the call workload, while night watch officers reported periods of idleness and boredom. The heavy workload on the evening watch coupled with the inconvenience of the evening shift may account for the reluctance of many officers to work that watch. Assigning officers to watches according to service demands minimizes the inequities in the workload and eliminates one reason why officers do not like to work evening tours.

A final consequence of equal shift staffing bears heavily upon the ability of a department to control criminal activity and to control the costs of patrol operations. Equal shift staffing plans that disregard workload realities seriously impair the effectiveness of patrol operations and are costly. Exhibit 5 illustrates how the number of officers assigned to patrol and the costs of patrol can vary depending upon the approach a department takes toward the temporal deployment of personnel. The first column on the table indicates the distribution of the call for service workload. This distribution of service calls among the watches is very similar to the pattern found in many departments. The other columns suggest alternative deployment patterns, the total number of patrol officers for each option, and the total cost for each deployment option.

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in to the pressure of patrol personnel who want as many day tours as possible. Finally, some departments have unwittingly locked themselves into union agreements that specify equal shift staffing, and one state has entered the scheduling process by enacting equal shift staffing laws. Whatever the reasons -- tradition, union agreements, or state laws -- equal shift staffing has a major and detrimental impact upon both the efficiency and effectiveness of patrol operations.

EXHIBIT 5

TEMPORAL DEPLOYMENT OPTIONS

WATCH	SERVICE CALL DISTRIBUTION	Deployment Options		
		Option 1 Equal Shift	Option 2 Effectiveness	Option 3 Efficiency
NIGHT	22%	15	10	8
DAY	33%	15	15	11
EVENING	45%	15	20	15
TOTAL PERSONNEL DEPLOYED*		45	45	34
APPROXIMATE COSTS**		$900,000	$700,000	$680,000

Equal Shift - same # of officers assigned to each shift
Effectiveness - # of officers assigned to shift based on workload
Efficiency - # of officers on night and day shift matched to service demands

** In addition to the number of officers deployed, departments will have to apply the applicable relief factor to estimate the total complement of officers required.*

***Estimates of $20,000 per officer based upon salaries, fringe benefits, car, radio, operating expenses, and other overhead costs. These costs will vary considerably among departments.*

The exhibit suggests that a substantial proportion of the patrol resources in departments with *equal shift staffing* might be better used. It is not meant to suggest that the size of a patrol division or of the department can, in fact, be reduced. In the traditionally organized department, an equal number of officers would be assigned to each shift in spite of the substantial variation in the workload. Officers on the evening watch would be overworked by calls for service and would be able to undertake only very limited proactive patrol tactics, while night watch officers would have a very light service load. Such a program would be very costly and probably not very effective.

The *effectiveness option* continues to deploy the same number of officers throughout the day but allocates them in proportion to the changes in the workload that occur during each shift. As the workload increases, departments concerned about the effectiveness of patrol will assign more officers during busy periods. This approach, although it may not cut patrol costs, will eliminate inequities in the patrol workload. Officers assigned to the evening watch will not be overworked, while officers on the night watch have little to do. More importantly, the department will be deploying officers when they are most needed.

With the effectiveness option, calls for service can be quickly dispatched and the patrol force can provide a level of random and directed patrol activity that is proportional to the workload. Departments which have abandoned an equal shift allocation for a deployment scheme related to workload levels have usually been able to free some officers on the evening watch from any service call responsibility. These officers have then been deployed according to detailed crime analysis to perform directed deterrent and apprehension activities. Where this has occurred, departments have experienced increased arrest rates among patrol officers and a reduced level of crime in the community.

When departments are affected by budget cuts or freezes, analysis of workload patterns and deployment plans is a highly appropriate and effective way to lessen the impact of monetary constraints. The *efficiency option* displayed in Exhibit 5 suggests how departments that deploy an equal number of officers to each shift can cut the number of patrol personnel yet provide approximately the same level of service. The underlying assumption behind the efficiency option is that the fifteen officers deployed on the evening watch (the busy time) are sufficient to handle all service calls and provide an adequate level of preventive patrol. If this is the case, the number of officers deployed on the day and evening watches can be decreased because of the reduced workload during those watches. Instead of deploying fifteen officers to each watch, eight officers would be assigned to the night watch and eleven officers would be assigned to the day watch. When faced with budget cuts, patrol administrators can redeploy officers in accordance with workload demands and theoretically provide the same level of service yet decrease the number of personnel. In other cases, patrol administrators might use the efficiency option to transfer officers from patrol to understaffed divisions of the department.

We are not suggesting that departments cut patrol personnel by adopting a workload-matched deployment. We are suggesting, however, that *redeployment based upon workload factors can have very practical and immediate positive effects upon*

a department's patrol capability. Some departments will find that increased workloads can be accomodated without increasing the total number of patrol officers. This can be done by reassigning officers from the slow night watches to the much busier evening watch. This is particularly important to a department that is faced with an increasing workload and a fixed budget for patrol services. Other departments where the workload is stable have found that redeployment enabled patrol managers to dramatically increase the department's ability to provide preventive patrol as well as crime-specific and directed patrol and specialized operations during peak demand periods.

The experience of the police departments in Wilmington, Delaware, and Cleveland Heights, Ohio, testify to increased effectiveness that results when officers are deployed in accordance to workload demands.

- In Wilmington, managers analyzed the call for service workload and abandoned the equal shift staffing of fifteen patrol units on each shift. When officers were redeployed, only five patrol units worked the 4 a.m.-8 a.m. period, while as many as 25 patrol units served the peak period between 10 a.m.-2 p.m. The redeployment has been accompanied by marked improvement in indicators of patrol effectiveness and increased officer morale.

- In Cleveland Heights prior to redeployment on the basis of workload analysis, the department deployed seven two-officer units on each watch. By eliminating some two-officer units and deploying according to workload the number of units deployed now varies from five units on the night shift to as many as twenty-one units on the evening tour. The redeployment and the adoption of directed patrol tactics has resulted in reduced crime rates and improved apprehension effectiveness for this suburban community.

C. Workload Analysis and Officer Deployment

The deployment scheme that we have chosen to present is based upon workload factors - the total number of calls for service as well as reported crime. Such an approach seeks to equalize the service call workload among officers and insure that patrol personnel are available to provide service when and where it is most needed. Workload analysis involves both a study of calls for service as well as a determination of the

amount of time officers are engaged in preventive patrol, administrative duties and personal matters. By analyzing the total patrol workload, departments will develop an information base which can be further analyzed to prioritize each patrol task and design specific service call and preventive patrol tactics.

Although a workload deployment scheme is described here, we note that there is, as yet, no single foolproof way to deploy patrol officers. Whether a department adopts a deployment scheme based on workload factors, or on response time or dispatch delays, each system requires subjective judgements, constant monitoring, and periodic modification. Deployment based upon historical data is, at best, only a rough approximation of how the patrol workloads will vary in the future. *Patrol deployment is only the starting point for developing a comprehensive approach to law enforcement services. At the very least, departments will find it necessary to use crime analysis for fine tuning the basic deployment plan on a day-to-day basis.* In spite of these limitations, deployment based upon calls for service and crime analysis is a powerful tool for both allocating officers and designing crime specific, directed and specialized patrol activities.

In recent years, workload allocation methods have been critized by advocates of computerized deployment schemes that are based primarily on techniques designed to reduce reponse times.[5] With computerized deployment, police planners have been able to develop personnel levels and allocation schemes that are keyed to specific measures of performance like dispatch delays, patrol frequencies, workload equalization, and travel time to incidents.[6] Although these computer programs can help design efficient allocation plans, we have chosen to describe a manual deployment system based primarily upon workload factors for several reasons. First, many departments do not have access to computer facilities. Second, some of the better computerized deployment models are still in the experimental stage and should be implemented only with technical assistance from groups familiar with their operation. Third, the primary focus of computerized deployment models is upon response time, to the neglect of

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[5] For a discussion of performance-based allocation schemes, see: R.L. Sohn, *et al.*, Patrol Force Allocation for Law Enforcement -- An Introductory Planning Guide (Pasadena, California: California Institute of Technology, Jet Propulsion Laboratory, 1976); and Jan Chaiken, *et al.*, Patrol Allocation Methodology for Police Departments (New York, N.Y.: The New York City Rand Institute, September, 1975).

[6] A distinction must be made between data processing systems designed to collect and store information on a computer and computerized allocation models. Because of the volume of workload information generated by patrol, even small departments

other indicators of patrol effectiveness. This can lead to a rather narrow view of patrol operations. What officers do with the 60-75% of the time when they are not engaged in service calls is as important as the calls for service. Finally, a description of a manual deployment system based upon workload factors affords an opportunity to analyze the total patrol workload, review the interrelationships between service calls and other patrol activity, and recommend a number of deployment and operational procedures that departments can take to enhance patrol productivity.

The workload deployment scheme described below is designed to force an analysis of the total patrol workload -- particularly the time available for preventive patrol activities. *The goal of the following analysis will be to enable departments to better match deployment patterns to the patrol workload and improve patrol efficiency.* In subsequent chapters, the authors will focus upon ways patrol managers can use patrol time more effectively.

Exhibit 6 presents an overview of the workload analysis and deployment process discussed in this chapter. The process involves the collection of service call, crime, and response time information; the analysis of this data to identify patterns of activity; the assignment of officers to routine and specialized units; and the allocation of officers to various watches and geographic areas. As the flow chart indicates, several computer routines can be used as options to help with deployment and scheduling problems.

The first step in the allocation process involves collecting information about citizen calls for service, reported crime, response time, and the activities of patrol officers. Exhibit 7 summarizes the kinds of information that should be collected in each of these categories. Although a department will need to collect this information daily, once an allocation plan has been developed, patrol administrators will need to review and update them annually. If fundamental changes in the patrol workload should occur, however, departments may need to reallocate personnel more frequently.

Systems for collecting workload information range from highly sophisticated computer data processing units to the keeping of simple tallies by dispatchers and patrol officers. The sophistication of the system does not necessarily guarantee an efficient allocation plan. We have visited some departments

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might consider the use of computerized data processing systems. The computerized workload models are immensely more sophisticated than a simple data processing system. A computerized scheduling system and two computerized allocation models are described in the last section of this chapter. It is emphasized, however, that the computerized system is not essential.

EXHIBIT 6

WORKLOAD ANALYSIS AND DEPLOYMENT
FLOW PROCESS

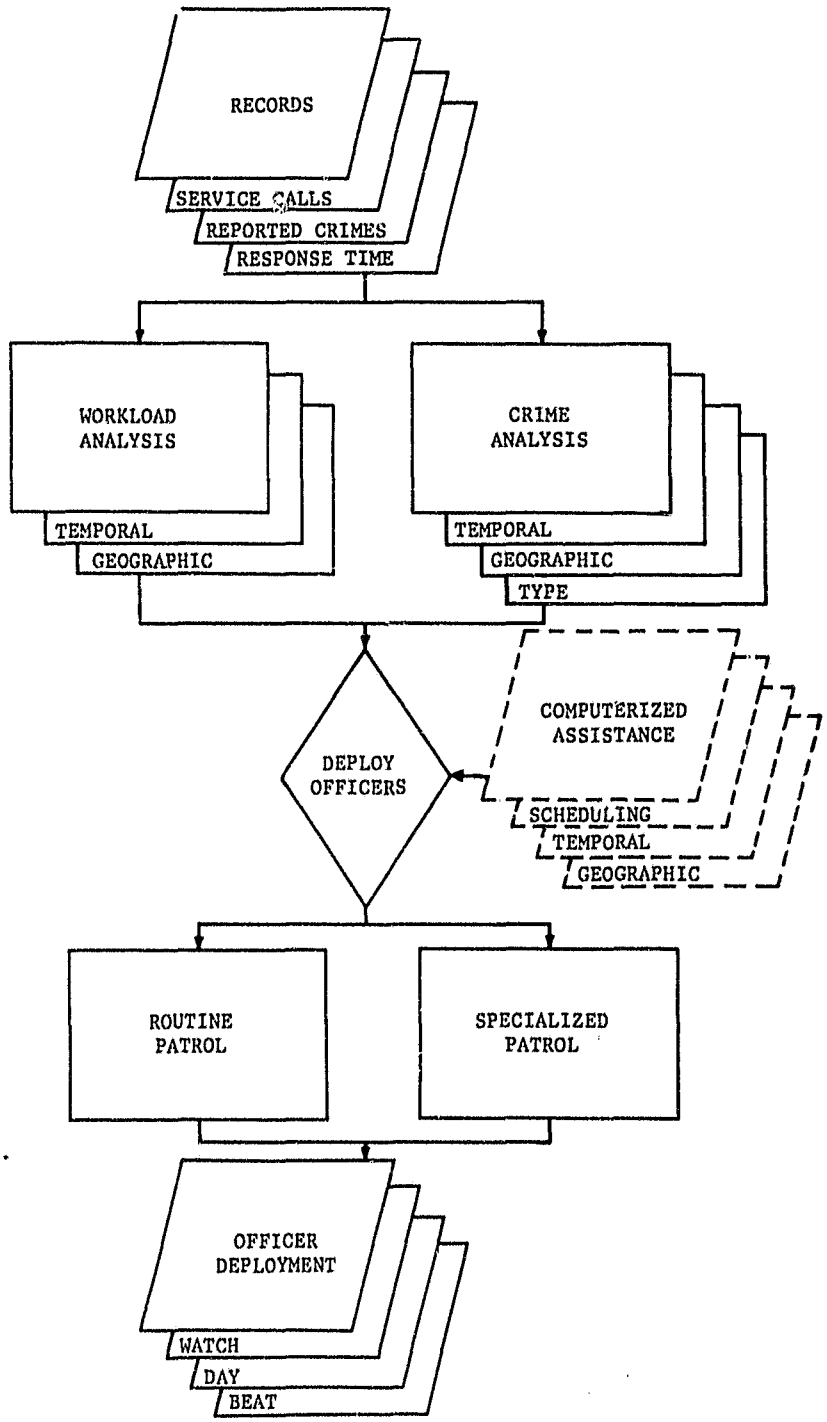

EXHIBIT 7

INFORMATION REQUIREMENTS FOR DEPLOYMENT DECISIONS

Calls for service:	Type of call Time of occurrence Date of occurrence (day) Location
Crime:	Type of crime Time of occurrence Date of occurrence Location
Response time:	Type of call Receipt of call Unit dispatched Unit arrived Unit cleared
Officer activity: *(by shift)*	Calls for service Directed patrol Officer initiated - on view activity Random patrol Administration Personal

with highly developed data processing systems that have not developed efficient manpower allocation schemes. On the other hand, we have also visited departments with manual data collection and analysis methods that have resulted in efficient deployment schemes. *The critical factor is not the level of sophisticated equipment or computerization, but the analytical ability of police planners and a commitment by patrol administrators to match personnel deployment to workload.*

D. Temporal Deployment: 24-Hour Graph

The most important information for deployment purposes is service call and reported crime data that specifies the time and date that incidents occur. This information permits analysts to construct a picture of how the patrol workload varies during different time periods and at different geographic locations. Perhaps the most useful technique for analyzing patrol workload patterns is to graph the number of service calls that are received by a department over a 24-hour period. The daily ebb and flow of the hourly service call workload represents the most dynamic fluctuation in the patrol workload.

Police planners and patrol administrators have found that matching the deployment of personnel to priorities in the hourly workload is, perhaps, the most critical factor in achieving an efficient and effective deployment scheme. Exhibit 8 shows the daily patterns of service calls in one midwestern city. The general workload patterns of this city are similar to workload fluctuations that we have charted in cities of various size and located throughout the country.[7]

The graph in Exhibit 8 displays the peaks and valleys in the calls for service workload and clearly illustrates the cyclical nature of patrol operations. The distribution of calls for service received during each hour ranges from a low of 1.3% between 5-6 a.m., to a high of 6.3% from 6-7 p.m. The peak workload for this department occurs in the late afternoon and extends to approximately midnight, when it begins to taper off dramatically. The workload pattern of this city and many others corresponds very closely to the life cycle of most people.

Some patrol analysts have hesitated to rely upon total calls for service as a means to deploy patrol officers because of a fear that the distribution of calls for service and reported crime are radically different. They have argued that although total service calls might fluctuate considerably,

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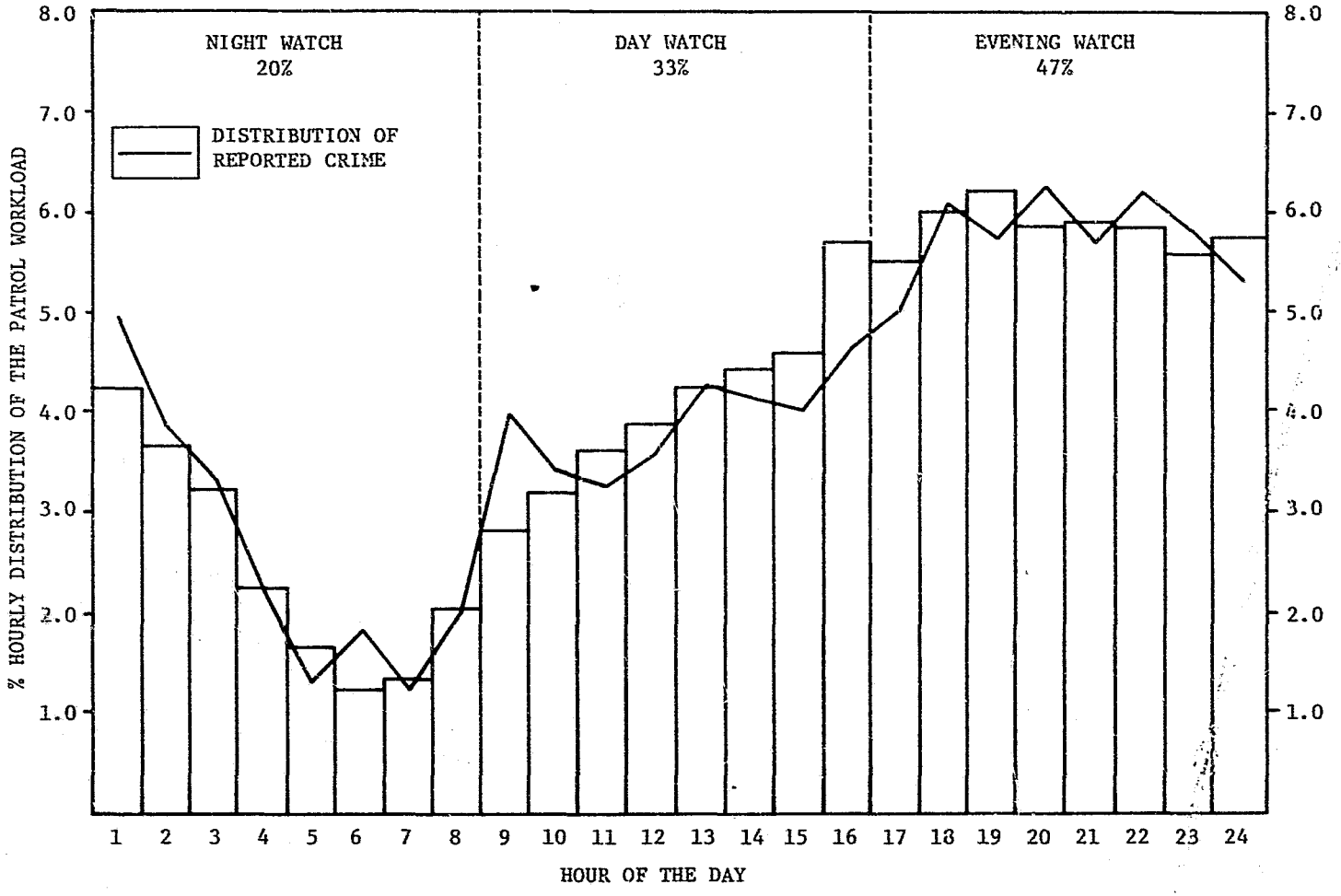
[7] For another discussion of hourly fluctuations in the patrol workload, see: Richard C. Larson, Urban Police Patrol Analysis (Cambridge, Massachusetts: The MIT Press, 1972), pp. 130-135, 166-169.

EXHIBIT 8

HOURLY DISTRIBUTION OF THE PATROL WORKLOAD AND CRIME



the amount of crime does not fluctuate in a similar manner. Some analysts, for example, believe that although total service calls drop dramatically during the early morning hours, these same hours are periods of rampant criminal activity. Although these conditions might exist in a few departments, analysis of workload and reported crime in other jurisdictions indicates that reported crime and total calls for service have similar graph patterns. To illustrate this point, we have also plotted the distribution of reported crime on Exhibit 8. *The service call and reported crime distribution are almost identical.*

The way in which patrol administrators respond to the hourly workload fluctuations displayed in Exhibit 8 has major significance for both the efficiency and effectiveness of patrol operations. Analysis of call for service patterns in several cities indicates that when temporal workload and reported crime are not used as the principal guides to deployment, the efficient and effective operation of patrol may be seriously impaired.

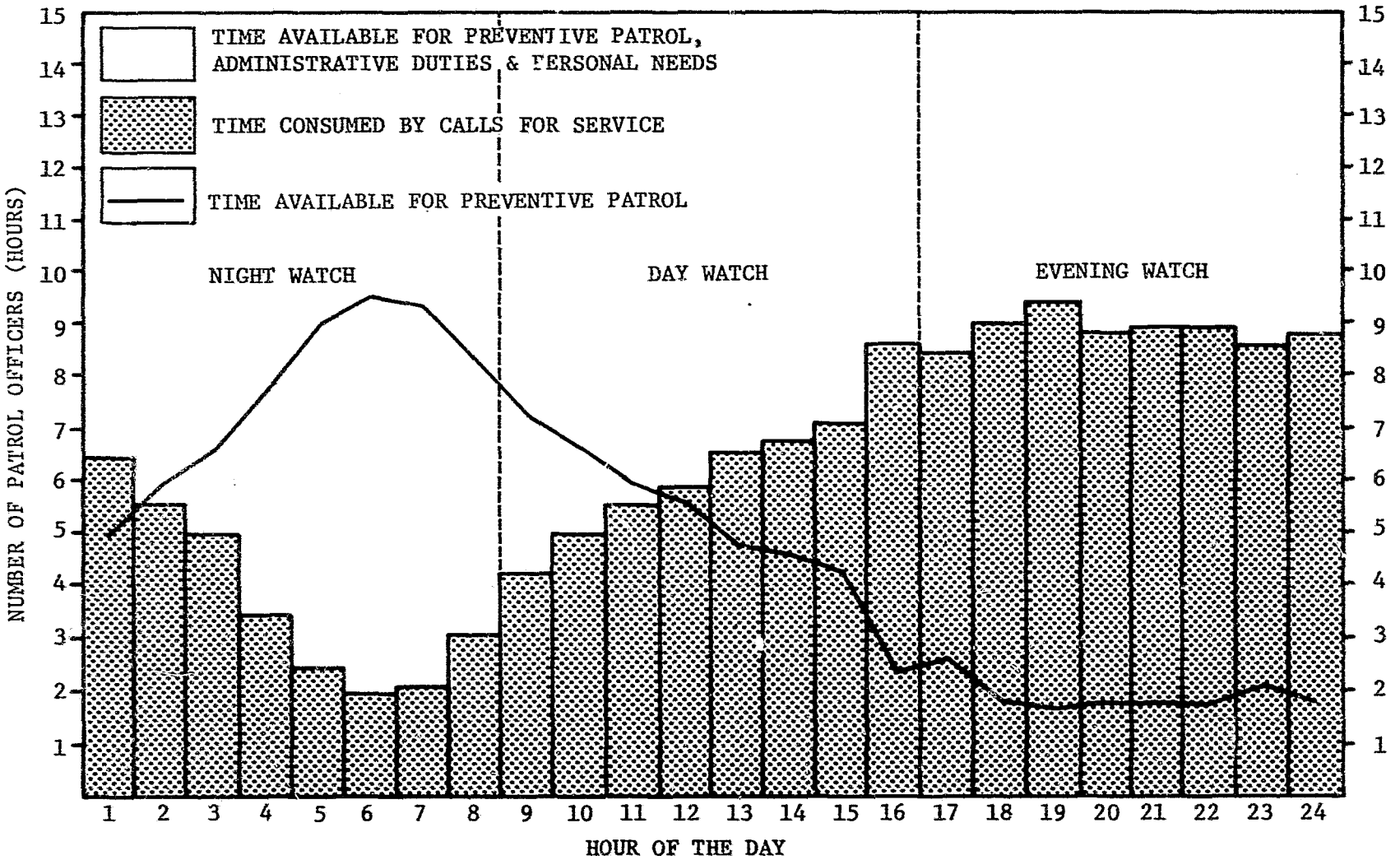
Exhibit 9 displays the incongruence between service demands and manpower deployment that frequently occur when a department ignores hourly fluctuations in the workload and allocates an equal number of patrol officers to each shift. In this example, 45 officers are available each day and an equal number -- fifteen -- are deployed on each shift.

This 24-hour graph indicates that an inverse relationship exists between the volume of workload and the number of personnel available to service that workload. *During those hours when calls for service are lowest, the department has the greatest number of officers available to answer calls for service and to engage in self-initiated, directed, and random preventive patrol activities as well as administrative duties.* Between 5 a.m. and 6 a.m., for example, when service demands are lowest, approximately thirteen hours of time are available for non-call for service activities. Between 7-8 p.m., however, when total service demands and crime calls are highest, only six hours of the 15 hours are available for non-service call work.

Keep in mind that not all non-committed time is devoted to productive patrol activities. A considerable portion of this time is consumed by meal calls and administrative duties like offense reports, roll call, car preparation, officer-supervisor meetings, and, especially during the day watch, court appearances. Although the total number of hours available for patrol, illustrated in Exhibit 9, appears to be high, this non-committed time is frequently reduced by as much as 25% because of the officer's personal needs and administrative duties.

EXHIBIT 9

EQUAL SHIFT DEPLOYMENT AND TIME AVAILABLE FOR PREVENTIVE PATROL



A simple and effective way to measure the efficiency of patrol deployment is to compare the number of hours consumed by calls for service to the amount of time that is available for preventive patrol activity. In an efficient deployment scheme, the service call and preventive patrol time lines would display a pattern indicating that as the call for service workload increased, the number of hours of preventive patrol should also increase. To better illustrate the relationship between calls for service time and the time available for preventive patrol activities, we have superimposed a line on Exhibit 9 that represents the number of hours actually devoted to preventive patrol activities.

When the service call workload is distributed, as in Exhibit 9, one finds that the assignment of an equal number of officers to each shift is neither efficient nor effective. *During the hours of peak call-for-service activity, when preventive and directed patrol activity should also be greatest, departments with equal shift staffing actually decrease the amount of patrol and in some cases provide virtually no preventive patrol.* Of the fifteen hours of patrol time available between 7 p.m. and 8 p.m., only two are devoted to preventive patrol. Just the opposite occurs between 6 a.m. and 7 a.m., when the workload reaches its lowest point. During this time, nearly two-thirds of the available time (ten hours) can be devoted to preventive patrol activities. The deployment of an equal number of officers to each shift, without regard to predictable fluctuations in the hourly workload, invariably results in an inefficient deployment scheme.

E. Two Workload Allocation Plans

Previous sections of this report have described the advantages of matching the patrol workload to the hourly demands for service. These advantages accrue to the department in terms of patrol efficiency and effectiveness and to officers in terms of an equalized workload. This section of the manual describes an allocation plan that can be used to deploy officers proportional to hourly changes in the call for service workload.

Problems of allocation are complex. We recognize that, although it is possible to carefully describe hourly variations in the patrol workload, it is not so easy to match work schedules to these fluctuations. While the workload analysis can be readily quantified and appears to be highly mathematical and scientific, the ability to schedule shifts of varying lengths and to schedule numerous watch starting times to approximate fluctuations in service demands is a difficult matter. The Law Enforcement Assistance Administration has developed a

workload-based computer program that can be used by both large and small departments to efficiently schedule patrol officers. We have described this program at the end of this chapter, and recommend that departments consider using it in developing temporal deployment schemes.

The deployment scheme described below is based upon the 24-hour graph of service calls. The graph was compiled by recording the number of service calls received by a mid-Western department over a 28-day period. In constructing workload graphs, departments have used either the amount of time consumed by calls for service or the number of patrol units dispatched to each call as methods to describe hourly changes in service demands. Either of these methods is adequate. Research indicates that the graphs for service calls, time consumed, or the number of units dispatched are almost identical. The deployment scheme illustrated here assumes that the department is able to deploy a total of 45 officers each day. If an equal shift staffing scheme were used, 15 officers would be deployed to each watch.[8]

Exhibit 10 displays the distribution of service calls in eight-hour, four-hour, and one-hour blocks of time for the 24-hour period. This distribution of the number of calls has been converted to the amount of time needed to service the calls and has been graphed upon Exhibit 11. The goal of the deployment plans described here is to allocate officers according to hourly changes in the workload and to enable the department to deploy enough officers on each shift to both answer service calls and perform preventive and directed patrol activities. *The measure of performance that we have chosen to judge the efficiency of both plans is the amount of time that can be devoted to preventive or directed patrol activities.* The available preventive patrol and directed patrol time is calculated by subtracting all calls for service and administrative and personal time from the total amount of time available for all patrol purposes.

The deployment scheme depicted in Exhibit 11 is the simplest and perhaps the most straightforward way to match the 45 patrol officers available to hourly changes in the patrol workload. Officers are assigned to each watch in proportion

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[8]For purposes of presentation we have chosen not to discuss the relationship between the total number of patrol personnel and the number available for duty each day. In general, five officers are needed to staff one full-time post 24 hours a day, seven days a week. If this is the case, approximately 54 officers would be needed to field 45 officers every day. For a more detailed discussion of this staffing problem, see: O. W. Wilson, and

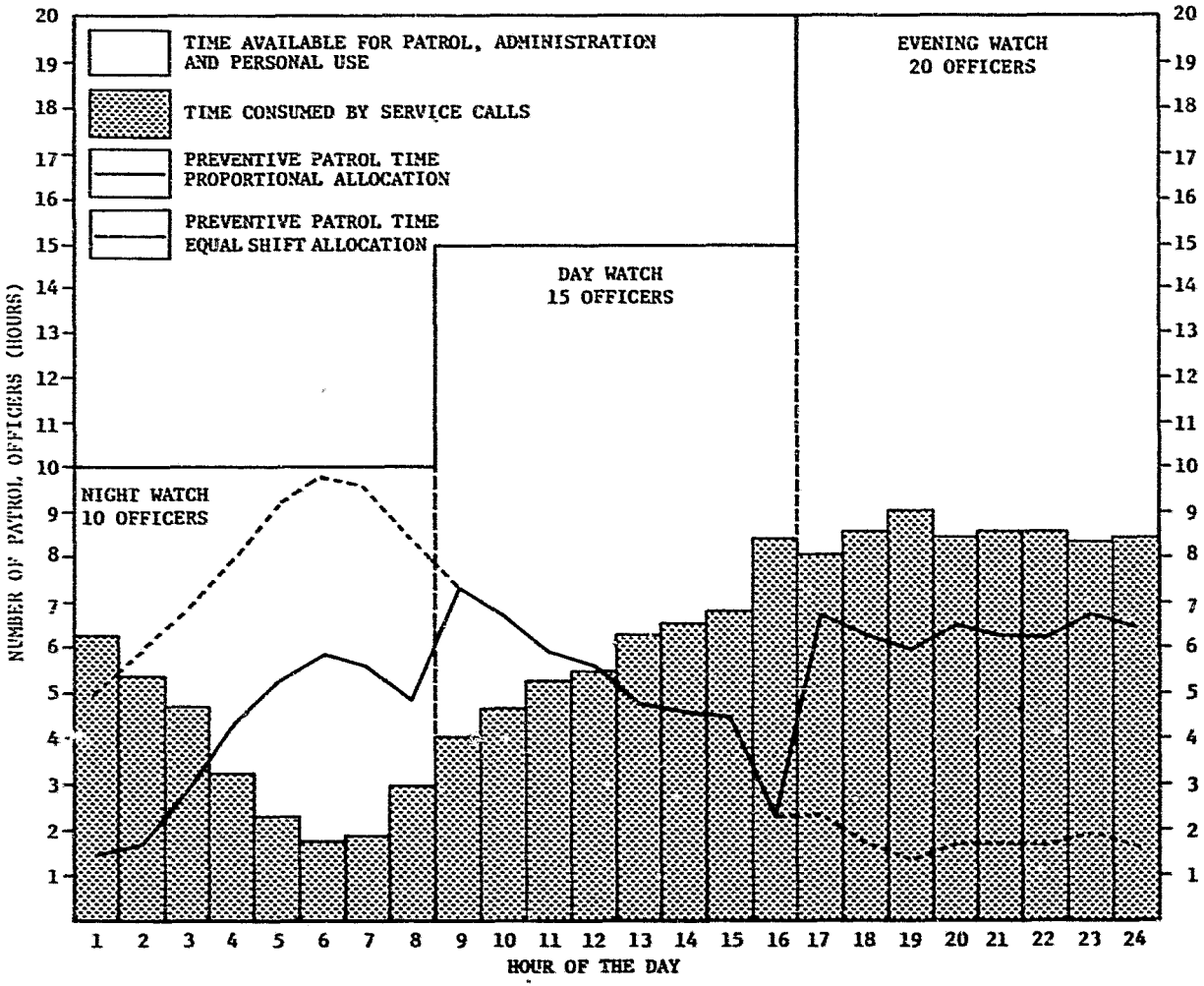
EXHIBIT 10

24 HOUR DISTRIBUTION OF CALLS FOR SERVICE

HOUR	# OF CALLS	HOURLY DISTRIBUTION	4 HOUR DISTRIBUTION	8 HOUR DISTRIBUTION
1	235	4.3%	13.5%	Night Watch 20%
2	202	3.7%		
3	180	3.3%	737 calls	
4	120	2.2%		
5	93	1.7%	6.5%	1093 calls
6	71	1.3%		
7	77	1.4%	356 calls	
8	115	2.1%		
9	153	2.8%	13.6%	Day Watch
10	180	3.3%		
11	197	3.6%	743 calls	
12	213	3.9%		
13	235	4.3%	19.3%	33%
14	246	4.5%		
15	256	4.7%	1054 calls	1797 calls
16	317	5.8%		
17	306	5.6%	23.8%	Evening Watch
18	328	6.0%		
19	344	6.3%	1300 calls	
20	322	5.9%		
21	328	6.0%	23.5%	47%
22	328	6.0%		
23	311	5.7%	1284 calls	2584 calls
24	317	5.8%		
TOTAL	5,474	100.0%	100.0%	100.0%

EXHIBIT 11

OFFICER ALLOCATION PROPORTIONAL TO WORKLOAD ON EACH WATCH



to the distribution of the workload on that watch. Generally, as the call for service workload increases, the number of officers assigned to the watch increases. Hence, the busy evening watch, which accounts for 47% of the daily patrol workload, has been allocated approximately one-half of the available officers.

The two lines on the graph are indicators of the allocation scheme's efficiency. The *solid line* plots the approximate amount of time available for directed patrol under a differential shift staffing plan. The *broken line* plots the amount of patrol time available when an equal shift staffing plan is used and indicates that although ample time is available for patrol activities during the night watch when the workload is light, very little patrol time is available during the busy evening watch. On the evening watch, when officers devote an average of eight hours of time to call for service work, only two hours can be used for preventive or directed patrol activities.

The distribution of time available for patrol activities changes dramatically when an equal shift staffing plan is abandoned for an allocation plan based upon workload fluctuations. By allocating twenty officers to the evening watch instead of fifteen, approximately six hours of patrol time are available each hour to implement a directed patrol strategy. If an equal shift staffing plan is used, however, the patrol force must act primarily as a reactive force that can do little but respond to service calls and perform administrative duties. And this occurs during the period of the day when the call pattern suggests a very large proactive presence would be appropriate.

Although the variable allocation scheme displayed in Exhibit 11 has done much to increase the opportunities for the implementation of directed patrol strategies on the evening watch, it is not the optimal deployment scheme. During the first half of the night watch, for example, very little time is available for directed patrol. Between 4 a.m. and 8 a.m., on the other hand, when the workload reaches its lowest point, abundant time can be used to implement a directed patrol strategy.

To achieve a better fit between the patrol workload and the availability of personnel, departments will have to consider the adoption of allocation schemes that do not fit

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R.C. McLaren, Police Administration, 3rd Edition (New York: McGraw-Hill Book Company, 1972), Appendix K.

the standard three-shift eight-hour watch structure. Patrol managers have addressed this problem in a number of ways. Some have reduced the number of officers on each shift to create an overlay shift that works the busiest part of the day (6 p.m.-2 a.m.). Other departments have staggered the starting times of officers on each watch to better match increases or decreases in the patrol workload. Although these variations complicate already complex allocation problems, they are the only way to efficiently utilize resources, and they enable patrol managers to plan and implement a variety of directed patrol tactics.

To illustrate an alternative way a patrol force can be scheduled, Exhibit 12 reproduces a deployment plan currently being used by the Wilmington, Delaware, Police Department. The figure indicates the number of officers deployed during each hour of the day, as well as the starting times for regular and overlay shifts. By using two overlay shifts of structured patrol officers between the hours of 10 a.m. and 2 a.m., and by delaying the starting time of several basic patrol officers on the day and evening watches by four hours, the department has implemented an allocation scheme that matches deployment to workload and response time needs. Prior to this deployment scheme, an equal number of officers were allocated to each watch. The new deployment scheme has enabled the department to promptly respond to service calls during the busy evening watch and implement a high level of directed patrol during these hours of peak demand.

To implement the directed patrol program described in this manual, departments will, at the very least, need to allocate the number of officers to each watch that are proportional to the call for service workload on that watch. If a better fit between workload and personnel deployment is desired, patrol managers will need to consider an over-lay watch during the busy evening period or an allocation scheme similar to the one being used in Wilmington.

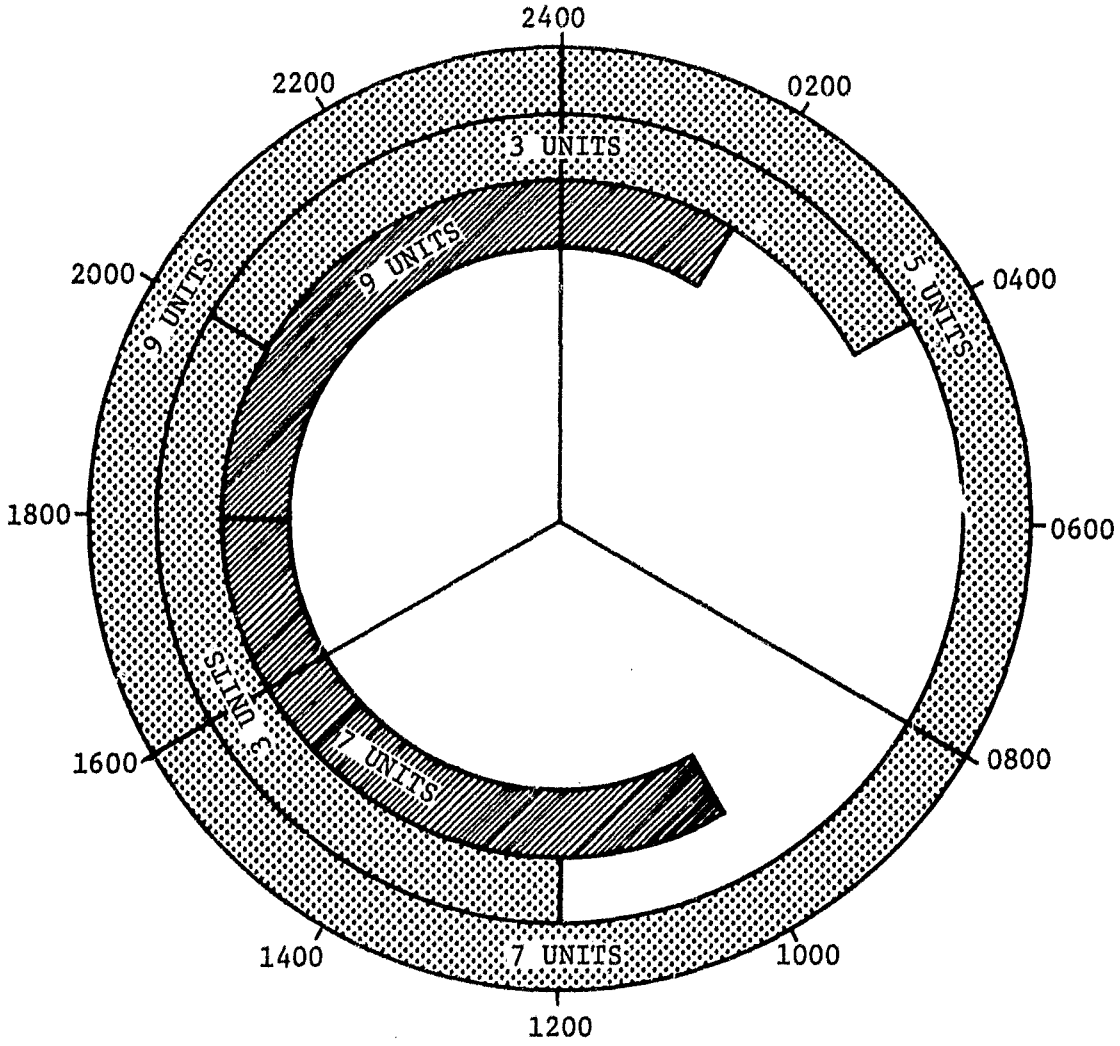
F. Temporal Activity: 168-Hour Graph

Although the hourly fluctuation in the daily workload is the most dynamic and critical factor in designing an efficient allocation plan, patrol managers will also need to review daily changes in workload. Perhaps the most useful technique for doing this is to construct a 168-hour graph that charts the distribution of service calls for an entire week.

The linear 168-hour graph in Exhibit 13 was constructed by using the service calls for an entire year's period from Cleveland Heights, Ohio. Exhibit 14 contains a 168-hour graph displayed on a circular format. The graphs dramatically depict several very significant features of the patrol workload.

EXHIBIT 12

TEMPORAL ALLOCATION PLAN: WILMINGTON, DELAWARE



NUMBER OF UNITS ON DUTY

WATCH 1		WATCH 2		WATCH 3	
TIME	NUMBER	TIME	NUMBER	TIME	NUMBER
24-02	17	08-10	7	16-18	19
02-04	8	10-12	14	18-20	21
04-08	5	12-16	17	20-24	21

First, *the graphs illustrate the extremely regular and cyclical nature of the peaks and valleys in the call for service workload.* The 24-hour pattern of activity repeats itself daily with regularity. Each day as the public awakes, the call load begins to build until it peaks during the last quarter of the day. During the early morning hours, the workload declines to only a small fraction of the peak period.

The 168-hour graphs also illustrate some daily variations in the service call workload, although these daily variations are not nearly as great as the hourly fluctuations. Some important differences between hourly trends on weekdays and the trends on Friday night, Saturday, and Sunday must be noted. *The workload carry-over from Friday night into early Saturday morning will generally stand out in contrast to the after-midnight trends on other days.* This same trend may also occur on Saturday nights. Such conditions may call for special deployment strategies, such as changing the hours of overlay shifts on Friday and Saturday nights. Another trend frequently detected by analysis of the total week is a very low Sunday afternoon and Sunday night trend. If such a trend is detected, it may provide an opportunity to offer a bonus to personnel working undesireable shifts by guaranteeing them regular days off on Sunday afternoons or on Sunday nights.

By collapsing data from the 168-hour graph, it is possible to construct tables that show daily variations in the workload. Exhibit 15 contains daily service call summaries for one department. The most notable characteristics is that the daily workload variations are not that great. Although Fridays and Saturdays indicate a slightly higher call rate than other days of the week, much of this is due to the increased activity that occurs on Friday and Saturday evenings. Departments using the 168-hour graph have noticed that the day and evening proceeding a holiday usually reflect increased activity levels similar to those found on Fridays. Halloween, in particular, creates special problems of vandalism in many communities.

Several departments have used 168-hour graphs as means to analyze their patrol workload and to reallocate patrol personnel. As part of a LEAA Region 5 Patrol Emphasis Program (PEP) grants, police departments in Cleveland Heights and Toledo, Ohio; Evansville, Indiana; Duluth and Minneapolis, Minnesota; and Beloit and Eau Claire, Wisconsin, used the graph to bring personnel assignments into better alignment with workload demands. Other departments have modified the graph in order to better meet their particular deployment needs. In Minneapolis, Minnesota, for example, deployment analysts found the 168-hour graph to be a useful tool for visualizing workload demands

EXHIBIT 13

168-HOUR GRAPH: CLEVELAND HEIGHTS, OHIO

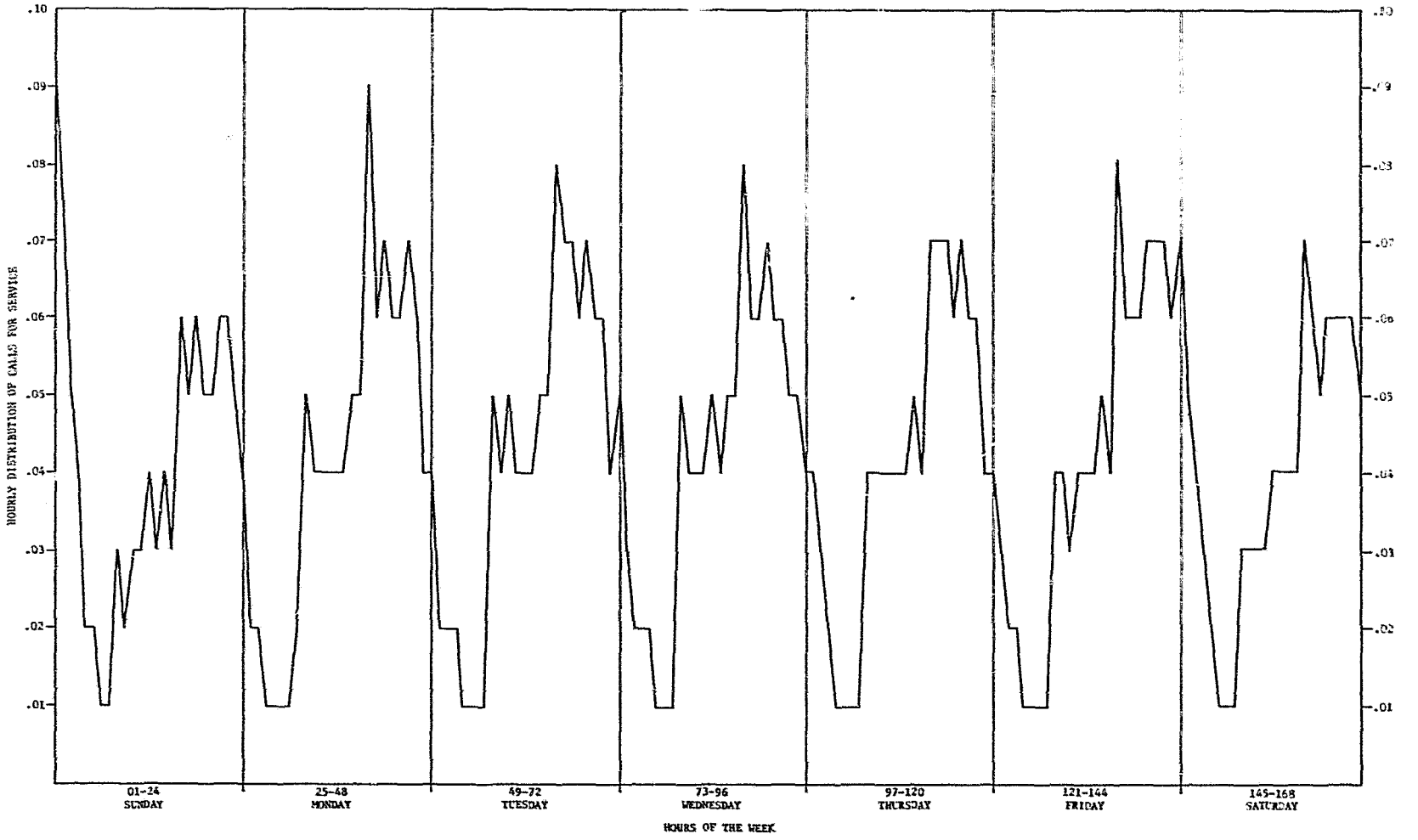


EXHIBIT 14

168-HOUR GRAPH: CLEVELAND HEIGHTS, OHIO

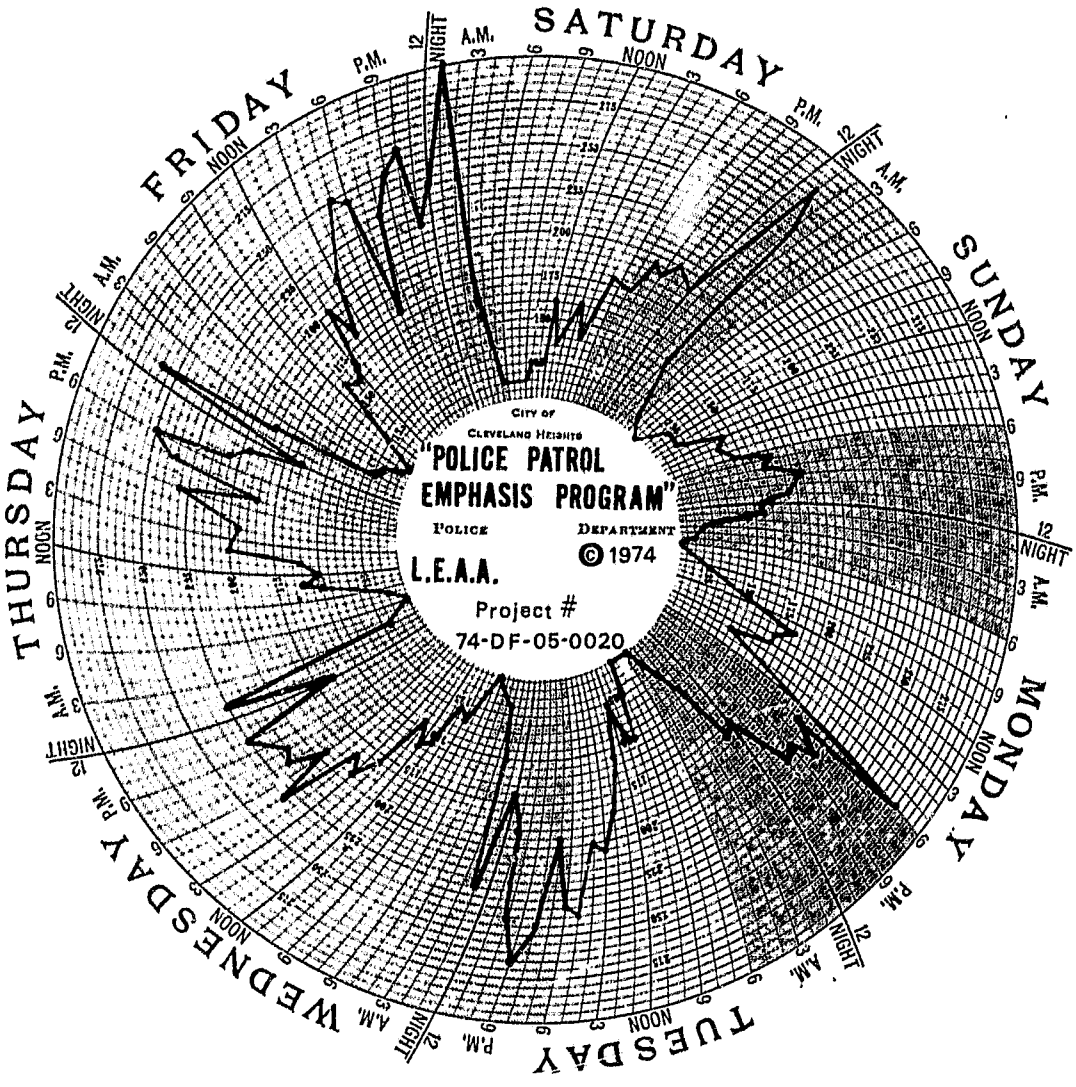
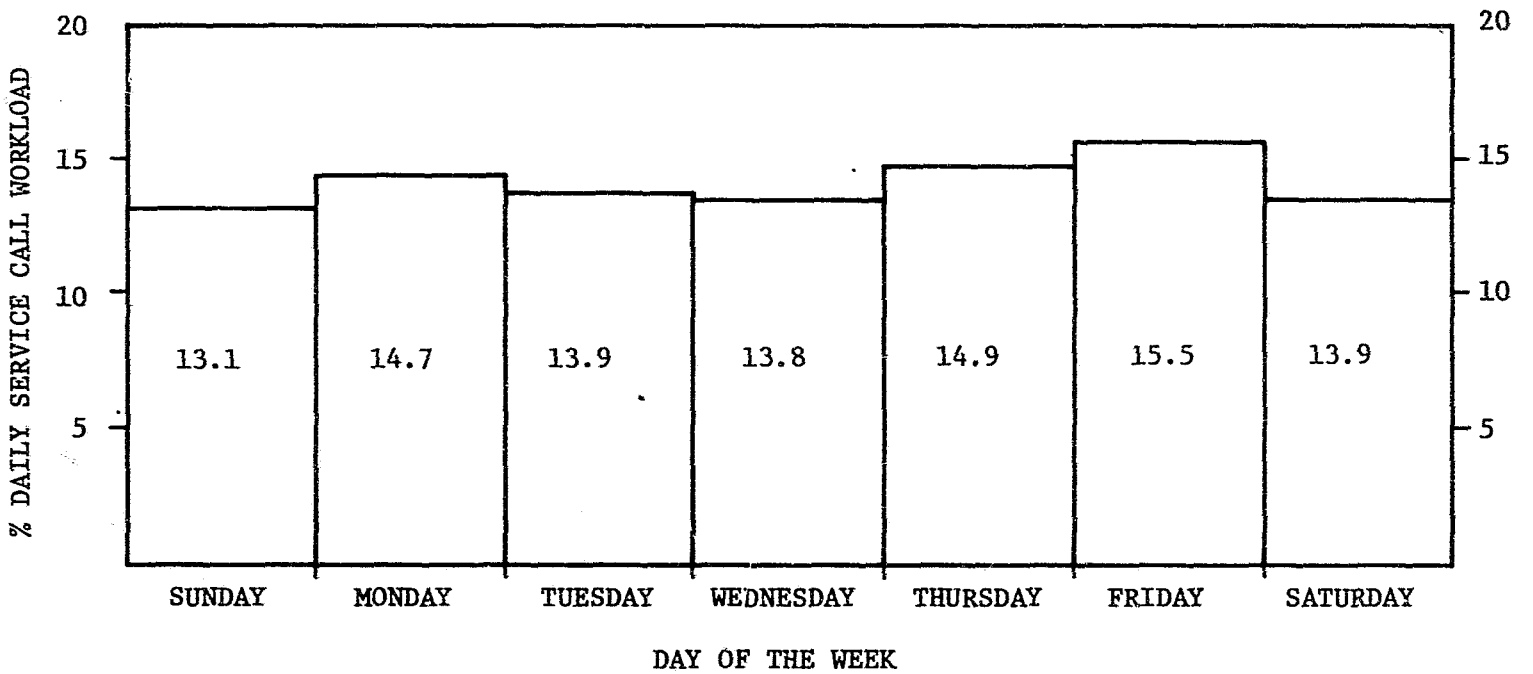


EXHIBIT 15

DAILY SERVICE CALL WORKLOAD SUMMARY
CLEVELAND HEIGHTS, OHIO



and have used it in conjunction with computerized allocation systems that also consider response time, call priorities, and travel distances in making deployment decisions.

In addition to analyzing patrol workload demands, departments have also found the 168-hour graph to be a particularly useful tool for analyzing traffic problems and accidents and for scheduling communications and dispatch personnel. For the small department that finds it difficult to commit personnel to data collection and analysis tasks, the low communication workload during the early morning hours can be used by dispatchers to complile and analyze workload information. It is our recommendation that every police department should, at a minimum, construct a 168-hour graph of calls for service and use this as a basis for a discussion of workload patterns and the allocation of patrol officers.

G. Geographic Deployment

The allocation of patrol officers to various watches based upon workload or response time data is only one aspect of the deployment process. A secondary part of the deployment process involves the assignment of officers to geographic areas in proportion to the level of service these areas demand. The approach taken in this report has been to first allocate officers in proportion to the distribution of calls for service service during the hours of the day. Only when a temporal allocation plan has been developed can the number of beats and their boundaries be determined.

Most departments have simply used the number of calls for service or the amount of time consumed in servicing the calls to design area assignments and beat boundaries. A few departments have used computer programs to review response and travel time data to design patrol beats. Like temporal service call demand, the service requirements for different geographic areas of a community will vary in fairly predictable ways. *Analysis of call for service and reported crime data usually indicates that the workload is not evenly distributed and that some sections of the community demand more service than others.* A frequent goal of patrol managers has been to identify the workload requirements of each part of the city and to deploy officers to these areas in proportion to their service demands. Such a deployment policy is designed to insure an even distribution of the patrol workload across each beat.

The development of patrol areas or beats is not nearly as precise a task as the design of watch allocation patterns. To a large extent, planned and formal beat boundaries have

been less critical in patrol deployment because of the realities of the service call workload and dispatch procedures. The policy of many departments to dispatch calls as soon as they are received to the first available unit has frequently destroyed the unit-beat concept. Studies of patrol operations have found that during busy periods it is not unusual for a patrol unit to respond to more calls for service outside its beat than inside it.[9] During periods when the beat car is unavailable for dispatch, other units must be dispatched to handle service calls.

The patrol planner usually designs beats in accordance with past calls for service and crime patterns; however, incoming calls for service will collapse and expand these boundaries according to minute-by-minute changes in the workload. *In many respects the procedure of dispatching patrol units in response to citizen service requests amounts to a real-time deployment system.* When cars are dispatched in response to service demand, they are likely to become clustered in problem areas that are demanding a higher level of service. Whereas beat boundaries have been viewed as a mechanism to focus patrol activities, reduce response time, and distribute workload evenly, they are, in fact, a means of dispersing patrol units to insure a minimum level of patrol in all areas of a community. Given the real-time nature of calls for service and the willingness of departments to dispatch the first available unit, beat boundaries in many departments have become an administrative device rather than an operational reality.

The fact that service call patterns and dispatchers frequently violate beat boundaries and that officers may not handle many of the calls on their beat does not obviate the need to carefully monitor the location of activities and to assign officers in accordance with this activity. *We recommend that, although patrol units can be assigned to specific beats, it is more realistic to assign several patrol units shared responsibility for a larger geographic area.* One way to achieve this is to create overlapping beat responsibilities. Although several officers would respond to calls throughout a three- or four-beat area, they would be responsible for the bulk of all prevention and directed patrol activities in only one beat of this larger area. This system would balance the need for officers to become familiar with the problems, people and geography of a small beat area with the need for promptly responding to service calls.

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[9] Larson, *op. cit.*, pp. 66-69, 242-243, 250-251.

The assignment of several units to serve a multi-beat rather than the one unit-one beat traditional deployment scheme is a more efficient allocation strategy. When departments divide the community into single beat areas and seek to maintain a low level of cross-beat dispatches, some units will be idle while other units may have several calls stacked waiting for a response. When several units are assigned responsibility for a multi-beat area, however, fewer calls will need to be stacked, response times will be quicker, the workload will be more evenly distributed among units, and, in general, patrol operations will be more efficient.

The process of distributing patrol units geographically is very similar to the procedure used to deploy officers on various watches. A careful tally must be kept of where calls for service and criminal activity occur. The first step in designing beat boundaries involves dividing the entire city into small reporting areas. Many cities have chosen to record workload data according to area boundaries that correspond to census bureau divisions. The level of disaggregation provided by census tracts or blocks is usually sufficient for deployment decisions and preliminary crime analysis. In addition, if a department should want to describe the socio-economic features of a section of the community, the crime and call for service data can be easily merged with census information. In rural areas or in small communities where the population is less dense and the level of activity is lower, patrol managers have used areas larger than blocks for collecting and analyzing workload data.

Whether the reporting units are census blocks or other small geographic areas, the process of recording and analyzing information is the same. Each reporting unit or block is numbered and when an incident occurs in a particular block, this information can be recorded. A tally sheet similar to that in Exhibit 16 should be sufficient for the smaller department to record and analyze the geographic distribution of activity within the community. The process involves noting the number of incidents in each recording area and converting this to a percent of the total number of incidents. Individual reporting areas can then be grouped into beats so as to evenly distribute the workload among the number of patrol units available. If, for example, two patrol units were assigned to patrol these 48 reporting areas, each beat would contain 50% of the total workload. If three patrol units were assigned, each beat would contain approximately 33% of the workload. Data collected over a 28-day period should be sufficient to construct beat and area assignments for officers. Once the process of recording this information has begun, the data can be analyzed on a monthly basis to modify the way officers are deployed geographically.

EXHIBIT 16

DAILY SERVICE CALL WORKLOAD BY REPORT AREAS

REPORT AREA	# OF CALLS	% OF CALLS	REPORT AREA	# OF CALLS	% OF CALLS
1			36		
2			37		
3			38		
4			39		
5			40		
6			41		
7			42		
8			43		
9			44		
10			45		
11			46		
12			47		
13			48		
14			49		
15			50		
16			51		
17			52		
18			53		
19			54		
20			55		
21			56		
22			57		
23			58		
24			59		
25			60		
26			61		
27			62		
28			63		
29			64		
30			65		
31			66		
32			67		
33			68		
34			69		
35			70		

It is important to remember that the number of reporting units in a beat and the geographic areas of the beats will change during each watch if officers are allocated in proportion to changes in the hourly call for service workload. Thus, the 48 reporting units might comprise one beat during the night shift (12 p.m.-3 a.m.) and be divided into two beats during the evening watch (4 p.m.-12 p.m.). Exhibit 17 contains a beat assignment for Hamden, Connecticut, that reflects how beat boundaries can be modified to meet the changing workload experienced during each watch. During the night watch when calls for service are lowest, only five units are deployed and the beats are quite large. During the evening watch, however, when the workload increases, additional cars are deployed and the beats are smaller.[10]

H. Computer Assisted Deployment

The collection and analysis of workload information as well as the allocating and scheduling of patrol officers is a very tedious and involved process. Even for the small department, the deployment details can be a frustrating experience. On the one hand, patrol managers must collect and analyze the information and design a deployment scheme; on the other hand, the deployment scheme must be fitted to the operational realities of the department and the expectations of individual patrol officers. Every patrol manager has spent agonizing hours in deciding how many officers should be assigned to each watch, what time each watch should begin, and how beat boundaries should be drawn. Even when these questions have been answered, it is still necessary to develop a schedule for individual officers that matches the deployment plan.

Recently a number of computer programs have been developed to assist both small and large departments to deploy officers both temporarily and geographically and to develop schedules for patrol units and individual officers. It is our recommendation that departments should review the capability of computerized deployment programs and assess how they might be used to achieve an efficient allocation plan.

Perhaps a role exists for the criminal justice regional planning units in the development of efficient deployment schemes

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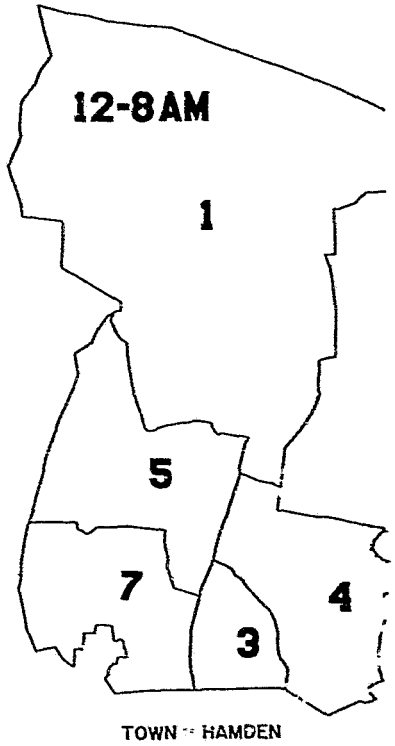
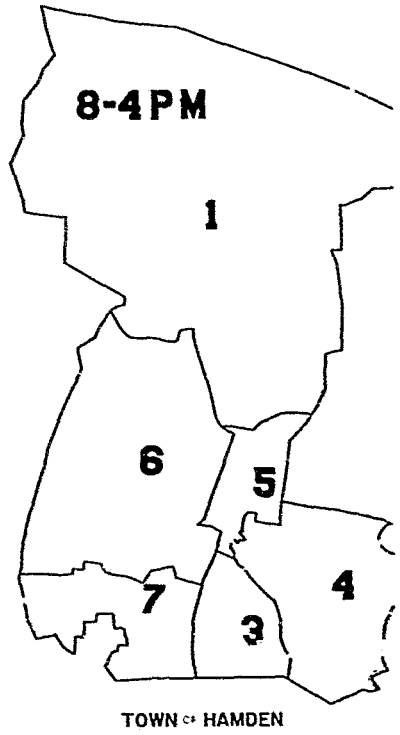
[10] William Carbone, Innovative Patrol Operations (New Haven, Connecticut: South Central Connecticut Supervisory Board), p. 16-17.

EXHIBIT 17

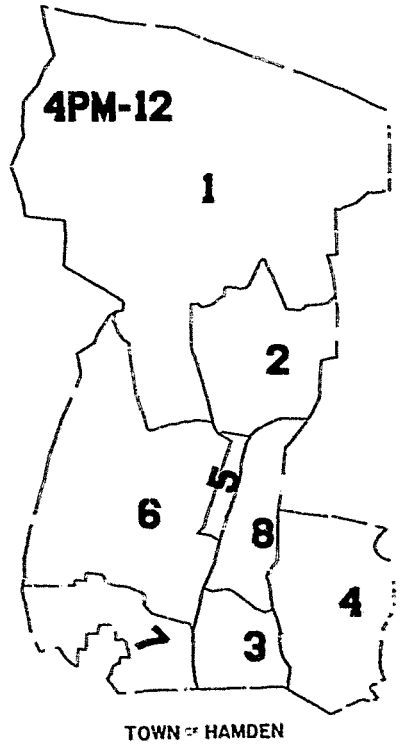
BEAT BOUNDARIES FOR EACH WATCH
HAMDEN, CONNECTICUT



NIGHT WATCH



DAY WATCH



EVENING WATCH

and the use of computerized aids to deployment decision-making. The planning and analytical capabilities of many RPU staff members might be used to assist departments in doing workload analyses and in acquiring and using the computer programs described below. The South Central Criminal Justice Advisory Board of New Haven, Connecticut, has, for example, helped establish a regional criminal justice computer system, developed the software needed to analyze workload patterns, and has been instrumental in encouraging departments to match deployment to workload. Other departments have used university faculty and computers to assist in the use of computerized deployment programs. We have chosen to describe three computer programs that can be used to develop work schedules, temporal allocation schemes, and beat designs.

1. Computer Designed Work Schedules

A computer program has been developed that enables departments to schedule officers so that the number of officers deployed to each watch and day of the week is proportional to the average demand for service during these periods. The purpose of this program is to deploy more officers during the busier periods of each day and to reduce staffing during the less busy periods. In addition, it will equalize the patrol workload among officers on each watch. Perhaps the major advantage of this program is that it not only develops an allocation plan but it also prepares a schedule for the entire patrol force and for individual officers which conforms to fluctuations in the patrol workload. Finally, this program can be used to develop a deployment scheme and schedule based upon the 24-hour and 168-hour graphs described in earlier sections of this document.

Data inputs for the program can be in the form of the number of calls for service, number of reported crimes, or the number of hours spent servicing calls. This workload information should be available for each watch and each day of the week. For those departments that are not currently collecting this data, it is possible to sample past records or to collect new data over a 28-day period. The program allows patrol managers to specify a number of schedule design features including the maximum and minimum length of both duty periods and days off, the upper and lower limits for the number of on-duty officers needed on each watch, and the period of time officers are assigned to each watch. Finally, for those departments that are on a rotating watch schedule, this program will design a rotation plan which deploys officers proportional to the workload on each watch.

The computer program produces a deployment plan for the entire department or for individual precincts that matches

the number of officers scheduled to the average workload on that shift. In addition, an individual schedule is produced for each officer. This program was developed for the Law Enforcement Assistance Administration and is available without cost from the National Institute of Law Enforcement and Criminal Justice to police departments and other criminal justice agencies. Details of the program are described in Nelson B. Heller's What Law Enforcement Can Gain from Computer Designed Work Schedules (Law Enforcement Assistance Administration, November 1974). Copies are available from the U.S. Government Printing Office.

2. Police Car Allocation Model (PCAM)

The patrol car allocation model (PCAM) is a computer program designed to enable departments to determine the number of patrol units to have on duty during various times of the day. Although the program allows departments to determine the number of units on each watch, it does not provide the detailed work schedules and rotation plans available from the previously-described workload based scheduling program.

Whereas workload-based allocation formulas seek to equalize the calls for service workload across watches, the goal of the PCAM formula is to deploy officers so that dispatch delays and response times can be optimized. The PCAM program has frequently been referred to as a performance-oriented system, because it provides patrol performance objectives (dispatch delay and response time). Although this program enables patrol administrators to deploy officers to geographic commands, it will not facilitate the design of individual beats.

The PCAM program requires several categories of data for input. In addition to the average number of calls per hour, departments must also enter the amount of time needed to service a call, estimates of average patrol speed and travel time to calls, as well as the amount of time consumed by non-calls for service work. PCAM offers departments a wide range of possibilities for specifying the number of regular and overlay watches during which officers can be deployed. In addition, departments can divide calls for service into three different priority categories.

PCAM can be operated in a descriptive or prescriptive mode. When operated descriptively, the departments can evaluate the performance capability of various allocation plans, including a department's current allocation plan. When operated prescriptively, the program will recommend to the user the best temporal allocation of existing resources. The "best" allocation can be defined by setting parameters for the average number of calls placed in queue, the average length of time priority

calls can be held prior to dispatch, and the total dispatch and response time.

The PCAM program was developed jointly by the U.S. Departments of Justice and Housing and Urban Development and its capabilities are described in the Patrol Car Allocation Model: Users' Manual, by Jan Chaiken and Peter Dormant (available from The Rand Corporation, 1700 Main Street, Santa Monica, CA 90406). Departments desiring to use this program may need some technical assistance from its developers or others familiar with its operation.

3. Hypercube Model: Beat Design

The hypercube queuing model is a computer program that can assist patrol managers in the design of individual patrol beats. The goal of the program is to provide planners with performance information about the ability of a patrol unit to answer service calls in various patrol beats. The program does not construct beat boundaries. Rather, it calculates performance measures for various beat designs that are prepared by planners. Hence, patrol managers can evaluate current beats as well as other hypothetical beat structures and then choose a design which best meets the department's needs.

To run the hypercube model, the community must be divided into reporting units that are smaller than beats. Some departments have used census block areas as the basic reporting unit. When the reporting units have been established, the number of incidents, the time required to service each incident, and the number of street miles in each reporting unit as well as the travel time between reporting areas must be recorded. In addition, the average speed of patrol units must also be estimated.

Because the hypercube program does not design beat structures but instead computes performance characteristics of various beat structures, it requires considerable program-planner interaction. Using the hypercube to design beats is a trial and error process. A convenient starting place is to first analyze the performance charactersitics of the existing beat structure. When this has been done, the beat structure can be changed by patrol planners in an attempt to create a structure that produces the best performance characteristics. The program outputs performance information about the entire patrol command, individual beats within the command, as well as information about each reporting area. The performance measures include the workload of each unit, average travel time to an incident, proportion of dispatches outside a beat, and the patrol frequency within each beat.

The hypercube queuing model was developed with support from the National Science Foundation, and details about it as well as the computer program are available from the Laboratory for Architecture and Planning, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139. The National Science Foundation is currently sponsoring a demonstration of the hypercube in St. Louis County, Missouri, and nine California cities.[11]

* * * * *

Users of these computer programs have found that they will not answer all deployment questions. Many of the most salient questions about deployment are subjective in nature, and these programs will not relieve departments of the responsibility for making these difficult decisions. Perhaps the best approach for police planners and managers is to seek to describe and understand the patrol workload and to use both intuitive and computer-based systems to design deployment schemes.

I. Summary Recommendations

It should be kept in mind that deployment and scheduling decisions are very vital and complex problems. These decisions cannot be made quickly. They will require a major and on-going commitment by those responsible for planning and directing patrol operations to analyze the patrol workload, develop a deployment plan, and work to insure that the plan is implemented. It is not an easy task, but it is one that must be done and is, perhaps, the foundation upon which effective field operations can be established.

The goal of this chapter has been to foster an understanding of the temporal and spatial characteristics of the patrol call for service workload, and to suggest some procedures that can be used to develop an efficient deployment process. Until more sensitive techniques of predicting workload patterns and of matching deployment to workload demands are developed, departments will have to rely upon the manual and computer-based systems described here.

This chapter has presented the argument that the effective and efficient utilization of patrol resources requires an analysis of patrol workload prior to the implementation of differential staffing levels on each shift. It is believed

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11 Information about the demonstration program is available from The Institute for Public Program Analysis, St. Louis, Missouri.

that all departments, regardless of size, should consider such deployment patterns. In sum, it is suggested that police administrators implement the following recommendations:

1. All departments should either initiate or update an analysis of patrol workload as a basis for rethinking the temporal and geographic deployment patterns of patrol personnel.

2. To facilitate the development of an optimal deployment pattern, all departments should construct a 24-hour graph of their workload patterns. In addition, all departments should develop a 168-hour graph in order to analyze not only hourly fluctuations in workload, but also fluctuations occuring on different days of the week.

3. Temporal and geographical deployment patterns should be developed in order to match proportionately the number of patrol units deployed to the demand for services by time of day and day of week.

4. In seeking to institute temporal deployment patterns, attention should be given to developing overlapping shifts, some of which may not correspond to the traditional shift hours.

5. All departments should assess their capabilities to use existing computerized resource allocation systems. Assistance in so doing may be available either through local, regional, or state agencies or through LEAA. It is noted, however, that small departments with a more limited data base are able to conduct such a workload analysis and to develop an optimal deployment pattern without computer assistance.

CHAPTER 3

MANAGING THE SERVICE CALL WORKLOAD

Next to designing an efficient allocation system, the way in which a department views and manages the call for service workload is one of the most critical decisions in developing an effective patrol program. Many departments have abdicated their responsibility for police services by allowing citizen calls for service to become the principal mechanism for directing patrol operations. As a result, patrol has become a reflexive action whose effectiveness is measured principally by response time.

All to frequently, departments have chosen to let calls for service become the tail that wags the dog. Witness the statements of police chiefs and patrol managers who assert that, "when citizens make a request, our units roll." Some would label this as the statement of a truly dedicated public servant. Observers of the police scene, however, would caution that *service calls should not take immediate priority over all other patrol functions and that perhaps some calls could be delayed or handled in an alternative manner.* The primary techniques for placing the service call workload in perspective are the prioritization of calls and the development of alternative response patterns.

Paramount concern for calls for service and reducing response time have frequently stifled attempts by patrol managers and officers to design effective patrol strategies and to implement specific crime deterrent and apprehension activities. For many officers, preventive patrol has become a time to merely wait for the next service call. Attempts by officers and patrol supervisors to initiate more meaningful activity have usually been overruled by efforts of dispatchers to keep as many cars as possible available for service calls. In order for departments to implement effective directed patrol strategies, efforts must be made to reexamine response time and service call priorities.

An objective of this chapter will be to outline an approach to service call clearance that will enable departments to analyze service calls and develop appropriate responses. *It is the view of these authors that not all calls merit a response by a mobile unit and that not all calls require an immediate response.* Departments that have developed alternative response methods and realistic reponse time goals have been more successful in providing patrol services than departments that have indiscriminately attempted to deal with every citizen request as an emergency. By adopting realistic call prioritization

plans and alternatives to mobile response, departments have been better able to handle service calls and allow patrol officers to implement preplanned and directed patrol activities on a regular basis.

This chapter discusses a variety of methods for prioritizing service calls and recommends a number of ways departments can respond to service calls without disptaching a mobile patrol unit. Included are discussions of call prioritization systems, alternate response patterns, one- vs. two-officer cars, and the use of civilians for some patrol tasks. By adopting these methods, a department can expect to reduce the call for service workload. In addition, the chapter contains a number of administrative and operational procedures that departments have adopted to increase the amount of time officers are available for street duty. Included are descriptions of streamlined report formats as well as innovative arrest and court procedures.

A. An Overview of the Call for Service Workload

In many departments, communications and dispatch personnel bear the major responsibility for the way patrol operations are conducted. Although dispatch personnel are seldom part of the patrol chain of command, their ability to direct patrol officers via the radio and the high priority given to service calls has frequently meant that dispatch runs street operations. The magnitude of the dispatcher's authority is evidenced in their ability to order patrol units to any part of a jurisdiction and to either start or stop activities based upon calls for services. In many departments, dispatchers perform their job with little direction from or interface with patrol planners or patrol managers.

When a department adopts a reactive posture and dispatches calls without careful consideration of how they will affect other patrol tactics, it is doubtful that the agency can mount an effective offense against crime. In developing a workload prioritization scheme, patrol planners must ask themselves two questions concerning the relative importance of calls for service and other patrol activities:

- How should calls for service be prioritized?
- What directed and self-initiated patrol activities should have higher priority than service call clearance?

Departments have done this to a certain extent by creating specialized patrol units and investigation divisions which are freed from responding to service calls. *However, few attempts have been made to map out a patrol strategy that places service calls in the context of the totality of what patrol officers can do to carry out the department's service mission.* Those departments that have prioritized their patrol workload have generally found that patrol officers have more time for both routine and directed patrol tactics. The

experience in St. Louis and Kansas City, Missouri; South Central Connecticut; and Wilmington suggest that prioritizing the patrol workload enables a department to operate more efficiently and effectively.

- St. Louis, Missouri, for example, has been able to reduce its dispatches by approximately 10% by refering calls to other agencies, by resolving problems directly over the phone, and, in some, cases, by having communications personnel take selected field reports.

- Several departments in the New Haven, Connecticut, area have assigned a higher priority to directed patrol activities than to most service calls. Except for emergency calls, which make up only a small portion of the call workload, these directed patrol activities cannot be interrupted. By doing this, the departments have been better able to initiate a variety of patrol tactics designed to prevent and deter selected crimes.

Exhibit 18 presents a hypothetical example of the call for service workload that is based upon a review of workload data in several departments. Many departments will find that it is possible to divide their service calls in a similar manner.[1] We have identified three basic types of calls that can be defined in terms of how a department would respond to them. *Type A calls are emergency in nature and will require an immediate response.* These calls must be dispatched and answered as quickly as possible. Athough they amount to from 10% to 20% of the call for service workload, they represent the highest patrol priorities.[2]

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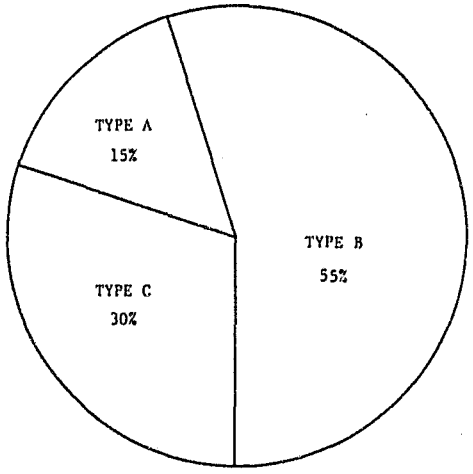
[1] For a general discussion of calls for service, how they can be categorized, and appropriate response patterns, see: James Q. Wilson, Varieties of Police Behavior: The Management of Law and Order in Eight Communities (New York: Atheneum, 1974), pp. 18-20; Thomas G. Bereal, "Calls for Police Assistance: Consumer Demands for Government Services," in George T. Felkenes and Paul M. Whisenand, Police Patrol Operations: Purpose, Plans, Programs, and Technology (Berkeley, California: McCutchan Publishing Co.), pp. 107-111; and Albert J. Reiss, The Police and the Public (New Haven, Connecticut: Yale University Press, 1971), pp. 89-97.

[2] The estimate that emergency responses constitute from 10-20% of the aggregate call for service workload is, we believe, extremely conservative. It is noted, for example, that in the Rampart area of Los Angeles, California, only 7% of the calls for service required an emergency response in which response time was critical. Los Angeles Police Department, Automated Deployment of Available Manpower (ADAM):

EXHIBIT 18

TYPES OF CALLS FOR SERVICE



TYPE A -- Time critical; immediate mobile response
TYPE B -- Time not critical; delayed mobile response
TYPE C -- Time not critical; mobile response not necessary

Type A calls involve in-progress crimes where the presence of police officers is needed to interdict criminal activity and protect citizens. This category would also include order maintenance, and disturbance calls that would lead to violence or property destruction, as well as medical emergencies. Basically, these are time-critical calls where an officer can take some kind of prevention, deterrence or apprehension action, or provide other emergency services. These are the calls that all departments must respond to with a high degree of efficiency and effectiveness.

Type B calls will require a police response but it does not have to be an emergency response. These calls comprise as much as 50-60% of the police call for service workload. Type B calls would include incidents that are not in progress: when a period of time (15 minutes) has elapsed between the incident's occurrence and notification of the police. Although many cold crime calls would obviously meet these criteria, a department will need to exercise some judgment in regard to crimes against persons, especially where

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Users-Manual (Los Angeles, California: Los Angeles Police Department, July 1975), pp. 10-12, 70-72.

injury has occurred. Most cold auto theft, burglary, and malicious mischief calls would be classified as Type B calls.

It is with Type B calls that a department has considerable flexibility in managing the patrol workload. By identifying a number of service calls for which response time is not critical, patrol managers have a tool for scheduling the service call workload. This scheduling will enable the department to create the blocks of time needed to implement directed patrol tactics.

The final category of calls - Type C - encompasses a wide range of reports for which the police will be able to do little, and perhaps nothing, to solve the citizen's problems. Type C calls account for approximately 30% of the call workload and include information requests that can be referred to other public or private agencies as well as problems of a police nature that can be solved or answered over the phone. This category might include reports of minor burglary, larcenies, or other property crimes where no suspects or evidence are available. Crimes reported well after they have occurred and citizen reports of traffic violations might also be included. Finally, this category might include a considerable number of non-crime related calls for service which departments routinely respond to.

When patrol managers have thoroughly analyzed the service call workload, they invariably find that a considerable amount of flexibility exists for handling the service call workload. By screening out the portion of marginal calls in the patrol workload and developing alternative response patterns, patrol managers can gain the blocks of time needed to implement a directed patrol program.

Although prioritization may involve delaying response to non-critical calls by as much as several hours, the delays and the scheduling of calls permit a department to implement a substantial directed patrol program.[3] In addition, delaying a response does

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[3] The distinctions made here between various types of calls for service are related to the basic deployment considerations discussed in the preceding chapter. The discussion in the previous chapter suggested that deployment patterns be established to reflect officer workload. Here it is being suggested that a department may want to vary its definition of workload. For example, rather than constructing the basic deployment pattern in order to respond to *all* calls for service, a department might decide to deploy for only Type A or for only Type A and B workload. The implications of such alternative decisions are significant: If deployment patterns are developed only for the proportion of the workload

not necessarily lead to a decline in citizen satisfaction with the police. Studies of response time in Kansas City, Missouri, indicate that *citizens are willing to let dispatchers schedule a delayed response to a call. Of primary importance to the citizen is not that a unit be dispatched immediately but that the unit arrive at the time designated by the dispatchers.* The caller must be told what to expect in way of a response. Dissatisfaction results when expectations are not realized.[4]

Exhibit 19 presents a flow diagram of the various decisions patrol managers need to make in handling calls for service. In some respects it is similar to the call prioritization scheme used by many departments. However, it carries the question of priorities

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represented by, for example, Type A and Type B calls for service; and if Type C calls are handled by either referral, response by appointment, or telephone and/or walk-in reports; then 30% of the workload has been diverted from response consideration; the number of units that have to be deployed in order to facilitate response can be reduced; and the amount of officer time available for directed activity increases substantially. Similarly, if the Type B calls are analyzed and it is determined, for example, that a significant proportion could be referred directly to the detective division without any initial patrol response being required, then the workload basis for deployment will have again been reduced and considerable time will have been freed for patrol officers to engage in directed patrol activities.

In sum, prioritization and deployment considerations go hand-in-hand. If the basic deployment pattern is not based on a disaggregated workload analysis, then prioritization can have considerable effect upon freeing officer time, as will be demonstrated in the following pages. However, it is suggested that the optimal approach may be to fold some of the prioritization concerns into the workload analysis undertaken in developing the basic deployment pattern. This would result in the dedication of only the number of response units required to handle "essential" calls for service, and in the ability to manage and control the response to non-emergency calls for service. In turn, the number of units available for directed activities or for diversion into specialized operations will be maximized.

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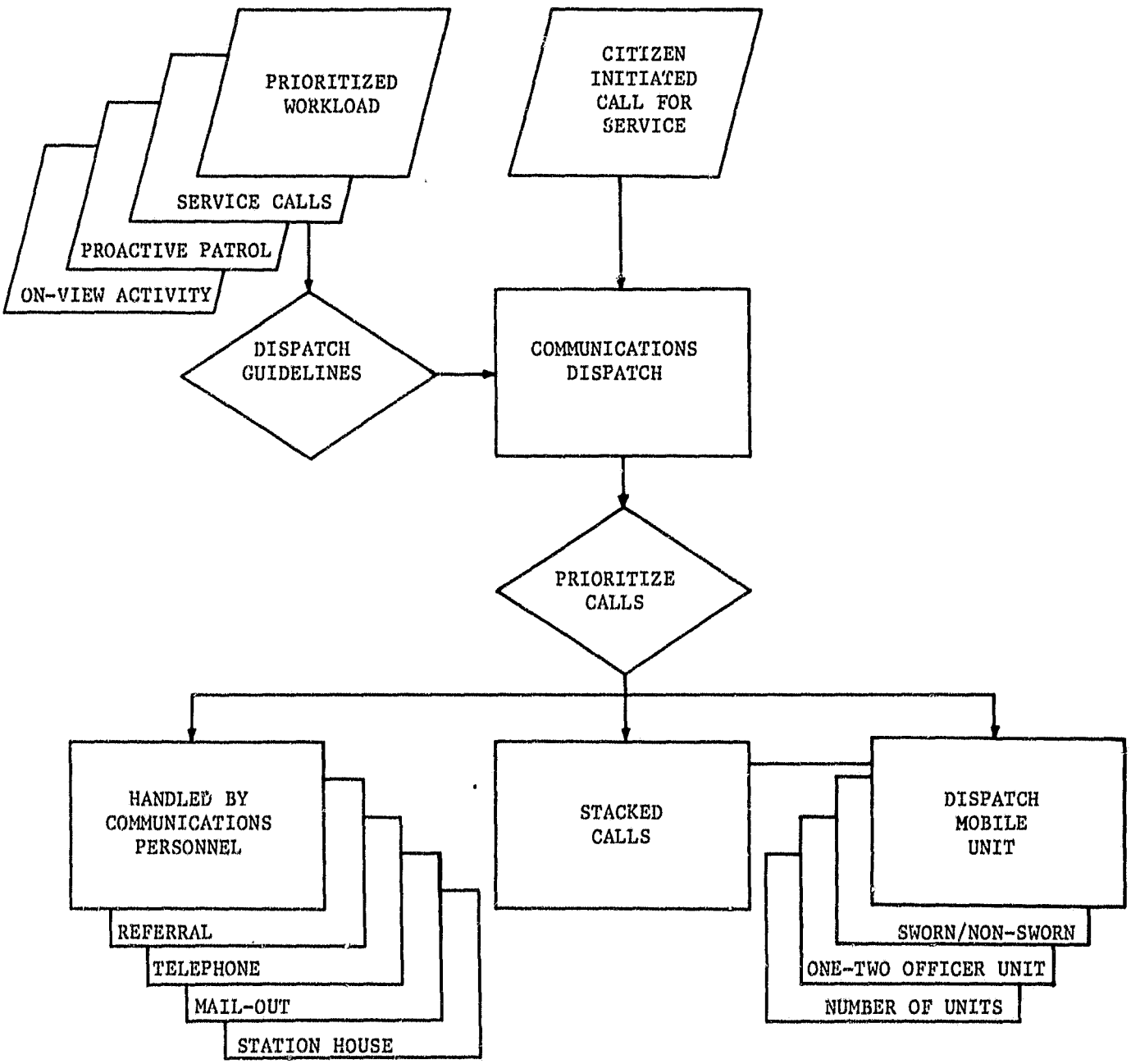
[4] Tony Pate, Amy Ferrara, Robert A. Bowers, Jon Lorence, Police Response Time: Its Determinants and Effects (Washington, DC.: Police Foundation), pp. iii, 38,49.

EXHIBIT 19

SERVICE CALL DECISION FLOW PROCESS



one step beyond just examining service calls. For this system to be effective in managing the patrol workload, administrators must prioritize calls within the total patrol workload. In many cases *this will mean that preventive, deterrence and apprehension oriented patrol tactics will take priority over many calls for service.* For example, saturation patrol in an area plagued by a high rate of commercial burglary would not be interrupted in order for an officer to take a cold larceny or burglary report. On the other hand, an in-progress call of any type might be sufficient to interrupt the saturation patrol.

Patrol managers have several options in deciding how and when a service call can be responded to once the myth that "all calls merit an immediate mobile response" has been dispelled. Experience in a number of departments indicates that citizen expectations about police service can be met in a variety of ways. Exhibit 19 depicts some of the options that are available to patrol commanders in answering service calls. Some departments have reported that as much as 40% of the calls they receive can be handled by communications personnel. Although many of these are simple information requests and referrals to other public and private agencies, departments have taken incident reports over the phone, mailed out forms to collect information about traffic accidents and petty larcenies, and asked citizens to come to the police station to file reports. Each of these actions has saved valuable patrol time that can be used to service more critical calls and to implement directed patrol tactics. *Every call that can be handled without dispatching a patrol unit permits a department to engage in approximately 40 additional minutes of patrol activity; every call for which a response can be deferred to a "slow period" diminishes the number of units needed to handle peak work loads.*

Even when departments must dispatch a mobile unit to a call, several options exist. First, certain calls can be stacked (i.e., response to them can be delayed) so that units not needed to handle emergency or "time critical" calls are free to engage in directed patrol activities. Further, departments have considerable flexibility in the number and kinds of units that are assigned to a call. Efforts should be made to classify calls according to whether they are serious or dangerous enough to merit response by a two-officer unit or by multiple patrol units. Many departments, by carefully classifying calls, specifying the number of units to be assigned and restricting voluntary roll-in responses by idle units, can save valuable patrol time which can be committed to preplanned preventive patrol tactics.

Finally, some departments have very successfully used nonsworn personnel to handle a portion of the service call work. Nonsworn units are particularly effective in responding to calls that require immediate attention, like medical emergencies, and traffic

accidents, but which may not require a sworn officer. Police Service Aides in Worchester, Massachusetts, for example, by handling one-third of the service call workload, have enabled sworn officers to form a specialized unit and implement a highly successful anti-burglary program.

B. Evaluating and Prioritizing Service Calls

The call prioritization scheme described here demands that dispatch personnel be given a considerable amount of discretion and responsibility. *Each call must be evaluated separately and assigned a priority ranking in relation to the entire patrol workload.* Although the process is demanding, efforts to prioritize the patrol workload will yield important benefits. Workload prioritization increases a department's ability to launch a sustained proactive patrol program that attacks problems as they are developing rather than after they have occurred.

In developing workload prioritization systems, patrol managers will need to examine the call workload and assess the relative merits of each call. Generally, answers to the questions of "what," "when," and "who" will guide dispatch personnel, allowing them to determine the priority ranking which should be assigned to a service call.

- What: Simply by asking what kind of an incident is being reported, dispatchers can usually determine how critical the call is. Certain types of calls will require an immediate response. Major felonies and incidents where a threat of personal injury or property damage exists will require top priority, as will medical emergencies.

- When: Knowing something about the kind of incident facilitates the assignment of a priority to a call. However, in many cases, this may not be sufficient. To properly evaluate calls, dispatchers will need to know when the incident occurred. By asking direct questions about time of occurrence and comparing this to the time the incident is being reported, dispatchers will have a clearer indication of how fast an officer should be dispatched to an incident. In-progress incidents or those that have occurred within the past 5-10 minutes would surely warrant a very rapid response. However, cold crimes can be handled via a telephone report or by the dispatch of a patrol unit when all high priority calls and directed patrol assignments have been completed. To effectively screen calls, departments will need to provide space on dispatch cards for communication

personnel to note the time at which the caller indicated an incident occurred.

- Who: Questions asked by communications personnel concerning likely suspects and witnesses can help to determine an appropriate response. If the complainant is reporting a larceny and/or vandalism where no information exists about who was involved, it may be better to take a report over the phone than to dispatch a patrol unit. The time saved by taking telephone reports or by delaying a mobile response would be better used for directed patrol purposes. On the other hand, if the perpetrators are still in the area, and information regarding their identities is available, then immediate mobile response would be important.

By asking the questions described above, departments can develop a system which can be used to evaluate all calls for service, match citizen needs with appropriate responses and thereby provide for the effective management of patrol time. The remainder of this section describes three basic options available to departments in responding to service calls. These options range from handling minor calls with telephone or with mail-in reports to dispatching either civilian personnel or sworn officers to handle the more critical calls.

Option 1: Non-Mobile Responses

Because of the time needed by patrol units to answer service calls, departments can save valuable patrol time by handling selected calls via the telephone. In designing a call prioritization system, departments will need to determine which calls can either be stacked for a delayed response or handled directly over the telephone. Some departments, for example, have reduced the number of calls dispatched by as much as 20% by adopting the screening procedures described below. *Successful non-mobile responses have involved referring citizens to more appropriate public and private agencies, taking incident reports over the phone, and requesting citizens to file a report at the nearest police station.*

a. Referrals

A first step in this process is to develop a system for referring calls directed to the police to more appropriate public or private agencies. Because of the willingness of the police to act as a 24-hour social source agency, departments have frequently been the recipient of service calls for which they can take no effective action. Rather than dispatch units in response to these calls, it may be more appropriate to refer the caller to

another public or private social service or municipal agency.

The institution of effective referral procedures must, however, be handled carefully. Individuals calling the police for non-crime related services may come to believe that the police referral is merely a "shunting aside." Frustration will be increased if the police were called as an agency of last resort (i.e., if the caller had already made several calls to other agencies and was unable to gain assistance from "anyone else"); if those to whom the caller was referred were neither willing nor able to attend to the request; or if the request requires immediate attention and more appropriate agencies are "closed for business" until the following morning.

The general attitude of the public toward the police, the attitudes of individuals who call the police for selected services, and the general willingness of the public to support and cooperate with the police in all contexts may be affected by the quality of police responses to non-crime related calls for service. As a consequence, in initiating a referral program which amounts effectively to a police withdrawal from the provision of selected non-crime related services the following common sense guidelines and principles should be kept in mind. They will enhance the effectiveness of the referral and perhaps contribute to a positive attitude toward the police department.

- Police operators and police officers should be knowledgeable of the social service delivery network and know to whom it is appropriate to refer a citizen. A number of communities have comprehensive social service and resource directories. Typically, they are indexed by problem areas and provide the names and phone numbers of agencies (public and private) which can be contacted for assistance. Also included are fairly complete descriptions of the services offered by each agency. Police operators and officers should have such directories available to them. If the directory does not exist for a given community, the police, together with other agencies, might support its development.

- The police should take an initiative to enhance cooperation with the myriad of municipal and social service agencies in the community. This can facilitate the effective referral of non-crime related calls (as well as victim follow-up services) and contribute to a dissipation of the feeling that the police are referring calls because they are "insensitive to human needs" or "unwilling to provide help to the community."

- For certain types of critical problems the police (perhaps through the department's community relations office) might want to follow up by telephone to determine whether or not the referral was effective. In addition, this procedure would serve to undercut any impression of "insensitivity" which a referral program might, at least initially, engender.

- In instituting a referral procedure in lieu of dispatching mobile units to selected calls for service, a department might consider educating the public regarding the rationale and implications for the department of the referral procedure. Departments with limited budgets are confronting a trade-off between crime and non-crime related service goals. The public should recognize these trade-offs, as should the officials of the community.

Implementing and following through with an effective referral program can be of considerable importance to a department and to the general community. People requesting non-crime services of the police have need which should be met by appropriate agency responses. If the police must cut back on their provision of such services to devote additional resources to deterrence, prevention, and apprehension activities, then calls should be directed to other agencies having a more appropriate service mandate and a more appropriately qualified staff. Otherwise a service "void" will emerge and the needs of a large segment of the public may go unmet. In context it must also be remembered that (1) the police department is frequently the point of first contact with a citizen in need; (2) some types of assistance should be provided without delays; (3) the department will continue to receive a great many calls for non-crime related services merely because of the way the public thinks of the police; and (4) the department has a 24-hour switchboard and a 24-hour response capability. Thus the police department might continue to operate as an essential nexus between the community and the social service delivery network. If it is to be effective in this role, however, it must actively work with the other agencies to develop appropriate referral mechanisms and follow-up procedures.

b. Telephone Reports

For some cold crime calls, especially larcenies and vandalism, the dispatch of a mobile patrol unit may not be the best use of patrol time. Rather than dispatch a unit, departments have taken these reports over the telephone. Although departments need to exercise discretion in doing this, it has become an effective and accepted technique of saving patrol time. St. Louis, Missouri; Denver, Colorado; Kansas City, Missouri; Dallas, Texas; and St.

Petersburg, Florida, for example, complete crime reports on the basis of telephone interviews. Reports are generally taken over the phone for such occurrences at petty larceny, criminal mischief, or vandalism, telephone threats and nuisance calls, auto thefts, and incidents of loss and fraud (except when there is reason to believe that those responsible may still be in the immediate vicinity in which case it is appropriate to dispatch a mobile unit). Before adopting a telephone reporting system police administration will have to review citizen expectations about police service as well as state and local laws and rules of evidence.

c. Mail-In and Station House Reports

Some critics have used mail-in reports to gather information from citizens about certain types of incidents; or, in lieu of mail reports, other cities have asked citizens to appear at a police station for the purpose of making out a report. For example, departments have found that it is unnecessary for officers to be present while persons involved in motor vehicle accidents fill out reports. Rather than have an officer stand waiting for the report to be completed, some departments have their officers simply hand out the report form and request that it be completed and mailed in. This method can save precious patrol time and should be adopted by departments in all incidents when an officer did not observe the accident, when there is no bodily injury, or when property damage is minimal. If, however, an injury has occurred, traffic laws have been violated, a traffic hazard persists, or the parties to the accident refuse to cooperate with one another, then an officer's presence would be mandatory. By placing responsibility for filing accident reports forms squarely upon the citizen, departments can save as much as 40 minutes of patrol time for each accident.

In addition to using mail-in accident report forms, Minneapolis has, for example, been giving victims of property theft a form to fill out which describes property lost during a burglary or larceny. This frees the officer from standing by while the victim makes a survey of lost property, yet permits the officer to gather information about stolen property. Rather than use mail-in report forms, some departments have requested victims to come to the police station to file reports on selected larceny and vandalism cases as well as traffic accidents.

In order for a department to effectively make referrals and to take reports by phone or at the station house, several conventions, must be followed. First, *although all complaints do not merit a response by a mobile patrol unit, this does not necessarily diminish the importance of that call in directing patrol operations. All telephone and station house reports must be automatically entered in the department's records system so they can be used by patrol managers to direct operations.* In some instances, it may be

worthwhile to immediately notify first line supervisors when a call is handled by communications personnel. For example, the proper procedure for handling a larceny call would include taking the report over the phone, notifying the patrol sergeant, and entering the report on the department's crime data base. By following this procedure for all incidents, regardless of their priority, departments will have the information needed to carry out meaningful crime analysis as a basis for determining the appropriate tactical responses to be taken by regular and/or specialized patrol units or by the detective division.

To further insure the success of the call prioritization system, *departments will also need to carefully explain the new procedure to callers.* Although some departments have chosen to tell citizens about the new program during community or civic meetings, other departments merely explain the procedures when a citizen calls to report an incident that can be handled by a telephone or station house report. The need to explain any new response pattern to citizens should not be underestimated. Although citizens have readily accepted the use of non-mobile response techniques, like telephone reports, it is necessary to carefully explain these procedures in order to maintain citizen satisfaction. It should be noted, however, that if complainants insist upon the presence of an officer, it is usually best to comply with their request.

Option 2: Stacking Service Calls

A citizen call for service should be assigned to the patrol division for a mobile response only after communications personnel have thoroughly screened each service call and determined that it cannot be handled via the telephone or by a walk-in response. Even when a decision has been made to dispatch a mobile unit, however, patrol managers still have considerable flexibility regarding how the response is to be handled. To develop this flexibility, departments will need to carefully examine all service call types and assign each a priority based upon the immediacy of the response required. In-progress crimes and medical emergencies would certainly demand an immediate emergency response, while requests to respond to cold crimes could easily be stacked and held until enough units are available to handle emergency calls and provide a minimum level of directed patrol.

Analysis of calls in one California city revealed that in-progress crime calls, disturbances, and medical emergencies accounted for less than 15% of the service call workload.[5] If a

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[5] *Op. cit.*, Los Angeles Police Department, pp. 70-72.

similar pattern exists in your department, it implies that patrol managers have a considerable degree of latitude in scheduling calls for service. *Unless a call is an emergency situation and demands an immediate response, the call should be stacked and answered only when enough units are in service to handle emergency calls and officers have completed their directed patrol assignments.*

Increasing a department's ability to classify and stack calls is one of the most powerful administrative tools available to the patrol manager. Although officers frequently have enough patrol time available to implement directed patrol tactics, the way this time is structured prohibits its effective utilization. In order for patrol time to be effective, it must be available in "blocks of time." *Some patrol planners have maintained that beat officers need approximately 30 minutes of uninterrupted time to take any constructive preventive crime measures.* They go on to suggest that patrol time in less than 20 minute blocks severely limits the officer's ability to engage in any meaningful proactive patrol.[6] When patrol managers prioritize and stack service calls, they are able to create blocks of patrol time long enough for officers to implement and complete directed assignments.

Prioritizing calls has several major effects upon a patrol division's operation. First, it permits patrol managers and officers to develop specific patrol tactics that can be implemented and carried out when and where they are most effective. It as encouraged individual patrol officers to analyze beat conditions, plan selected patrol activities, and implement these activities. It has been our observation that patrol officers will initiate a more active patrol strategy when they have some control over time frames within which they can respond to low priority calls.

Exhibit 20 lists the way service calls are being prioritized by the Kansas City Police Department to facilitate its directed patrol program.[7] All calls are carefully screened to see if they meet the criteria for an immediate response. It is important for communications personnel to classify the incident correctly because

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[6] City of Phoenix, Arizona, Police Program Analysis and Review (Phoenix, Arizona: Budget and Research Department, Report #74-78, February 1974), pp. II-19.

[7] This call prioritization is currently being used in the East Patrol Division of Kansas City, Missouri.

EXHIBIT 20

KANSAS CITY, MISSOURI, CALL PRIORITIZATION GUIDELINES

TYPE OF CALL	TYPE OF RESPONSE
Homicide	
Homicide	Immediate
Suicide/Attempt	Immediate
Dead Body	Immediate
Sex Offenses	
Rape/Attempt	Immediate
Molestation	Walk/Phone In
Indecent Act	Walk/Phone In
Robbery	
Robbery/Attempt	Immediate
Strongarm/Attempt	Delay *
Assaults	
Shooting	Immediate
Cutting	Immediate
Other Assault	Walk/Phone In
Burglary	
Residence	Delay
Non-Residence	Delay
Larceny	
Larceny/Attempt	Walk/Phone In
Holding Person For	Immediate
Purse Snatch/Attempt	Walk/Phone In
Auto Theft	
Stolen/Attempt	Walk/Phone In
Attempt to Locate	Walk/Phone In
Recovered Stolen	Delay
Miscellaneous Report	
Animal Bite	Delay
Loss	Walk/Phone In
Recovered Property	Delay
Destruction of Property	Walk/Phone In
Open Door or Window	Immediate
Fraud	Walk/Phone In
Suspicious	
Person	Immediate
Prowler	Immediate
Car Prowler	Immediate
Occupant, Parked Car	Immediate
Ambulance	
Investigate Need	Immediate
Ambulance En Route	Immediate
Fire Or Disaster	
Fire	Immediate
Explosion	Immediate

TYPE OF CALL	TYPE OF RESPONSE
Intoxicated Person	
Person Down, Injured	Immediate
Intoxicated	Delay
Disturbance	
Disturbance	Immediate
Investigate Trouble	Immediate
Mental	Immediate
Noise (specify)	Delay or Refer to City Prosecutor's Office
Traffic	
Handle Traffic	Delay
Check Traffic Lights and Barricade	Immediate or Notify Public Works
Obstruction in Street	Immediate or Notify Public Works
Illegally Parked	Delay
Traffic Accident	
Accident, Property Damage	Walk/Phone In or Delay
Investigate, Injury	Immediate
Fatality	Immediate
Alarm	
Holdup	Immediate
Burglar	Immediate
Self-Initiated Duties	
Traffic Violation	Immediate
Assignments	N/A
Building Check	Delay
Car Check	N/A
Foot Patrol	N/A
Warrant/Subpeona	Delay
Car Chase	N/A
Listing	Delay
Pedestrian Check	N/A
Residence Check	Delay
Juveniles	
Lost Juvenile	Immediate
Disperse Group	Delay
Holding	Immediate
Miscellaneous	
Check Abandoned Car	Delay
Wires Down	Immediate
Explosive Device	Immediate
Gambling Game	Delay
Target Shooters	Immediate
Animal	Delay
Lost/Senile	Immediate
Assist Motorist	Delay
Open Fire Hydrant	Delay
Fireworks	Delay

**All calls marked "DELAYED" will be answered immediately if the incident is in progress, suspects are in the area or are known, and there is danger to human life or of property destruction.*

certain types of incidents like homicide, robbery, disturbances, and medical emergencies require an automatic and immediate response. In addition, if the dispatcher is able to answer any of the following questions affirmatively, a patrol unit must be dispatched immediately.

1. Is the incident in progress or did it just occur?
2. Are suspects present in the area?
3. Are the whereabouts of suspects known?
4. Is there danger to human life?
5. Is evidence in danger of being destroyed?

Calls that do not require an immediate response are handled in several ways by the Kansas City, Missouri, East Patrol Division. For some calls, reports are taken directly over the phone. This is especially true for larceny and vandalism. Dispatchers also have the option of requesting citizens to report to the station house to file reports. Traffic accidents where no injury has occurred is a good example of this type of call. Some calls, like burglaries, are serious enough to require a mobile response, although this response can be delayed.

Kansas City has adopted a maximum 40-minute delay period; however, other departments have delayed calls for longer periods of time. St. Louis, for example, stacks some calls for up to 90 minutes while Wilmington has a 45 minute delay limit. It is unclear just how long calls can be delayed. Certainly the type and seriousness of the incident are key factors in determining delay guidelines. Further, the way communications personnel describe the stacking procedure to complainants is critical in maintaining confidence in and satisfaction with the police response. Studies of citizen satisfaction with response time in Kansas City indicate that citizens are willing to accept lengthy scheduled delays as long as patrol units arrive at the time designated by dispatch personnel.[8]

Stacking selected calls enables a department to answer critical calls rapidly during busy periods and permits it to delay answering less critical calls until the call workload is lower. *It is our recommendation that all departments carefully evaluate each call before it is dispatched and determine whether a mobile response is essential, and, if essential, the time frame within which the call should be answered.*

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[8] Pate, *et al, op. cit.*, pp. iii, 38, 49.

Option 3: Mobile Response Units

Even after dispatch personnel have determined that a call should be handled by a mobile patrol unit, departments still have a considerable amount of flexibility regarding the nature of such a mobile response. The way in which a department dispatches field units can dramatically affect both the efficiency and effectiveness of patrol operations. In general, patrol managers need to make two critical decisions after they have determined that a service call merits a mobile response. The critical questions are:

- How many officers or units should respond to individual calls for service?
- Can civilian personnel be dispatched to cover selected service calls?

a. One-officer and two-officer units

The issue of staffing patrol units with one or two officers has been an on-going controversy in many departments. Until the Police Foundation study of one- and two-officer patrol units in San Diego was completed, much of the controversy was based on subjective judgments rather than empirically tested facts.[9] *The major controversy has revolved around the issue of officer safety.* On the one hand, proponents of the two-officer car maintained that because of its built-in cover, fewer officers were likely to be assaulted. In addition proponents of the two officer car have also argued they eliminate the need to dispatch cover units, and increase officer observational potential.

Supporters of the one-officer unit, on the other hand, have been quick to point out that not all calls are serious enough to require two-officer units and that most calls can be screened to determine the appropriate type of coverage needed. Proponents of the one-officer units have also argued that because officers who work alone are more cautious, they are just as safe as officers who work in pairs. Although issues of efficiency and cost have entered the debate, they have usually taken a position secondary to that of safety. On occasion the discussion of one- v. two-officer cars has become a highly political issue in both the police department and the community.

The Police Foundation study in San Diego addresses the question of safety, costs, officer productivity, and

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[9] The San Diego, One-Officer/Two-Officer Car Study, was conducted by the Systems Development Corporation and will be published by the Police Foundation in the near future.

patrol effectiveness. The study was based upon a year-long experiment with 22 one-officer and 22 two-officer patrol units. *In general, the study clearly indicates that departments should not adopt two-officer units across the board but should use them very selectively.* The seriousness and level of crime in a community and the type of call being responded to appear to be key elements in deciding whether to dispatch a one- or two-officer unit. Departments will find that, in most cases, the assignment of both one- and two-officer units to a community is the safest and most productive approach. Although the study has addressed most of the key technical issues involving the use of one and two officer cars it only tangentially discusses the social and political resistance that many rank and file officers have to the one-officer car. The study reached the following conclusions:

- Officer Performance: Although the two-officer units were slightly more productive in making arrests, issuing traffic citations, performing field interrogations, and initiating contacts, the differences were not always statistically significant. *In fact, the level of productivity for two one-officer units was nearly double that of one two-officer unit.*

- Quality of Arrests: Similar results were found when the number of arrests clearing the first judicial screening were examined. Regardless of the number of officers in the unit, the proportion of arrests that cleared the first judicial screening were virtually identical.

- Efficiency: The San Diego experience strongly indicates that one-officer units are nearly as efficient as two-officer units. In spite of the fact that two-officer units cleared calls faster, had more time available for patrol, and needed less back-up than one-officer units, the one-officer units did almost as much work as two-officer units.

- Safety: A review of 28 incidents when an officer was injured because of an assault or because a resisted arrest indicated that only seven of these incidents involved solo officers. The remainder of the assaults involved two-officer units or one-officer units that were accompanied by a back-up unit. However, the kind of situation was more important in predicting an assault than was the number of officers in a patrol unit.

The principal inference to be drawn from the San Diego study is that two-officer units should not be used city-wide. Because of the higher costs of two-officer units, it is imperative that departments very carefully prescribe where two-officer units be used and to what kind of calls they should be dispatched.

Although each department will need to examine its decision to deploy one-and/or two-officer units, three questions should be posed in order to design a deployment scheme which guarantees officer safety while constituting an efficient and effective utilization of patrol resources:

- *How dangerous is the area in which the unit will be assigned?* Areas with high incidence of violent crimes and officer assault would be targets for two-officer units. However, even in these areas, patrol managers will probably want to mix one- and two-officer units in order to optimize officer safety and patrol.

- *How dangerous are different types of service calls?* The system of analyzing service calls must enable dispatch personnel to identify situations that require two-officer units. By screening calls departments can assign both one- and two-officer units to high crime areas, while insuring that only the most dangerous incidents are handled by two officers.

- *How dangerous is the watch?* Crime analysis can indicate the times of the day and week when violent crimes are most prevalent and when assaults upon officers have occurred.

An issue which is closely related to the use of one- vs. two-officer units is the type of back-up that is assigned to one-officer units. By assigning two one-officer units to selected calls for service, patrol managers can maintain the higher efficiency and effectiveness of one-officer units while achieving the slight margin of safety that accompanies the use of two-officer units.

Whether departments employ only one-officer units or a combination of one- and two-officer units, *the key to an efficient utilization of these resources is a call classification system that assigns the appropriate type of unit to each service call.* The matching of patrol units to service calls is similar to matching deployment to fluctuations in the workload. In both instances, a poor match results in underutilized resources and needlessly expensive patrol costs.

b. Non-Sworn Personnel

The extent to which it is possible to differentiate calls for service is evidenced by efforts of a number of departments to use non-sworn personnel to help with the patrol workload. Miami, Florida; Scottsdale, Arizona; and Worcester, Massachusetts, have all initiated programs to use non-sworn personnel in patrol assignments. Unlike the limited use of civilians by other departments, these agencies have assigned a substantial number of calls for service and patrol tasks to non-sworn personnel.[10]

Each of these programs was designed to permit sworn officers to devote more of their time to order maintenance and anti-crime activities. In Worcester, for example, the use of civilian Police Service Aides (PSA) has enabled sworn personnel to mount a more effective anti-burglary program; while in Miami, sworn officers have been partially relieved of routine calls for service. Further, Miami has used its "Threshold Program" as a means to recruit and train future police officers. *Both departments have found that by using non-sworn personnel, sworn officers can be relieved of many routine patrol duties, patrol effectiveness has not diminished, and selected patrol functions have in fact been enhanced.*

One of the key elements in the success of the Police Service Aides in Worcester and the Threshold Program in Miami has been the type of personnel recruited and the kind of training received. In both cities the characteristics of non-sworn recruits and regular police recruits are very similar. This may be accounted for by the fact that most of the aides aspire to eventually become regular sworn officers. In Miami, this is also the intention of the department, where the only difference between aides and regular officers is that the former have not yet reached the minimum age for employment as sworn officers. In both departments, the non-sworn personnel are given extensive training prior to employment - 400 hours in Miami and 300 hours in Worcester. In addition, Threshold officers are also enrolled in a program leading to an associate degree in law enforcement. The success of these programs can be attested to by the high degree of both officer and citizen acceptance of the programs.

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[10] An evaluation of the Worcester program is contained in James M. Tien, An Evaluation of the Worcester Crime Impact Program (Cambridge, Mass.: Public Systems Evaluation, Inc., September 1975). For a review of police programs that use civilians in non-patrol situations, see: Alfred I. Schwartz, *et al.*, Employing Civilians for Police Work (Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, June 1975).

In summary, the Miami and Worcester programs are significant for several reasons:

- They can provide an avenue to recruit and screen future police officers;
- They enable departments to provide high quality and lost cost service for non-law enforcement related police functions;
- They free sworn officers to provide more intensive prevention, deterrence, and apprehension activities; and,
- They clearly indicate that the patrol workload can be differentiated and that calls can be assigned individual priorities.

The last point - differentiation of the patrol workload and prioritization of the service calls - deserves special attention. To illustrate the opportunity that exists for differentiation of the patrol workload, Exhibit 21 reproduces the guidelines for assigning service calls to police and/or Police Service Aides in Worcester. Some assignments are clearcut. All investigations, in-progress crimes, and most disturbances are assigned to police officers. In other activity categories, the PSA's have been assigned responsibility for the less serious and more routine incidents. A large portion of the PSA activity has involved reports concerning stolen vehicles, traffic accidents, malicious mischief, and larcenies. In addition, they have engaged in a considerable portion of the department's transportation assignments and have been dispatched to assist citizens and perform traffic functions. *The Police Service Aides have been able to handle approximately one-third of the calls for service received by the Worcester Police Department.*[11]

C. A Word About Dispatch

One of the ironies and organizational anacronisms of patrol operations is that communication and dispatch functions are usually classified as "auxillary" or "support" services and are organizationally placed outside the patrol division. Standard police texts have traditionally insisted upon separating the patrol and dispatch functions.[12] Although this may make some sense in terms of equipment

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[11] *Op. cit.*, Tien, Chapter 5.

[12] See, for example: George D. and Esther M. Eastman, Municipal Police Administration (Washington, D.C.: International City Management Association), Chapter 3.

EXHIBIT 21

SERVICE CALL ASSIGNMENTS FOR SWORN OFFICERS AND POLICE SERVICE AIDES IN WORCESTER, MASSACHUSETTS

	PSA ONLY	PO ONLY	AMBIGUOUS
ROUTE ASSIGNMENTS			
Report to Headquarters, Precinct I, etc.....			X
Standby (Precautionaries)	X		
Assist, Meet, Pick Up Officer			X
Pick Up Papers, Etc..	X		
Escort Duty			X
Snow Complaints	X		
Guard/Transfer Prisoners.		X	
Found/Recovered Property.	X		
Notifications			X
Assist Citizen.			X
Verification.			
ALARMS			
House Alarm		X	
ADT Alarm . . . . . .SS		X	
Car Alarms (Burglary)	X		
Fire Alarms	X		
Bonfire	X		
Car Fires	X		
DISTURBANCES			
Vandalism			X
Disorderly Person		X	
Disorderly Gang		X	
Fight		X	
Drunk		X	
Suspicious Person (Prowler)		X	
Suspicious Car (Occupied)		X	
Children Disturbing	X		
Discharging Firearms.		X	
Noise Complaints.			X
Rubbish Complaints.	X		
Animal Complaints	X		
Domestic Trouble.		X	
NONCRIMINAL INVESTIGATIONS			
Open Door/Window/Lights on in Building. . . .		X	
Defective Streets/Walks/Wires	X		
Licenses/Permits.			X
ALL POINTS BROADCAST			
Stolen/Recovered Car.	X		
Stolen/Received Car	X		

EXHIBIT 21 (con't.)

	PSA ONLY	PO ONLY	AMBIGUOUS
ALL POINTS BROADCAST (cont.)			
Wanted/Located Car		X	
Missing/Located Person	X		
Wanted Person/Suspect		X	
Missing/Located Patient			X
Escaped/Apprehended Prisoner		X	
Lost/Stolen/Recovered Plates	X		
MEDICAL CASES			
Sick Person	X		
Injured Person	X		
Dead Person		X	
Overdose		X	
INVESTIGATIONS			
Homicide		X	
Rape		X	
Assault		X	
Armed Robbery		X	
Unarmed Robbery		X	
Larceny from Motor Vehilce		X	
Attempted Larceny from Motor Vehicle			X
Breaking and Entering Dwelling/Commercial		X	
Bomb Threat		X	
Bombing		X	
Narcotics Offenses		X	
TRAFFIC INCIDENTS			
Auto Accident with Property Damage	X		
Auto Accident with Personal Injury		X	
Auto Accident with Hit and Run		X	
Auto Obstructing			X
Traffic/Parking Violations		X	
Abandoned Car (Empty)	X		
CRIMES IN PROGRESS			
Rape		X	
Assault		X	
Armed/Unarmed Robbery		X	
Larceny		X	
Breaking and Entering Dwelling		X	

and records systems, it makes little sense in terms of patrol management and patrol operations.

Workload analysis has indicated that from 25% to 40% of the patrol workload is controlled directly by dispatch personnel and that these calls have frequently been given priority over all other patrol tasks. In addition, the fact that dispatch personnel can terminate preventive patrol activities at will and that calls for service are frequently the driving force behind patrol operations would seem to make it imperative that dispatch be located directly under the control of patrol managers. *Dispatch should be recognized for the large role it plays in directing patrol operations and, as such, should be an integral part of the patrol function and not classified as a support function and lumped together with truly auxilliary services like records, jail, garage, data processing, and personnel.*

Any attempt to re-direct patrol operations along the lines outlined in this chapter will demand a considerable amount of planning and operational support from communications and dispatch personnel. A review of attempts by departments to prioritize service calls and to free officers from service call clearance have indicated resistance from dispatch personnel. As one patrol lieutenant put it, efforts to restructure patrol operations have frequently been hampered by dispatchers who disregard workload and call prioritization schedules. For communications and dispatch personnel who have been indoctrinated with the importance of citizen requests for service, rapid response time, and their ability to dispatch patrol units at will, a call prioritization system and stacking procedure may not be immediately accepted.

To implement the deployment, call prioritization and directed patrol programs described in this report, departments will need to thoroughly review all dispatch procedures. An initial step in this direction might include the reincorporation of the dispatch function under the command of patrol administrators. Although it may be desirable for the management or technical services bureau to be responsible for communication equipment and dispatch records, this responsibility should be of a support nature only. *All dispatch personnel, dispatch policy and prioritization schemes should be directly and solely under the control of patrol managers within the field services bureau.*

In addition to altering a department's organizational structure to make dispatch more responsible to patrol needs, patrol administrators will also want to consider some operational changes. Because dispatch provides a major, if not the major direction for patrol efforts, dispatch personnel should work very closely with watch commanders, and be aware of patterns of criminal activity.

Patrol managers will also find it useful to periodically monitor how well dispatch personnel are following call prioritization and assignment policies. Some departments have found it useful to require a written explanation of any deviations in the policy guidelines. This procedure has symbolically underlined the importance of dispatch policy and has kept deviations to a minimum. In Wilmington, Delaware, for example, patrol commanders noticed that dispatchers were frequently interrupting directed patrol assignments for minor service calls. To remedy this situation, they required dispatchers to fill out a report when directed patrol assignments were interrupted. This procedure quickly eliminated most interruptions and led to a careful following of the new dispatch policy that was vital to the success of the department's directed patrol program.

D. Administrative Efficiency: Saving Valuable Patrol Time

Previous sections of this chapter outlined a system of workload and service call prioritization that can substantially increase a department's efficiency and its ability to operationalize a directed patrol program. Although efficient deployment and prioritization schemes offer the best opportunities for utilizing patrol time productively, departments have also developed a number of administrative and operational guidelines to free officers to perform more prevention, deterrence and apprehension activities while on duty. We have briefly described some of these more promising procedures below and recommend that patrol managers carefully consider their adoption.

1. Reports

Patrol officers are plagued by a plethora of paper work and reports. Several departments have attempted to cut into the paper workload by eliminating some reports and streamlining the reporting process.

- Some departments have streamlined accident reports while others have eliminated accident reports when there is no serious personal injury. Minneapolis, Minnesota, for example, has the citizen simply fill out most accident reports and mail them to the departments.

- Cranston, Rhode Island, and St. Petersburg, Florida, have saved valuable patrol time by eliminating written reports. Instead, officers dictate their reports on recording equipment. The dictated reports are later transcribed by civilians. The system has

reduced officer report writing time considerably.[13]

2. Arrest and Court Procedures

Officers usually spend a portion of their time processing arrests, serving subpoenas, and appearing in court. Several departments have implemented programs to streamline these processes.

- New Haven, Connecticut; New York, New York; and Oakland, California, have eliminated the need for officers to formally book all persons arrested for misdemeanors. The procedure permits officers to release arrestees on their own recognizance. To qualify for release without formal booking, the officer evaluates several questions: Will immediate release enable the offender to continue the offense? Is the offender dangerous to himself and others? Does the offender understand that he/she has been arrested? And does the offender have sufficient ties to the community (home, job) to insure his/her appearance in court?

- Phoenix, Arizona, has been able to save valuable patrol time by permitting civilians rather than sworn officers to serve subpoenas. As a result, the cost to the city of serving subpoenas has been cut by over 40%.[14]

- In Washington, D.C., the department has cut the amount of time officers spend in court by screening all arrests and dropping those that are not likely to pass the arraignment stage. This eliminates the need for officers to spend time in court on cases that have little chance of survival.[15]

- New York City found that by better coordinating court appearances with prosecutors and court personnel, both the number of officers scheduled as

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[13] John A. Grimes, "The Police, the Union and the Productivity Game," in John L. Wolfe and John F. Heaphy, Readings on Productivity in Policing (Washington, D.C.: Police Foundation, 1975) p. 83.

[14] *Op. cit.*, Phoenix, Arizona, Section IV.

[15] Grimes; *op. cit.*, p. 83.

witnesses and the amount of time officers spent waiting to testify were cut substantially.

E. Summary Recommendations

Development of a workload and call prioritization scheme is one of the most important pre-conditions of implementing a comprehensive patrol program. The suggestions for scheduling and controlling the patrol workload in this chapter are designed to free officers from routine and non-critical service calls and to schedule calls so that patrol personnel will have the blocks of time necessary for the implementation of a directed patrol program. A principal goal of every department should be to insure that every patrol unit is assigned several directed patrol assignments during each tour of duty of from 30 to 60 minutes in duration. This can be accomplished by adopting the following procedural recommendations.

1. Every department should evaluate all service calls as well as other patrol activities and determine a priority category for every patrol task.

2. Every department should develop a system to handle less critical service calls without dispatching a patrol unit. In some cases, this may involve solving the problem on the phone, referring citizens to other public or private service agencies, taking an incident report via the phone, or requesting citizens to appear at a police station to file a report.

3. Every department should prioritize all calls to which a mobile patrol unit will be dispatched. By doing this, emergency calls can be handled quickly and less critical calls can be held so that officers will have the 30 to 60 minute blocks of patrol time needed to initiate and complete directed patrol activity.

4. Because of the lower productivity and higher costs of two-officer units, every department should be extremely selective in deploying two-officer units and extremely careful in defining the conditions for multiple unit dispatch.

5. Departments should consider the use of non-sworn personnel in patrol assignments. The use of

non-sworn personnel can cut patrol costs and free more highly-trained and experienced personnel to concentrate upon critical order maintenance and anti-crime activities.

6. Every department should recognize the large role that dispatch plays in directing patrol operations. The dispatch function should be placed in the field services division and dispatch personnel and dispatch policy should be directly and solely under the control of patrol administrators.

7. Departments should consider adopting streamlined reporting systems and innovative arrest and court procedures that can help limit the amount of time officers must commit to administrative tasks. The adoption of these systems can extend the officers' ability to perform order maintenance and anti-crime activities.

CHAPTER 4

DEVELOPING A DIRECTED PATROL PROGRAM

The goal of the previous chapters was to illustrate how a department can schedule patrol officers and respond to service calls in a way that conforms to the realities of the patrol workload. *To implement the directed approach to patrol described in this chapter, departments will have to adopt the organizational and managerial recommendations made in previous chapters.* These recommendations were developed in order to enable patrol managers to create the "blocks of patrol time" needed to implement the crime prevention, deterrence, and apprehension activities described in this chapter. It would be foolhardy for a department to adopt a vigorous directed patrol program without either adopting the prescriptions aimed at improving patrol efficiency or dramatically increasing the number of patrol personnel and patrol costs. We think, however, that most departments can improve the efficiency of their patrol force and implement these directed patrol activities without assigning more officers to patrol.

The experience of several departments clearly illustrates the amount of time that can be devoted to directed patrol activities by adopting measures designed to increase the efficiency of patrol operations. *By matching deployment to workload conditions and by prioritizing service calls, most departments will be able to devote approximately 25% of all patrol time to directed patrol operations.* This amounts to approximately two hours of directed patrol activities for each tour of duty. Departments can further increase the amount of time available for directed patrol if they: rely primarily upon one-officer units, selectively use two-officer units only for hazardous assignments; adopt a tape-recorder report format; carefully schedule the court appearances of officers; and simplify the booking procedures for misdemeanors. The successes which Wilmington, Delaware; Kansas City, Missouri; and the communities of the South Central Connecticut Supervisory Board have had in implementing directed patrol programs attest to the opportunities for most departments to improve patrol efficiency and effectivenss.

- By redeploying according to workload demands and by prioritizing calls, Wilmington, Delaware, has

been able to assign approximately one-third of its patrol officers exclusively to directed patrol activities.

- Kansas City, Missouri, in an experimental district, has been able to assign approximately 20% of the total patrol time to directed patrol activities. Program managers expect this figure will increase as the program is routinized and as sergeants become more familiar with the planning process. Estimates are that perhaps 40% of all patrol time can be devoted to directed patrol.

- Similar results have been achieved in New Haven and the smaller suburban communities that make up the South Central Connecticut Criminal Justice Supervisory Area. Regional planners estimate that approximately one-half of the time formally devoted to random patrol can be used for directed deterrent patrol.

The remainder of this chapter describes the basic elements of a directed patrol program. The first section sets forth the rationale for the careful planning and direction of of patrol officer activities. This is followed by a discussion of the role of crime and problem analysis in developing directed patrol strategies. *Crime and problem analysis are perhaps the most critical elements in developing directed patrol tactics: emphasis must be placed upon the careful collection and systematic analysis of crime related information in order to detect patterns of crime and develop tactics designed to combat these problems.*

The final section of this chapter describes a variety of prevention, deterrence, and apprehension oriented patrol tactics. Although this list is comprehensive and might be described as a "state of the art" review, it is felt that the level of sophistication and quality of directed patrol tactics are still in the developmental stage. Patrol managers will need to modify and expand these tactics to address the particular problems they are facing. In addition, it is expected that as patrol planners gain experience in directed patrol operations, they will develop more effective measures to control criminal activity.

In presenting and describing tactical alternatives in this chapter, it is not possible to say which is the most appropriate in a given situation. Appropriateness depends upon the specific characteristics of the jurisdiction as well as the problem. The view taken here is that it is usually

possible to use several different tactics in addressing a specific crime problem. In fact, given the limited information about the effectiveness of various tactics, patrol managers will probably find it most effective to direct a variety of prevention, deterrence, and apprehension tactics at each problem. The final matching of tactic to problem must however be based upon informed and considered judgements by planners and managers at all levels of the patrol heirarchy. These judgements must be based upon crime analysis, street knowledge, and consideration of a full range of crime prevention, deterrence, and apprehension activities.

A. The Demise of Random Patrol

Alternatives to random preventive patrol have evolved in the wake of the Kansas City Preventive Patrol Experiment. Self-doubts among police administrators regarding patrol effectiveness have caused many to focus upon such questions as: "Is patrol time being used to the best advantage? Can more cost effective use be made of patrol resources? How can patrol operations be redesigned to improve its effectiveness?" These questions have provided important impetus for the development of alternatives to random preventive patrol and for the implementation of directed patrol programs. Basically, police administrators have begun to abandon the generally-accepted reactive approach to patrol in favor of a directed approach based upon the identification of problems as they develop and the design of problem-specific patrol tactics to address each identified problem.

Several features of random patrol have seriously impaired the ability of departments to address adequately the crime and order maintenance problems of their communities. *Perhaps the greatest shortcoming of reactive patrol has been the almost universal failure by departments to analyze both the patterns and characteristics of criminal activity as a basis for determining patrol tactics.* In the absence of hard data and careful analysis, routine patrol has lacked purposeful direction and has most often been conducted in a haphazard and aimless manner. Although officers may patrol an area based upon their "street knowledge", few attempts are made to guide where officers patrol on the basis of systematic and regular crime analysis. In many departments, officers are not provided with crime maps or reports that analyze and identify crime patterns. And if these materials are made available, watch commanders and first-line supervisors seldom make use of them as primary tools for directing patrol activities. Too frequently, officers are free to roam unguided throughout their beats, even though some areas in the beat or elsewhere in a community have greater crime or order maintenance problems.

Closely related to the haphazard nature of traditional patrol, and equally deleterious to patrol effectiveness, is the failure of patrol managers to design patrol tactics that address specific problems. Even when a pattern of criminal activity is recognized, officers are merely instructed to step up the level of visible patrol in the target area. Only infrequently are they encouraged or directed by supervisors to implement a series of specific crime prevention, deterrence, or apprehension oriented activities. For example, although patrol managers may know that an area has been plagued by a high number of auto thefts, they may not require patrol officers to initiate a series of crime prevention activities (e.g., alert citizens to the auto theft problem and encourage them to lock their vehicles, check cars to see if keys have been left in the ignition, etc.); deterrence activities (e.g., saturation patrol, vehicles stops of likely suspects); and apprehension activities (e.g., area canvas for potential witnesses, stake out of decoy cars) designed to control the number of auto thefts in a community.

Part of the inability of departments to provide geographic focus and plan specific patrol activities has derived from the failure of sergeants to assume tactical planning responsibilities. Too frequently, sergeants have functioned primarily as arbiters of a department's internal policy regulations rather than as managers who sift through information about community problems and then design and implement tactics to combat these problems. Perhaps as sergeants and watch commanders are given more authority to control service calls and regulate the patrol workload, they will have more opportunities to design effective anti-crime tactics.

Rather than continue to focus upon the reactive nature of the patrol workload, we suggest that departments attempt a more positive and directed approach to patrol operations -- that officers must be involved in fighting crime not only after it occurs but before it occurs. The directed approach assumes that patrol personnel can make a significant contribution to the maintanence of community safety well before a criminal act is committed. This is accomplished by developing crime and problem analysis techniques which lead to the design of specific prevention, deterrence, and apprehension activities that can be performed by both uniformed and plain clothes patrol officers.

B. The Key Element: Crime Analysis

The key element in the pre-planned directed patrol orientation described in this chapter is crime analysis. Although

we refer to it as crime analysis, a better name might be problem identification, for it pertains to crime patterns as well as to the order maintenance, community relations, and traffic problems with which every police department must deal. *Only when an agency has begun to detect, classify, and describe and analyze patterns of activity can patrol tactics be designed to address these problems.* When incidents are not analyzed and classified, patrol managers are frequently left with the impression that all events are isolated, and that there are no temporal or geographic patterns of crime. The result is that every area of a community receives the same level of service and is patrolled in the same way.

It is not the purpose of this report to present a detailed description of crime analysis techniques. For those departments which have not established a system for collecting, analyzing, and disseminating reported crime and victimization information, the *Police Crime Analysis Unit Handbook*, prepared by George Buck for the Law Enforcement Assistance Administration is useful.[1] We strongly recommend that departments review this publication as well as the materials on crime analysis in Chapter 5 of Volume II of this report *Specialized Patrol*.

In reviewing crime analysis operations in a number of departments, it has been our observation that most departments routinely collect and analyze crime information. In addition, however, we have observed a tendency for departments not to use this information for the purposes of directing patrol operations. Although the data is collected and analyzed, sometimes by computer, there is frequently a lack of communication between crime analysts and officers in charge of field operations. Even when crime patterns are identified and communicated to patrol managers, the information is frequently disregarded and not incorporated into the patrol planning process.

Several factors may account for the reluctance of patrol managers to use crime information. Sometimes it is the fault of the crime analysis unit for not providing specific information. To be useful, the analysis must focus upon patterns

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[1] The *Police Crime Analysis Unit Handbook* is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock #2700-00232. Price: $2.45. Also see: Leonard Oberlander (Ed.), Quantitative Tools for Criminal Justice Planning (Washington, D.C.: Law Enforcement Assistance Administration, U.S. Department of Justice, 1975).

of activity and provide data about the characteristics of the crime, including the places and times when specific crimes are clustered. The more detailed the information, the greater the probability that operations personnel can develop appropriate preventive, deterrence, and apprehension oriented tactics.

Departments have found it extremely useful for crime analysts to suggest tactics that patrol personnel might use in confronting specific problems. *Some departments have increased the possibility that crime analysis will be used to direct patrol operations by supplying patrol commanders and first-line supervisors with detailed descriptions of crime problems, pin maps, and transparencies for overhead projectors that can be used during patrol planning sessions and daily roll calls.* Each of these techniques highlights the importance of using crime analysis in planning patrol operations and encourages both patrol managers and officers to focus upon specific problems during their tours of duty.

Although crime analysis units can be faulted for not supplying adequate, appropriate and timely information to patrol managers, operations personnel have frequently been reluctant to use this information. Part of this reluctance might be explained by the operational realities of patrol in many departments. Patrol supervisors have been severely constrained from implementing any planned activity because of the need to answer calls for service as quickly as possible. The failure to handle some service calls over the phone or to delay other non-critical calls has effectively stripped patrol officers of opportunities to develop, initiate, and complete crime-specific patrol tactics. It should be noted that unless departments are able to prioritize the patrol workload and provide blocks of time when the directed activities can be implemented, it will be impossible to implement an extensive and effective directed patrol program.

However, even when departments have created blocks of patrol time when directed tactics can be introduced, patrol supervisors have sometimes been slow to seize the initiative. Experience with directed patrol programs in Kansas City, New Haven, and Wilmington suggest that patrol lieutenants and sergeants will not automatically be able to adopt the analytical demands placed upon them by a directed patrol program. The reluctance of patrol managers to use crime analysis in developing an aggressive directed patrol program suggests that departments will need to provide patrol managers with additional training in analysis, planning, and management skills, prior to the implementation of a directed patrol program.

It is our recommendation that every department develop a crime analysis capability to support the patrol operations

division; that the analysis of crime patterns be routinely and periodically supplied to patrol managers; that the information be used to design crime specific prevention, deterrence and apprehension tactics; that these tactics be implemented, reviewed, and modified on a daily basis; and that a procedure be implemented to insure tactical coordination across shifts. It should be the responsibility of patrol commanders or team leaders to insure that first-line supervisors are using crime information in developing specific patrol tactics.

The purpose of our discussion of crime analysis in the following paragraphs is designed to illustrate the direct linkage between crime analysis and patrol operations. Basically, three processes are involved: data collection, crime analysis, and tactical development. Unless these three elements are present, it will be impossible to develop a directed patrol program. Exhibit 22 lists the elements in the crime analysis-directed patrol system. Departments will need to develop a

EXHIBIT 22

CRIME ANALYSIS: DIRECTED PATROL SYSTEM

Crime Analysis

Type of Crime: Rape, robbery, burglary, auto theft.
Location: Address, census block.
Time: Day, hour.
Crime Characteristics: Method of operation.
Suspects: Characteristics (name, race, sex, vehicle).
Property Lost.

Directed Patrol Tactics

Prevention
Deterrence
Apprehension

profile of these elements for each crime type. Departments have usually applied this type of analysis to rape, robbbery, commerical and residential burglary, auto theft, and larceny. Remember that crime analysis can be used for directing patrol operations only when a pattern of criminal activity has been identified. This means that the crime must occur with some frequency and be concentrated in terms of both location and

time. In general, single-type incidents like homicide do not lend themselves to crime analysis and directed patrol. Once crimes have been analyzed and patterns identified, it is possible to begin development of a series of preventive, deterrence, and apprehension oriented patrol tactics to address each of the patterns of criminal activity.

To illustrate how the crime analysis and directed patrol system can be used to plan patrol activities, we have analyzed a commercial burglary problem in Exhibit 23. Similar types of analysis and tactical deployment can be developed for other patterns and crimes; especially residential burglary, robbery, larceny, auto theft, and thefts from autos like CB units. The approach we have outlined in Exhibit 23 is comprehensive in that it: includes a rather thorough analysis of the circumstances surrounding commercial burglary; recommends a variety of patrol tactics that can be used to address the problem; and allows crime analysts and patrol managers to record the various tactics that are being used to attack the problem.

In most cases, information about the time, location, and characteristics of the crime and a profile of likely suspects should enable departments to develop a series of directed patrol tactics that attack the problem. Crime analysis, in addition to permitting the design of appropriate tactics, allows patrol managers to focus their activity both temporally and geographically. Instead of trying to patrol the whole city randomly and equally, the analysis permits a department to concentrate on problems at specific locations at specific times. Some departments may find it necessary to do even more detailed analysis in order to focus the activity of patrol personnel.

The analysis of commercial burglary in Exhibit 23 indicates that patrol managers can focus upon the problem for an eight-hour period each day (8 p.m.-4 a.m.) instead of 24 hours, and that the burglaries are confined primarily to three clearly-defined commercial areas. Information about the characteristics of the crime indicates that patrol personnel can concentrate their activities on small businesses. Data about method of entry, property stolen, and suspects can be used further to focus patrol observational patterns, i.e., to define patterns of patrol travel.

It is emphasized that this type of crime information is of no value unless patrol managers make operational decisions and develop tactics based upon it. We suspect that many departments have prepared crime pattern information like this but that only a limited number have used this to direct patrol operations.

EXHIBIT 23

SYSTEMATIC APPROACH TO ANALYZING AND DEVELOPING TACTICS FOR COMMERCIAL BURGLARY

CRIME ANALYSIS

TIME:

Day	Hour
Monday - 19	0-4: 23
Tuesday - 19	5-8: 0
Wednesday - 11	9-12: 4
Thursday - 16	13-16: 0
Friday - 19	17-20: 4
Saturday - 19	21-24: 3
Sunday - 2	0-8: 71
Unknown - 2	Unknown: 12

LOCATION: From Seamans Lane to Grove Ford on New Haven Avenue
From Buckingham to Liddy Street on River Road
From Park View Shopping Center and Commercial Strip

CHARACTERISTICS:

Target	Entry	Property Taken
Small business - 48	Rear door - 25	Money - 66
Restaurants - 18	Side door - 27	Office equipment - 11
Office - 14	Rear window - 19	Appliances - 8
Schools - 14	Side window - 25	Radio, TV, stereo - 7
Gas stations - 12		Tools - 7

SUSPECTS:

General Characteristics

12 W/M, Age 14-18

6 W/M, age 19-23

Don Overly, W/M 26
Blue 1968 Chevrolet, 666-555
Stephen Schack, B/M 16
Louise Hunter, W/F 26
Green 1972 Firebird, FKS-511

DIRECTED PATROL TACTICS

PREVENTION:

Citizen awareness: Explain commercial burglary problems to business owners and employers.

Security surveys: Check doors and windows, especially on side and rear doors. Check rear and side entrance lighting and suggest improvements. Recommend improved hardware, especially dead bolt locks. Call back two weeks after survey to reinforce previous visit. Discuss the purpose, need, and availability of local alarms for doors and windows.

EXHIBIT 23 (con't.)

DETERRENCE:

Saturation patrol: High visibility patrol in target areas. Patrol side streets and alleys in target areas, especially between midnight and daylight. Do door checks.

Field interrogation: Stop and question suspicious vehicles and persons in area during high crime periods.

WATCH FOR KNOWN SUSPECTS

APPREHENSION:

Stake-out: Locate *observation point* that gives good view of the rear and side entrances of establishments in the target area. *Deploy midnight to daylight.* Likely locations are the rooftops of the Arch Builidng and the Schell Building. Place *portable alarms* in selected establishments in the target area. Alarm sensors should be placed on all rear and side doors and windows. Officers responsible for the visible stake-out will also be responsible for maintaining and monitoring these tactical alarms. One officer will be dedicated to responding to these alarms between midnight and daylight.

Investigative follow-up: In addition to filing an initial report, patrol officers will be responsible for *canvassing residents and business people* in the vicinity of each commercial burglary. Focus will be upon *gathering suspect information* during the canvass. Officers will *distribute crime prevention information* and make appointments for *security surveys.*

TACTICAL INTERACTION:

Saturation patrol and apprehension activity should not occur in the same area. During the first two weeks of the operation, the New Haven Avenue area will be the focus for high visiblity patrol which apprehension-oriented tactics like stake-outs and tactical alarms will be deployed along the commercial strip and in the Parkview Shopping Center. After two weeks, this deployment will be appraised and modified. Crime prevention techniques will be introduced in all commercial areas where patterns of commercial burglary have been observed.

STATUS OF DIRECTED PATROL ACTIVITIES

Tactics Implemented	Location	Time	Date
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

Comments: _____

_____

When information about a specific crime has been collected, analyzed, and patterns detected, it is possible to lay out a comprehensive set of tactics to address the problem. The approach we have taken in Exhibit 23 is to describe as many prevention, deterrence, and apprehension tactics as possible. It is our feeling that program development should be comprehensive. As many alternative activities as possible should be carefully considered during a planning stage.

After listing the various directed activities, patrol managers can make decisions regarding the most effective tactic given the specific problem. In some cases, a department may want to implement as many tactics as possible, while in other cases it may be desirable to focus upon one or two activities. These decisions will depend upon the type and extent of a problem, the patrol personnel available, and the extent to which patrol officers can be relieved of service call assignments to work covert operations. For example, in combating auto theft and thefts from autos, patrol managers may find it more effective to combine a crime prevention program that requires active citizen cooperation with deterrence activities. In other instances, it may be more effective to use apprehension directed tactics like stake-outs and decoys.

Tactics can also be used in combination with one another. High visibility saturation patrol can be used in one section of an area plagued by commercial burglaries, while stake-outs and tactical alarms might be employed in an adjacent area to apprehend criminals who have been displaced by the saturation patrol. In addition, patrol managers should not hesitate periodically to alter their tactics. Saturation patrols can easily be followed by other deterrence tactics or by apprehension oriented programs. The important thing to remember is that directed patrol activities are most effective when they are guided by detailed crime analysis, focus upon specific problems, and are planned and implemented on a regular basis.

C. Directed Patrol Tactics

Departments implementing directed patrol programs have used a variety of tactics in attempting to control order maintenance, crime and traffic problems. Most of these tactics have been used at one time or another by many patrol managers across the country. *The merit of directed patrol comes not so much from the type of tactics used as from the tenacity with which patrol officers, relieved temporarily from their call for service responsibilities, implement and carry through their assignments.* In some cases, the planning has been

done by civilian analysts working with patrol administrators, while at other times sergeants and patrol officers have played the leading role in deciding when and where specific tactics will be used. The important element in directed patrol is that once appropriate tactics are developed, patrol officers are provided with the time to carry out these tactics in a systematic way.

Finally, in choosing specific patrol tactics, departments will also have to make decisions about the form of transportation used by patrol officers. The array of alternative modes of transportation can be viewed along a mobility continuum from foot patrol, which provides intensive localized protection and engenders close police/community cooperation, to helicopters, which provide quick, wide-ranging but totally impersonal response. For most of the tactics suggested in this section, automobile patrol combined with walking assignments offer the greatest flexibility. As long as officers are expected to respond to service calls, the patrol car would appear to be the most appropriate mode of transportation. However, as officers are relieved of service call clearance responsibilities, other modes of transportation become more viable. Crime prevention, for example, lends itself to foot patrol, while motor bikes have enhanced patrol mobility in heavily congested urban areas. Perhaps the best policy to follow in selecting a form of transportation is to use patrol cars unless a specific tactic demands an alternative form of transportation.[2]

The tactics described in this section have been divided into three groups, according to their goal with regard to crime control. These approaches are crime prevention, crime deterrence, and criminal apprehension. Each tactic will be discussed in terms of its purpose, the crimes it targets, and the steps necessary to plan and implement the tactic. *Although each tactic is described as an independent activity, patrol planners need to integrate a variety of tactics in order to develop a successful anti-crime program.*

Departments have used the tactics described here in a variety of ways. In some departments, patrol managers have used a variety of prevention, deterrence, and apprehension activities. Some departments have confined their directed patrol to saturation patrols while other have mixed saturation and covert patrols to achieve their objectives. In other cases, patrol managers have merely stepped up apprehension activites.

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[2] Theodore H. Schell, *et al.*, Traditional Preventive Patrol: An Analytical Framework and Judgemental Assessment (Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, forthcoming).

Each patrol manager must make decisions about the number and kind of tactics to be used based upon patterns of criminal activity and the contribution each tactic can be assumed to make toward solving the problem. Above all, however, patrol managers should clearly describe the problems they are facing and direct as many resources as possible at these specific problems.

1. Crime Prevention

In recent years, police administrators have realized that the goal of safe streets and homes cannot be met without help from citizens. The number of criminals and the even greater number of targets for criminal activity are simply too overwhelming for police departments to do a thorough job. Even if communities were able to devote tremendous sums to law enforcement, it is doubtful that the police would be able to totally control crime. Although the police can maintain a level of community safety, it is also clear that when citizens become involved in the law enforcement process, they are a valuable adjunct to the police.

The crime prevention tactics described in this section are designed to bring the resources of both the police and the public to bear in coping with crime problems. The programs focus upon increasing citizen awareness about crime problems and facilitating citizen actions to increase a community's safety. Although department personnel can be held totally responsible for implementing crime prevention activities, the most advantageous approach involves the enlistment of the support of existing community organizations and citizen groups. Departments have found that by working with community organizations, carefully training volunteers, and closely supervising their work, a large number of crime prevention activities can be undertaken.

The goal of crime prevention programs is to make criminal activities more difficult to accomplish. This can be achieved in a variety of ways. Some departments have activated their crime prevention programs by educating citizens about the crime problems of their neighborhoods. In their efforts, departments have published articles about crime in local newspapers, spoken to citizen groups, and distributed literature about crime problems. In addition, departments have frequently taken a more active role in fostering crime prevention by conducting security surveys, recommending improved door and window locks, marking property, and providing information about security actions. Finally, some departments have influenced local governing bodies to adopt building codes to upgrade the door and

window locks on new construction projects.[3]

It should be recognized that crime prevention activities can be directed by and implemented by uniformed patrol officers during periods of time formerly committed to random patrol. Although it will be necessary to select someone to develop materials for such crime prevention efforts and to train officers to implement various programs, *the primary vehicle for implementing the program in the community can be regular patrol officers.*

a. Community Education Programs

The principal aim of a community education program is to reduce citizen apathy toward order maintenance and crime problems, to enlist citizen interest in and support for police programs, and to educate citizens regarding actions they can take individually or collectively to reduce the likelihood that they will be victimized. In introducing citizens to law enforcement problems, departments have found it helpful to carefully explain the nature of the police function and to describe the particular problems citizens are now facing in their community. Departments have used several mechanisms to get their message to the public. These have included lectures to community organizations, articles in local newspapers, radio and television interviews and spot announcements, as well as crime prevention displays.

A convenient mechanism to initiate contact between patrol officers and citizens has been the *Neighborhood Watch Program*, sponsored by the Law Enforcement Assistance Administration.[4] The goal of Neighborhood Watch has been to increase citizen awareness of burglary, to involve citizens in property marking and target hardening activities, and to encourage citizens to watch and safeguard each other's property. The program supplies local law enforcement agencies with pamphlets describing crime prevention techniques, secure door and window lock systems, the importance of residential lighting, and other things citizens

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[3] For a more detailed discussion of burglary prevention programs, see: Thomas W. White, *et al.*, Police Burglary Prevention Programs (Washington, D.C.: U.S. Government Printing Office, September 1975).

[4] Sample Neighborhood Watch materials are available from Neighborhood Watch Program, National Sheriffs' Association, 1250 Connecticut Avenue, N.W., Washington, D.C. 20036.

can do to limit opportunities for burglaries and larcenies.

Perhaps one of the advantages of the Neighborhood Watch Program is that it can be used by the police to enlist the support of citizen groups for a much larger crime prevention program. Departments have used college students, reserve officers, and community service groups like the Junior Chamber of Commerce and Kiwanis to help distribute the materials. A particularly active group has been the members of the American Association of Retired Persons and the National Retired Teachers Association. Many local chapters have adopted crime prevention, particularly among the elderly, as a priority program.[5]

The community education program, however, is merely a prelude to the implementation of an active crime prevention program that might include property marking, block watches, and security surveys. Although each of these activities is an appropriate directed patrol tactic, police managers will have to evaluate the likely impact of these activities upon the unique law enforcement problems of their community.

b. Security Surveys and Target Hardening

Community education programs, especially Neighborhood Watch, lend themselves to the implementation of both residential and business security surveys. The importance of household security cannot be overestimated. Studies of burglaries and attempted burglaries have indicated that in many cases, burglary is frequently a crime of opportunity and that many would-be burglars are foiled by effective household locks. A review of victimization surveys revealed, for example, that about one-third of all household burglaries were committed without the use of force, indicating that many homes were not locked. In addition, burglars tried but failed to gain entry in about one-fourth of the known attempts. This information about burglary characteristics suggests that target hardening is an effective measure.[6]

Patrol managers will have to make a number of key decisions before undertaking a security survey program. Perhaps the first decision concerns who will conduct the survey. Departments have used a variety of approaches. Although departmental

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[5] Information about this program as well as a crime prevention booklet is available from the Crime Prevention Program, AARP/NRTA, 1909 K Street, N.W., Washington, D.C. 20006.

[6] White, *op. cit.*, p. 3.

personnel might appropriately be in charge of all such security inspections, civilian personnel as well as volunteers can competently do the inspections. If the department sponsors the program, an effort should be made to screen all participating volunteer groups and their members. Departments have hired and trained civilians to do the surveys, and have used reserve officers, cadets, college students, as well as trainees to augment the efforts of uniformed patrol personnel.

Most departments have found that trying to survey an entire community is impossible, even when citizen volunteers are used extensively. *Given the number of households to survey and the limited number of officers, civilians or volunteers to do the surveys, it is usually best to focus this activity in areas experiencing high residential and commercial burglary rates.* Analysis of crime patterns will provide the direction for identifying likely target areas.

One way to focus security surveys in problems areas is to require that patrol officers perform them while doing area canvasses as part of an initial burglary report. The area canvass provides departments with a spontaneous and convenient vehicle not only to gather information about a crime, but also to educate citizens about crime in their neighborhood, conduct a security survey, recommend specific target hardening practices, and perhaps enlist citizen support for other crime prevention programs. It also emphasizes the amount of concern the police have for the community.

Experience with security surveys indicates that it is helpful to follow-up surveys with a postcard reminder or phone call. Rather than check to see if the recommendations have been carried out, it may be better to inquire if any problems have been encountered in installing the hardware and to offer further assistant. Exhibit 24 contains a list of questions that can be used to conduct a residential security survey.

c. Property Marking

Property marking programs, commonly referred to as *Operation Identification*, are currently being used in a large number of communities. The programs are designed to deter burglars by encouraging citizens to engrave their valuable property with a unique traceable number or name that can be used to identify the property and establish its ownership if it is stolen. In addition to its deterrent potential, the program can also enable enforcement officers to quickly return marked stolen property to its owners. The program requires citizens to engrave the property with a unique number (driver's license, social security) and to register the number with the police.

EXHIBIT 24

BURGLARY PREVENTION CHECKLIST FOR HOMES

Survey your home with this check list. Every "no" check mark shows a weak point that may help a burglar. As you eliminate the "no" checks, you improve your protection.

Go through this list carefully and systematically. You may want to look over this situation in daytime, when most house burglars work, as well as in the night.

Remember, this check list only points out your weak points. You are not protected until these are corrected. Complying with these suggestions will not, of course, make your property burglar proof, but it will certainly improve your protection.

DOORS	YES	NO
1. Are the locks on your most used outside doors of the cylinder type?	☐	☐
2. Are they of either the deadlocking or jimmy-proof type?	☐	☐
3. Can any of your door locks be opened by breaking out glass or a panel of light wood?	☐	☐
4. Do you use chain locks or other auxiliary locks on most used doors?	☐	☐
5. Do the doors without cylinder locks have a heavy bolt or some similar device that can be operated only from the inside?	☐	☐
6. Can all of your doors (basement, porch, french, balcony) be securely locked?	☐	☐
7. Do your basement doors have locks that allow you to isolate that part of your house?	☐	☐
8. Are your locks all in good repair?	☐	☐
9. Do you know everyone who has a key to your house? (Or are there some still in possession of previous owners and their servants or friends?)	☐	☐

WINDOWS	YES	NO
10. Are your window locks properly and securely mounted?	☐	☐
11. Do you keep your windows locked when they are shut?	☐	☐
12. Do you use locks that allow you to lock a window that is partly open?	☐	☐
13. In high hazard locations, do you use bars or ornamental grills?	☐	☐
14. Are you as careful of basement and second floor windows as you are of those on the first floor?	☐	☐
15. Have you made it more difficult for the burglar by locking up your ladder, avoiding trellises that can be used as a ladder or similar aids to climbing?	☐	☐

GARAGE	YES	NO
16. Do you lock your garage door at night?	☐	☐
17. Do you lock your garage when you are away from home?	☐	☐
18. Do you have good, secure locks on the garage doors and windows?	☐	☐
19. Do you lock your car and take the keys out even when it is parked in your garage?	☐	☐

WHEN YOU GO ON A TRIP	YES	NO
20. Do you stop all deliveries or arrange for neighbors to pick up papers, milk, packages?	☐	☐
21. Do you notify a neighbor?	☐	☐
22. Do you notify your sheriff? They provide extra protection for vacant homes.	☐	☐
23. Do you leave some shades up so the house doesn't look deserted?	☐	☐
24. Do you arrange to keep your lawn and garden in shape?	☐	☐

SAFE PRACTICES	YES	NO
25. Do you plan so that you do not need to "hide" a key under the door mat?	☐	☐
26. Do you keep as much cash as possible and other valuables in a bank?	☐	☐
27. Do you keep a list of all valuable property?	☐	☐
28. Do you have a list of the serial numbers of your watches, cameras, typewriters and similar items?	☐	☐
29. Do you have a description of other valuable property that does not have a number?	☐	☐
30. Do you avoid unnecessary display or publicity of your valuables?	☐	☐
31. Have you told your family what to do if they discover a burglar breaking in or already in the house?	☐	☐
32. Have you told your family to leave the house undisturbed and call the sheriff or police if they discover a burglary has been committed?	☐	☐

This checklist was designed to help you go through your home and make a check to see that you are not inviting a burglary by having an "open house." The checklist covers the common areas of weakness in residential security. If you would like professional advice and assistance in a thorough home security inspection, call your local law enforcement agency. To keep your guard, take a critical look at your home security every three to four months. Don't become lax -- crime prevention is a continuous process.

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[7] National Neighborhood Watch, "How to Protect Your Home" (National Sheriffs' Association, 1250 Connecticut Avenue, Washington,

Although Operation Identification is commonly run out of crime prevention offices, it appears as though patrol personnel could participate in these progams as part of their directed patrol assignments. The procedures involved in implementing a property marking program are identical to those of security surveys. A particularly opportune time for officers to introduce citizens to Operation Identification would be during area canvasses conducted in conjunction with preliminary burglary reports. Although the officer might not do the property marking during the canvass, the IDENT programs could be explained and arrangements made for either civilian employees, reserves, cadets, or community volunteers to follow-up and do the actual property marking.

An assessment of an alarming number of property marking programs has indicated that participants have significantly lower burglary rates than non-participants. However, the evaluators go on to point out that departments have experienced difficulty in enrolling participants. The report concludes that, while a media campaign will enlist only a small number of households, the use of community organizations and volunteers in a door-to-door canvass of the target areas may appreciably increase participation.[8]

2. Crime Deterrence

Deterrence is what routine patrol has traditionally been all about. It involves activities which are intended to influence the perceptions of potential criminals as to the likelihood of being apprehended. Police "omnipresence," "high visibility," "random movement," and "field interrogations" are some of the terms that come to mind when one describes the deterrent aspects of patrol. All of these activities are designed to increase the probability of apprehension, thereby intensifying the preceived risks of the crime and reducing its incidence. Departments have used a variety of methods to increase police visiblity and omnipresence. These include: one-officer cars, foot and scooter patrols, and deployment based upon crime analysis.

Although it is difficult, if not impossible, to measure the benefits of increased visibility upon deterrence, several departments have reported that lowered crime rates have accompanied increased deterrent patrol. In efforts to increase

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[8] Nelson Heller, *et al.*, National Evaluation Program Operation Identification Projects: Assessment of Effectiveness, Summary (Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, August 1975).

the amount of police visibility:

- Cleveland Heights, Ohio, has put detectives in uniform and assigned them patrol responsibilities. The program has been associated with a decrease in criminal activity without damaging the investigative process.

- New Haven, Connecticut, by carefully analyzing crime patterns, has been able to concentrate the patrol patterns of officers in the higher crime areas of their beats. The program has been credited with reducing the targeted crimes.

An attempt to study the effects of police visibility and deterrence indicates that the level of crime can be reduced by visibly saturating an area with uniform patrol personnel. Saturation of an entire precinct in New York City -- i.e., doubling the number of officers in uniform -- led to dramatic reductions in both street crimes and burglaries.[9] The study suggests that saturation can have an important deterrent effect. By carefully using crime analysis to focus both the time and location of patrols, departments can improve the deterrent value of patrol. We think this can be achieved without increasing the number of patrol personnel as was done in the New York experiment.

Although the Kansas City Preventive Patrol Program has cast legitimate doubt upon the value of random preventive patrol, experiences in Cleveland Heights, New Haven, New York, and Wilmington suggest that when patrol is focused upon specific problems to enhance police omnipresence, communities will experience a reduction in targeted crimes.

a. Saturation Patrol

The methods used during directed saturation patrol are no different than the methods used by officers while performing random preventive patrol. Directed patrol is visible, combines both highly mobile vehicular movement with some foot patrol, emphasizes observation of street activity, and encourages officers to initiate citizen contacts as well as pedestrian and vehicular stops. However, unlike traditional patrol, these methods are not performed in a random haphazard fashion but are focused upon the specific crime and order maintenance problems that exist in a community.

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[9] James Press, Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City (New York: The New York Rand Institute, October 1971).

Two operational mechanisms have been combined to greatly enhance the value of visible patrol. First, crime analysis has been used to carefully specify the time and locations of directed saturation patrol so that police visibility is concentrated in areas of high criminal activity. In most cases, patrols have focused upon areas where the suppressible crimes of robbery, burglary, auto theft, larceny, as well as traffic accidents, vandalism and order maintenance constitute significant problems.

A second, but no less significant factor in directed patrol has been the high priority given to directed saturation assignments. Directed assignments take precedence over all other patrol activities except emergency calls, which represent 10-15% of the entire patrol call workload in most departments. The high priority assigned to directed patrol assignments has ensured that officers will have an opportunity to plan and complete these patrols. Perhaps the principal achievement of directed patrol is that it has enabled departments to achieve a level of saturation patrol without increasing the number of personnel assigned to patrol operations.

The development of a saturation patrol program involves several things. *First, an analysis of order maintenance, crime, and traffic problems* must be undertaken to identify patterns of activity. This analysis provides the basis for determining the time (day, hour) and location (street, block) for deploying directed patrol assignments, as well as M.O. and suspect information when it is available. Exhibit 23 (page 97) contains the basic crime analysis information needed to analyze a commercial burglary problem.

Second, directed patrol tactics that can be used to address crime and order maintenance problems must be developed and documented. In most cases, directed deterrent tactics seek to capitalize upon high visibility by using a combination of vehicle and foot patrol, as well as traffic and pedestrian stops. These activities should be carefully focused upon crime targets and possible suspects. Exhibit 23 lists some of the deterrent tactics that might be used to attack commercial burglary.

Third, written instructions for patrol officers to follow in implementing the directed patrol assignment must be prepared and distributed. Officer assignment sheets should contain a brief description of the problem, including the level of crime, m.o. descriptions, and information about known suspects and vehicle descriptions. In addition, the assignment should contain the objective of the directed patrol assignment, time needed to complete assignment, and detailed instructions about

what the officer should do and how it should be done. Exhibits 25 and 26 contain examples of directed patrol assignments for a commercial burglary run and a traffic problem. Similar kinds of instructions should be developed for residential burglary, street robbery, auto theft, and, in fact, any problem encountered by the police.

Fourth, strict guidelines for the implementation and cancellation of directed saturation patrol assignments must be prepared and enforced. Whether directed patrol assignments are made by dispatch personnel, or patrol supervisors, departments will have to establish strict control over the initiation and completion of directed assignments. Patrol administrators have found, for example, that unless strict guidelines are followed, dispatch personnel, first-line supervisors, and officers can effectively block implementation of saturation patrols and other directed activities. In general, saturation patrol and other directed activities should be subject to cancellation only if:

(1) Officers observe a condition while conducting deterrent patrol that demands immediate attention. If the run is cancelled, the dispatcher must be notified and a record made of the cancellation. Some departments have officers file a short explanation when a run is cancelled, so that patrol managers can review the reasons and determine whether or not cancellation was justified.

(2) An emergency call is received by dispatchers and no other units are available to service the call. Departments will need to carefully specify which calls are truly emergency situations. When dispatch personnel cancel a directed deterrent patrol, a short report justifying cancellation should be filed with patrol administrators.

Fifth, it is necessary to develop and implement feedback procedures so that officers who are not involved in the preparation of directed assignments can impact the planning process. Although first-line supervisors may not always be involved in the analytical and design steps that lead to directed saturation patrol, they should be given input to the planning process and responsibility for modifying these patrols to better meet street conditions. In addition, a feedback mechanism can be a useful tool in familiarizing officers with systematic patrol planning.

EXHIBIT 23

DIRECTED BURGLARY ASSIGNMENT: PARKVIEW SHOPPING CENTER AND RIVER ROAD COMMERCIAL STRIP

PROBLEM

During the past month, 23 commercial burglaries have occurred in the Parkview-River Road commercial area. Most have occurred between 10 p.m. and 4 a.m. Primary targets are small businesses, restaurants, and gas stations. Most entries have occurred at rear or side entrances. Known suspects: Ted Schell, W/M 26; Stephen Schack, B/M 16; and Don Overly, W/M 18.

OBJECTIVE

This high visiblity deterrence effort is designed to augment the crime prevention and target hardening program being carried out by officers on the day watch. Saturation of the area between 10 p.m. and 4 a.m. should reduce the number of burglaries. These patrols may displace some perpetrators to the Bellview commercial strip, where visible patrol has been reduced and replaced by covert activities and the use of tactical alarms.

GENERAL INSTRUCTIONS

Watch commanders will select specific times. This assignment takes approximately 50 minutes and should be activated three to four times each day between 10 p.m. and 4 a.m. Changes in burglary will be monitored to adjust the hours and frequency of this patrol. Watch for known suspects and suspicious autos. Use vehicle and pedestrian stops when justified.

LOCATION	
1300-1400 block of River Road	*Park car* on River Road. *Turn on light bar* to increase visibility. *Foot patrol* the back alleys on both sides of the street. *Check rear entrances.* 15 minutes.
1300-1400 block of River Road	*Cruise slowly* around the block and *stop and suspicious vehicles* in the alleys on both sides of River Road. 15 minutes.
1300-1400 block of River Road	*Circle the block* by car, *observing alleys* and suspicious vehicles. *Make vehicle and pedestrian stops* when necessary. 5 minutes.
Parkview Shopping Center	*Cruise slowly* through the shopping center. *Check rear and side entrances* of buildings. 15 minutes.
1300-1400 block of River Road	Return to River Road area and *cruise slowly* through back and side alleys. *Use spotlight* on buildings. *Stop suspicious vehicles.* 10 minutes.

EXHIBIT 26

DIRECTED TRAFFIC ASSIGNMENT: BLAIR AVENUE

PROBLEM

Blair Avenue between Arbor and Madison has experienced 18 accidents during May, most occuring during evening rush hours. The intersection of Blair and Madison is a major problem. Traffic congestion is particularly heavy between 7-11 p.m. In addition, citizens have complained about numerous standing and moving violations.

OBJECTIVES

Reduce the number of traffic accidents on Blair Avenue by pin-pointing traffic problems and directing traffic, especially during rush hour. Officer will also strictly enforce parking codes and be observant for moving violations.

GENERAL INSTRUCTIONS

Sergeants will have discretion in activating this assignment. Activity should be implemented primarily during the evening rush hours Monday through Friday and during Friday and Saturday evenings. Sergeants are requested to note changes in traffic patterns which might necessitate modification of this directed traffic assignment. This directed assignment takes approximately one hour.

LOCATION	ACTIVITY
Arch Street & Blair Avenue	*Park* in North driveway of Hal's Service Station for 15 min. If necessary, *leave car and assist traffic* entering Blair Avenue from Arch St. and McDonald's.
Franklin Street & Blair Avenue	*Park* in exist driveway of Thrifty's for 1/2 hour. *Leave car to check for parking violations*. Walk to Franklin Street to assist with traffic. If necessary, clear traffic at Post Office driveway.
George Street & Blair Avenue	*Park* near the driveway of Citco station on the north side of George Street for 15 min. *Monitor traffic problems* caused by the shopping center at the corner of George and Blair. *Direct traffic and issue citations*, if necessary.

Exhibit 27 contains a feedback form that is used by the New Haven Police Department. These general comments/recommendations of the patrol officer can be reviewed by sergeants and other patrol administrators to modify the location, time, and frequency of high visibility deterrent patrols. The feedback form also provides space for officers to note any crime related information. This can be relayed to crime analysts and distributed to other patrol officers working in the same area. A form like this can also be used by patrol officers to feedback information about directed crime prevention and criminal apprehension tactics.

b. Field Interrogation

Unlike saturation patrol, which is primarily a location-based tactic, field interrogations are directed at likely suspects. Field interrogations, sometimes called vehicle or pedestrian stops, are freqently used as one component of directed satuation patrols. They are an aggressive proactive approach to combatting crime and can be used against both street crime and property crime. They increase police visibility and let potential criminals know that the area is being carefully watched.[10]

The field interrogation technique is quite simple. It involves an officer stopping, questioning, and sometimes searching a citizen because he has a reasonable suspicion that the subject has committed or is about to commit a crime. Although field interrogations seldom lead to arrests, they can have a substantial impact upon persons who might be considering committing a crime. Persons questioned, especially potential offenders, are put on notice that the police are aware of their presence, identity, and activity in a community.

When a field interrogation is carried out, officers usually handle it in one of three ways. If circumstances warrant, an arrest can be made. However, it is more usual for officers to release the person questioned without taking any action. In other cases, although evidence may not warrant an arrest, but the officer remains suspicious, a field interrogation report describing the subject's identity and the circumstances surrounding the incident may be filed. This report can be used by either patrol officers or investigators when investigating criminal activity in the area.

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[10] For a thorough discussion of the field interrogation process, its effectiveness and impact on community relations, see: John E. Boydstun, San Diego Field Interrogation: Final Report (Washington, D.C.: Police Foundation, 1975).

EXHIBIT 27

NEW HAVEN DIRECTED PATROL ACTIVITY FEEDBACK FORM

D-RUN FINDINGS/COMMENTS

D-RUN NUMBER: TIME OF DAY _____

FINDINGS (M.O., Suspects, Vehicles, Victims, Tools, Etc.):

☐ No Significant Findings

GENERAL CHARACTERISTICS/RECOMMENDATIONS (Tactics, Times, Locations):

NAME _____ DATE ____/____/____

(Use Back if Required)

The implementation of field interrogation programs has usually been accompanied by some controversy. Advocates have extolled the virtues of this aggressive patrol tactic as an effective anti-crime tactic, while opponents have cautioned that its anti-crime benefits might be far outweighed by its negative impact upon police/community relations. A recent study of field interrogation in San Diego endorses the program as a sound patrol tactic: although interrogations were seldom found to lead to arrests, the fact that they were being carried out did seem to have a deterrent effect upon suppressible crimes. Just as important, the interrogation did not lead to a hostile public reaction or result in complaints to the department.[11]

A variation upon the field interrogation tactic has been the implementation of *suspect-oriented patrol tactics* by some departments. Rather than focusing upon random and suspicious persons in crime target areas, some agencies have alerted patrol personnel to be on the watch for specific individuals or classes of suspects. When patrol officers are supplied with pictures and background information about known suspects, they can be more watchful of their activity. Field interrogations have been a useful technique for exercising some control over these known suspects. For example, *truancy patrols*, a type of suspect-oriented patrol, have been successfully used to suppress day-time burglaries. In cooperation with school authorities, departments have regularly watched for and taken action against truants, some of whom have been involved in day-time burglaries. Chula Vista, Glendale, and San Bernadino, California, were able to achieve substantial reductions in day-time residential burglaries by rounding up truants and returning them to school. An evaluation of anti-crime tactics in eight Virginia cities concluded that the "Truant Hassle" program led to a reduction in crime.[12]

3. Criminal Apprehension

Criminal apprehension usually involves two basic types of strategies. The first concerns covert decoy and stake-out activities designed to apprehend criminals while they are commiting a crime, or shortly after a crime has occurred. Decoy and stake-out operations require detailed crime analysis to identify a set

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[11] *Ibid.*, pp. 27, 40, 54-55.

[12] White, *op. cit.*, pp. 31-32, 73-77; and Arthur Young and Company, HIT Program Evaluation, Volume II, Evaluation Findings (Richmond, Virginia: Commonwealth of Virginia, Division of Justice and Crime Prevention, 1975), pp. v-22.

of targets that have a high probability for some type of criminal action. Whether a decoy or stake-out is used, the tactics are similar and require that patrol personnel work in plain clothe and be relieved of all call for service responsibility.

The second type of apprehension activity that patrol personnel can engage in occurs after a crime has been committed and involves a more active role for patrol officers in the investigative process. For some time the tendency has been for departments to pursue a high degree of functional specialization that has effectively stripped patrol personnel of any apprehension-investigative responsibility. Patrol officers frequently take only a preliminary report and turn this over to detectives for further action.

The limited role of the patrol officer in investigative activity has several sources. First and foremost, as long as departments operate on the principle that all service calls, regardless of their urgency, have to be answered as rapidly as possible, dispatchers and patrol managers tried to keep as many cars in service by minimizing the time officers spent at hearing case information. Patrol personnel have further been discouraged from developing good investigative techniques because detectives "stole" or took "credit" for all arrests and, as a result, officer initiative in this important area frequently went unrewarded.

Inferences drawn from many experiences with directed patrol and the report on the criminal investigative process by the Rand Corporation[13] *suggests that regular patrol officers can play a more important role in the apprehension-investigative process.* In addition, the findings of a response time study -- that citizens frequently report crimes well after the crime has occurred -- make a strong case for stacking late-reported incidents.[14] If calls are stacked, patrol officers can remain out of service longer and conduct more thorough crime scene investigations.

While the response time study suggests that uniform patrol officers have the time to do more thorough investigations, the Rand study indicates the direction these investigations might take. The Rand study found that the single most helpful

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13 Peter Greenwood and Joan Petersilia, The Criminal Investigation Process, Volume I, Summary and Policy Implications (Santa Monica, California: The Rand Corporation, 1975).

14 Tony Pate, *et al.*, Police Response Time: Its Determinants and Effects (Washington, D.C.: Police Foundation, 1976).

piece of information in making an apprehension was information about the suspect's identify (name, address, license number, etc.). The report goes on to recommend that departments initiate programs to enhance police-victim/witness cooperation, especially in identifying likely suspects. Uniform patrol officers can lead the way in this initiative.[15]

a. Decoys and Stake-Outs

Decoys involve the use of both police officers who pose as potential "victims" and the "set up" of physical property (cars, CB units, and bicycles) in areas experiencing a high incidence of street crime. When the decoy has been set up, officers covertly monitor it and wait for a criminal attack.

Stake-out operations differ only slightly from decoy. The tactics are largely the same except that officers observe actual and legitimate targets of crime rather than surrogates set up by the police department. In addition, stake-outs have been used against commercial robbery and burglaries rather than street crimes. The feasibility of stake-outs has been enhanced by the use of electronic surveillance devices. Departments have successfully used tactical alarms and pre-set cameras that can be tripped by either employees or electronic sensors. The cameras have provided high quality photos of robberies that virtually guarantee successful prosecution, while the electronic tactical alarms have enabled the police to rapidly respond to robberies and burglaries as they are occurring rather than after they have occurred and the suspects have fled.

In deploying decoy and stake-out operations, patrol administrators will have to decide whether to use regular patrol officers or establish a specialized patrol unit. Whichever approach is used, officers will have to be relieved of service call responsibilities for a period of time. Departments have addressed this problem in a variety of ways. Some have preferred not to set up a specialized unit but instead have assigned officers to covert patrol on an as-needed and day-to-day basis. However, as departments use covert operations on a routine and on-going basis, the need for a stable specialized unit will increase.

If departments adopt the deployment procedures described in Chapters 2 and 3 of this volume, they may find it possible establish a specialized covert patrol unit during high crime periods without hiring additional personnel. Patrol administrators

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[15] Greenwood and Petersilia, *op. cit.*, pp. vii, xii.

in Wilmington, Delaware, for example, found that by matching deployment to hourly fluctuations in the daily workload and by prioritizing service calls, they were able to assign approximately one-third of their uniform patrol force to convert operations. The second volume of this report, *Specialized Patrol*, discusses in detail the operational requirements, characteristics, and effectiveness of various convert patrol tactics. We suggest that all program planners consult the volume of Specialized Patrol before deciding how best to organize decoy and stakeout operations.

b. Suspect Identification

Several departments have attempted to enhance the apprehension-oriented activities of their patrol force by assigning officers additional responsibilities for gathering *suspect information*. This can be accomplished in several ways. Kansas City is currently distributing *suspect identity and height charts* to commercial establishments. Exhibit 28 contains a copy of the suspect identity chart. The height chart is simply a strip of colored paper that can be glued to a door jam so that victims or witnesses can observe the height of alleged offenders as they pass through a doorway. Both devices have been used to gather more detailed and accurate suspect information.

As part of a crime prevention program, officers can review the charts with business proprietors, their employees and customers and ask them to carefully record as many identifying characteristics as possible when a crime occurs. The charts can also be used by officers investigating street or residential crimes to gather information. Showing victims and witnesses the chart frequently jogs their memory and permits them to give a more thorough suspect description.

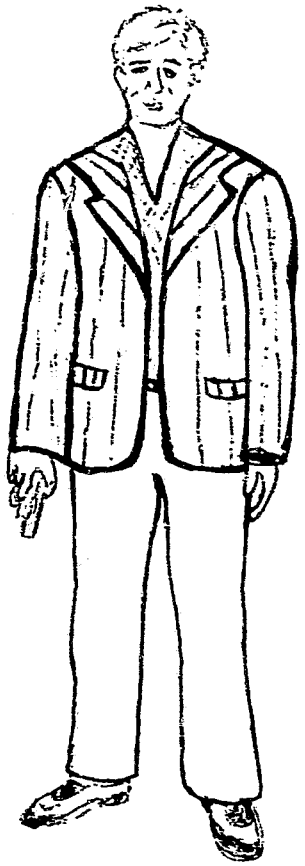
The *area canvass* is another device that officers have used to locate additional witnesses and gather useful information about a crime. In some cases, witnesses found during the canvass have supplied valuable information about suspects and vehicles that has facilitated an apprehension. Patrol managers will have to set guidelines for the implementation of area witness canvasses. In some cases, officers may contact only the immediate neighbors of the victim. Depending upon the seriousness of the crime and the level of criminal activity in the community, patrol managers may, however, prescribe a more extensive area canvass.

In addition to locating witnesses, the area canvass can also be used as a vehicle to heighten citizen awareness of local crime conditions, disseminate crime prevention information, and arrange for security inspections. Although witness

EXHIBIT 28

SUSPECT IDENTITY CHART

Physical Description



Hair (Color-Cut)_____

Height_____

Eyes-Eyeglasses_____

Complexion_____

Beard, Moustache,
Sideburns_____

Speech Characteristics
(Accent, Lisp, etc.)_____

Shirt_____

Visible Scars,
Marks, Tattoos_____

Coat or Jacket_____

Nationality if
known_____

Age_____Weight_____Shoes_____

Weapon Left or Trousers_____
Right Handed_____

METHOD OF ESCAPE
Direction_____

VEHICLE DESCRIPTION
Auto License_____
Make/Year_____
Color_____

ADDITIONAL REMARKS:

_____

_____

_____

_____

canvasses are usually conducted by officers in person, it is also possible to initiate this process via the telephone. Using phone directories arranged by street addresses, departments can quickly screen a large number of potential witnesses. When a witness is located, an officer or investigator can be dispatched to collect additional information about the crime.

c. Suspect Search

In most cases when officers respond to a crime call, all their attention is focused upon the immediate vicinity of the crime scene rather than the surrounding area. It is not uncommon to have the primary unit arrive at the crime scene along with several other units. Some departments have attempted to limit the amount of roll-in by unassigned units and to direct the attention of these free units toward areas surrounding the crime scene. The result has been that the primary unit handles the crime scene while roll-in or support units can begin a saturation search for suspects within a one- to three-block radius of the incident. Departments have referred to this tactic as an area or quadrant search.

Atlanta, Cleveland Heights, New Haven, and St. Louis departments have used this area search procedure as an apprehension technique, although it also appears to have deterrent value. In Cleveland Heights, Ohio, for example, when a hot or recently completed crime is reported, one unit is dispatched to the crime while three to four other units are directed to surround the area, watch for suspicious persons, and generally engage in saturation patrol. The Chief has commented that although the tactic has resulted in only a small number of apprehensions, it has had a very strong deterrent effect by letting the criminal know the police are on patrol.

New Haven has used a slight variation of the quadrant search. Crime analysis revealed that immediately following school dismissal, the surrounding areas usually suffered a considerable larceny and vandalism problem. To combat this problem, patrol units are assigned to patrol in ever larger concentric circles surrounding the schools. The approach has been found to be effective in reducing the vandalism problem.

D. Forming Specialized Patrol Units

A principle problem that must be addressed by every department considering a directed patrol program centers around the question of what directed assignments should be made to routine rather than specialized patrol units. Although most of

the tactics described in this chapter can be implemented by regular patrol officers, it is also possible that each of these activities could be performed by specialized units.

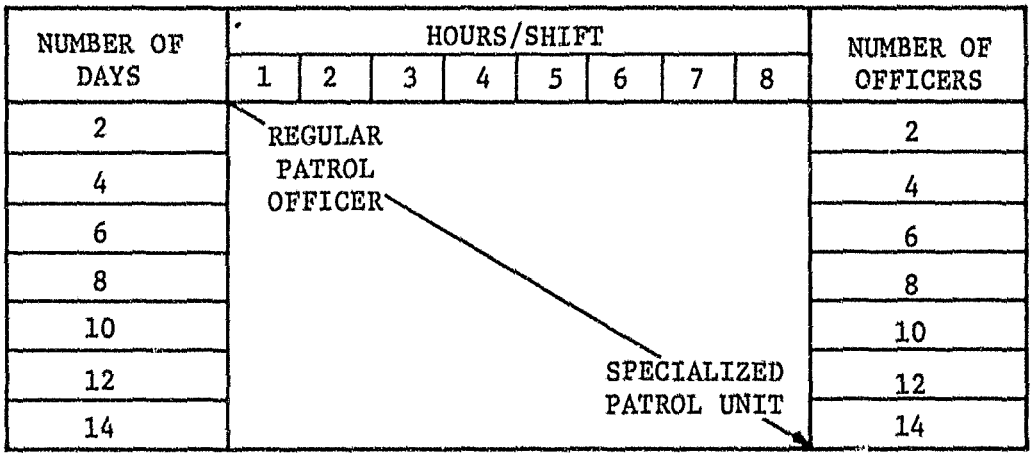
In deciding whether to assign directed patrol activities to regular or specialized units, departments will need to consider several factors. First, patrol managers need to evaluate the amount of time needed to carry out directed patrol tactics. *In general, if a tactic requires that officers be relieved from responding to service calls for only a short period of time, the tactic can be adequately handled by regular patrol units.* Likely tactics are field interrogations, vehicle checks, security surveys, and saturation patrols which require only a short time (less than one hour) to initiate and complete. These tactics can usually be assigned to regular patrol officers without seriously disrupting the officer's ability to answer calls for service. However, it will be necessary, even for these relatively short assignments, to relieve officers from responding to calls for service for periods of time ranging from 30 minutes to as much as two hours. To accomodate this "out-of-service time," departments will have to adopt call prioritization and stacking procedures, as discussed earlier.

As the amount of time needed to complete an assigned tactic increases, departments will need to consider the development of a specialized patrol capability. This would certainly be the case for directed assignments that require an officer's full time commitment, particularly when the assignment involves covert activities. Examples of this would be decoy, stake-out, and surveillance operations which require an officer to work in plain clothes and to be relieved of all responsibility for answering calls for service. Some departments have handled these tactics by relieving patrol officers of their service call responsibility for a tour of duty while other departments have established specialized units. *The critical factor in determining whether a specialized unit is warranted would be the magnitude and duration of the crime problem. If, for example, a community has identified a persistant pattern of criminal activity, it may be best to organize, train, and deploy a specialized patrol unit that can focus upon that crime for an extended period of time.*

Exhibit 29 presents a guide by which departments can judge whether or not the regular patrol force or a specialized unit is more appropriate for attacking an identified pattern of criminal activity. In general, as the amount of time needed to implement the tactic increases, patrol managers will find it more compelling to initiate a specialized unit. By "amount of time" we mean the time during which an officer must be relieved of all service call responsibilities in order to carry

EXHIBIT 29

CRITERIA FOR FORMING A SPECIALIZED UNIT



out a directed tactic. If a patrol manager must relieve officers of their service call responsibilities for an entire shift, if this must be done for more than a week, if more than six or seven officers are involved, and if such is a recurrent need, then it may be advantageous to establish a specialized patrol unit.

In the event that a department chooses to form a specialized patrol unit, special attention will have to be paid to insuring cooperation and coordination between that unit and uniformed patrol officers. Although the ability of specialized patrol units to engage in varied and extended covert operations can be a valuable asset, specialized units have sometimes fostered divisiveness within the patrol force. This frequently occurs because specialized units are relieved of service call work, engage in more "crime fighting" assignments, and are sometimes regarded as an elite group.

Wilmington, Delaware, has attempted to lessen the rivalry and hostility between regular and specialized units by periodically and routinely rotating all patrol officers through both their basic and structured patrol units. This approach has several advantages. It familiarizes all officers with a variety of specialized tactics, keeps structured or specialized officers in touch with service call and community problems, enhances

information communication between the two groups, and erases the image of elitism that frequently surrounds specialized patrol operations.

Although the Wilmington approach can foster better cooperation between routine and specialized operations, additional techniques should be adopted to coordinate operations between the two groups. Departmental commanders need to emphasize the support that routine and specialized units must provide to one another. Specialized officers can foster cooperation by attending regular squad roll calls with beat officers, involving beat officers in their activities, and giving them a share of the credit for successful operations. Uniformed patrol officers should be encouraged to share general information about beat conditions and suspects with specialized officers. The less traditional daily squad conference that has replaced roll calls in some departments is a good forum for exchanging intelligence and developing plans to coordinate tactical operations.

E. Summary Recommendations

The goal of this chapter has been to indicate how departments can use crime analysis to develop and deploy patrol tactics that address a community's crime problems. The suggestions concerning the linkage between problem or crime analysis and specific patrol activities are designed to enable patrol managers to more carefully identify problems and then develop tactics for officers to use while patrolling. Every patrol manager should strive to identify several critical problems for officers to focus their patrol activities upon. This can be accomplished by adopting the following recommendations outlined in this chapter:

1. Every department should strive to have patrol officers spend approximately 25% of their time conducting crime specific directed patrol activities.

2. Patrol managers should develop a range of prevention, deterrence, and apprehension activities that can be used against each suppressible crime. By using crime analysis and street knowledge, they should then select the combination of theses activities as directed patrol assignments.

3. Every department should develop a problem analysis capability that permits patrol managers to clearly identify crime and traffic problems. Crime analysis units should supply patrol managers with

timely and operationally useful information about time and day of occurrence, method of operation, likely suspects, and crime maps.

4. Every department should encourage crime analysts to provide patrol managers with help in developing specific prevention, deterrence, and apprehension tactics for each identified problem.

5. Every department should consider the development of a specialized patrol unit when a persistent problem has been identified which requires the full time attention of several officers for an extended period of time. In this light, Volume II of this report, *Specialized Patrol*, should be reviewed as an aid in determining the most appropriate mix of specialized and planned patrol activities for any given department.

CHAPTER 5

VARIATIONS IN DIRECTED PATROL PROGRAMS

Previous chapters of this report have described the more critical steps a department will need to take in order to implement a directed patrol program. In general, directed patrol will require patrol managers to match deployment to workload, prioritize the patrol workload and service calls, routinely use crime analysis to direct patrol operations, develop crime specific directed patrol activities to replace random preventive patrol. The purpose of the case studies presented in this chapter is to illustrate the wide ranging approaches departments have used in developing directed patrol programs. Although the programs differ in both content and style, they all have sought to replace random and sometimes haphazard preventive patrol with specific, planned activities which address a community's major crime and order maintenance problems. These program descriptions suggests how a department's organizational structure and management style can affect the way directed patrol programs develop. They should enable patrol administrators and planners to develop a better feel for how a directed patrol might impact their police department.

The intent of this chapter is to present a summary of the more important contributions each program has made to the directed patrol concept. As a consequence, only the more significant program elements of each directed patrol experiment are described. In addition, a second objective has been to describe some of the major problems each department has had in implementing its programs. Our intention is not to critique these programs but to offer insights into the implementation process that may enable other departments to avoid the pitfalls frequently encountered when a program goes from the planning to the operational stage.

The directed patrol programs described here represent considerable variation. Some are using only a limited number of the prescriptions outlined in this manual while others have implemented a wide range of organizational and operational changes. San Diego, for example, has emphasized the responsibility each beat officer has for planning and implementing beat-specific patrol activities. Wilmington, Delaware, where a sergeant directs a very flexible unit of fourteen patrol officers, has emphasized daily problems and crime analysis. In spite of the differences among the programs, all illustrate the most critical element of directed patrol -- *the careful identification of community*

problem coupled with an attempt to develop tactics to solve these problems. In addition, all of the programs use crime analysis as one of the more important tools in directing patrol operations.

A second feature of these directed patrol programs that deserves emphasis is the size of the departments involved. It is not a program that only large departments can implement. *It is an approach to patrol that both medium and small agencies have used to upgrade the quality of their enforcement efforts.* Although large cities like Kansas City and San Diego with over 1,000 sworn officers have adopted directed patrol procedures, medium-sized cities like New Haven and Wilmington, as well as much smaller communities like Branford, Connecticut (with less than 40 officers) and Fort Madison, Iowa (with only 25 officers) have successfully adopted far-reaching directed patrol programs. Exhibit 30 lists the cities, their populations, and the number of police personnel in each of the directed patrol programs that was reviewed in preparing this document.

A. Community-Oriented Policing: San Diego

The community-oriented policing program (COP) in San Diego was a direct out-growth of deteriorating police/community relations in the late 1960's and early 1970's. Department administrators, in attempting to solve this problem, developed an approach to patrol that was applicable not only to police-community relations problems but also to the crime control, order maintenance, and social service issues faced by patrol personnel. The fundamental goal of the project was "to develop ways by which patrol officers become closely attuned and accountable to the people and problems of their beats, thereby improving the quality of police services in the community."[1]

In working toward its goals, the department has implemented a number of organizational and procedural changes

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[1] San Diego Police Department, Community-Oriented Policing: An Integrated Approach to Police Patrol (San Diego, Cal.: San Diego Police Department, 1976), provides an overview of the COP program. For an extensive evaluation of the program, see: John E. Boydstun and Michael E. Sherry, San Diego Community Profiles, Final Report (Washington, D.C.: Police Foundation, 1975).

EXHIBIT 30

CHARACTERISTICS OF CITIES WITH
DIRECTED PATROL PROGRAMS

City	Population	Total Personnel	Sworn Officers
San Diego, California	757,000	1,389	1,016
Kansas City, Missouri	488,000	1,707	1,231
New Haven, Connecticut	137,000	447	416
Wilmington, Delaware	80,386	329	251
Cleveland Heights, Ohio	60,000	116	99
Milford, Connecticut	55,000	110	98
West Haven, Connecticut	53,000	115	101
Hamden, Connecticut	45,000	108	95
East Haven, Connecticut	25,000	54	45
North Haven, Connecticut	23,000	47	42
Branford, Connecticut	25,000	35	32
Fort Madison, Iowa	14,000	29	25

designed to increase the officers' familiarity with specific beat conditions. These procedures include long-term assignments to a beat, responsibility for clearing most service calls and performing directed patrol assignments on that beat. These procedures coupled with a formalized system that enables officers to analyze beat conditions and plan patrol activities have been the principle mechanism used to replace random patrol with reasoned and specific patrol activities. Although COP has not formally been referred to as a directed patrol program, its reliance upon problem and crime analysis in structuring patrol operations distinguishes it as one.

1. Program Features

Community Oriented Policing (COP) is based upon an extensive effort to decentralize many patrol decisions from command levels to individual police officers. *The program is based upon the assumption that each patrol beat or community within a city has unique social and law enforcement problems that can only be adequately addressed when patrol officers have a clear understanding of these problems.* The program places considerable responsibility upon beat officers to analyze and develop patrol tactics that address specific beat conditions and problems.

The heart of the COP program has been the *Beat Profile*, which each officer must develop for his/her beat. The beat profile is based upon a thorough analysis of the community's structure (socio-economic conditions, cultural diversity, institutions, organizations, and leaders) as well as understanding of police problems created by the community. The latter analysis is focused upon crime and traffic patterns as well as the order maintenance and non-criminal demands placed upon the police by the community. In reviewing these materials and preparing a written report about the beat, which is updated quarterly, officers generate the information needed to develop problem-focused patrol tactics.

The effect of the San Diego program has enabled officers to replace random "seat of the pants" patrol with a set of reasoned and directed patrol activities that focus upon the specific problems faced by a community. Whatever the problems are -- residential or commercial burglary, auto theft, robbery, traffic accidents, juvenile disturbances, police/community conflict -- officers are encouraged to analyze these problems and develop appropriate tactics. In addition, officers are supported in their tasks by patrol supervisors and a general policy in the patrol division that actively encourages officer discretion and the development of problem-solving patrol tactics.

Although the department has not attempted to prioritize the service call workload and free officers from service call responsibility to perform directed activities, other procedures have been adopted to support officer-initiated activities. Officers have been provided with handi-talkies which enable them to leave their cars to attend community meetings and to interact with citizens more freely on the street. This equipment has also permitted mobile patrol officers to walk portions of their beats.

The department has established a *Resource Center* where officers can review current crime and traffic information, census data, city planning reports, and community newsletters. In addition, the crime analysis unit is able to rapidly provide crime reports for each of the city's patrol beats. Officers are also provided with a *Community Resource Manual* listing community social service agencies and organizations that the officer can rely upon for support in solving community problems and referring citizens.

Since the implementation of the program, officers have engaged in a number of crime prevention, deterrence, and apprehension activities designed to improve patrol effectiveness. Because of the information generated by beat profiling, officers have made squad roll-calls a focus for discussing area problems. The discussions have led to better coordination of area-wide patrol activities. In addition, officers have taken a greater initiative in police/community relations, referred citizens to social service agencies for assistance, followed up on individual cases, identified traffic hazards, submitted improvement requests to the city's traffic departments, and encouraged community groups to become involved in law enforcement problems.

2. Program Implementation

At the outset of the COP program, planners clearly recognized the far-reaching implications of the changes they were proposing. Although on the surface the program appeared to require only that patrol officers plan their activities more carefully, COP required officers to engage in patrol planning efforts that had formerly been a preogative of patrol supervisors and commanders. At the very least, the program was perceived by some patrol command personnel as a challenge to the traditional rank structure. At the same time that officer responsibilities were changing, patrol supervisors were also expected to alter their style of leadership from one concerned primarily with internal departmental policy and discipline to one that required collaboration with officers in analyzing problems and planning specific patrol activities.

To facilitate implementation of COP and emphasize the significance of the program, the department developed a *comprehensive training program.* Like the program being implemented, the content, style, and participants were quite different from the traditional courses offered at the police academy. The training program was taught in community classroom facilities away from the department, and were designed and conducted by both departmental personnel and civilian police experts.[2]

The training program gave officers the basic analytical and planning skills needed to develop a directed patrol program on their beats. The program also included workshops on goal setting, discretionary decision-making, squad conferences, and officer performance evaluation. In addition, it cleared up rumors about the program, generated enthusiasm and support among officers and supervisors, and conveyed the substantial commitment patrol administrators were making to the program. Program planners deemed the training important enough to pull patrol squads (supervisors and officers) off the street for a one-week period. To control training and implementation costs, neighboring patrol units handled service calls and performed patrol for the squads being trained. The entire patrol force was trained over the seven-month implementation period.

The San Diego training program was perhaps the most important element in assuring a successful implementation of the program. Evaluation of the training indicated that officers not only understood the profiling concept but were able to use it in day-to-day operational planning. Program evaluators did, however, note that additional training for sergeants in the areas of planning and group problem solving would have further supported program implementation.

Two additional aspects of the San Diego implementation process also appear to have been critical to operationalizing the COP plan. First, *a high level patrol official was assigned full-time as a program monitor and trouble shooter.* As implementation problems developed, the inspector who had the complete support of the Chief had the authority to make critical implementation decisions as well as insure the total cooperation of mid-level managers.

Finally, program implementation at the officer level was supported by the development of a *performance evaluation system* that was keyed to the new operational procedures of COP. Program planners recognized that COP demanded substantial

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[2] This COP training is being incorporated into the traditional academy training program.

changes not only in what officers did while on patrol but also how they did it. To support these changes, the department scrapped the old officer evaluation system that focused upon standard measures of officer productivity (traffic citations, field interrogations, arrests) without regard to actual beat conditions. The new evaluation system has encouraged officers to develop analytical and planning skills and to adapt their patrol activitiy to beat conditions. It also requires patrol supervisors to carefully review the problems of each beat and to evaluate officer performance in relation to these beat conditions.

B. Directed Patrol: Kansas City, Missouri

The Kansas City directed patrol program is in large part a direct response to the question of how patrol time can be most effectively used. *Based upon an analysis of the patrol workload, patrol planners estimated that as much as one-third of all patrol man-hours could be used for directed purposes.* It was hypothesized that the implementation of preplanned directed activities would have a greater impact upon crime than the traditional random patrol operations of the department.

The Kansas City directed patrol program also represents an experiment in *decentralized decision-making.* However, rather than focusing upon individual officer initiative and responsiblity, as in San Diego, the department has chosen to make patrol sergeants the focus for planning and implementing directed patrol activities. The program has emphasized the responsibility of sergeants to implement specific and well-defined tactics that were developed by a task force of planners, patrol supervisors, and officers.

Finally, it should be noted that, whereas COP in San Diego has emphasized the importance of the patrol beat, directed patrol in Kansas City has de-emphasized the beat and has made the sector or the area patrolled by a sergeant and several officers the focus for planning activities. Under the directed patrol program, *beat boundaries are regarded only as administrative districts and sergeants are free to redeploy officers within sectors according to short-term service demands and crime trends.* The key to the system is flexibility to ensure that emergency calls are answered quickly yet time is provided for a directed patrol program. For example, a sector sergeant might assign three units responsiblity for calls for service while two units would be assigned to directed patrol duties. These assignments can be changed on a day-to-day basis to match service call demands and address specifically

identified sector problems.[3]

1. Program Elements

The heart of the Kansas City program has been the development of a *management information system* that enables sergeants to predict the call for service workload and identify patterns of criminal activity. By using these management tools, sergeants can estimate the amount of time available for directed patrol and can initiate directed patrol activities that specifically address the problems identified by crime analysis. Exhibit 31 lists the various directed patrol activities currently being used in Kansas City. The activities focus upon the crimes of burglary and robbery and call for

EXHIBIT 31

KANSAS CITY DIRECTED PATROL TACTICS

Community Education/ Organization	Tactical Deployment	Case Processing
Crime Information/ Prevention Displays	Sector Flexibility*	Case Solvability Factors
Attend Community Meetings	Decoys	Concealed Cameras
Security Surveys	Tactical Alarms	Identi-Kit
Block Watchers	Monitor Garage Sales	Suspect Description Pads
Operation Identification		

**Sector flexibility: Sergeants have authority to reassign officers outside their normal beats to patrol in areas experiencing crime and order maintenance problems.*

[3] Kansas City Police Department, Directed Patrol: A Concept in Community-Specific, Crime-Specific, Service-Specific Policing (Kansas City, Missouri: Kansas City Police Department, April 1975).

the implementation of crime prevention, deterrence, and apprehension tactics. When these tactics are matched to the problems identified through crime analysis, they yield a very powerful tool for addressing a community's crime and order maintenance problems.

Initial results of this program indicated that patrol sergeants have been able to assign approximately 20% of each officer's time to directed activities. This has been accomplished in two ways. While assigned to both short term (part of a shift) and long term (entire shift) directed activities, officers are relieved of all call for service responsibilities.

To support the initiation and completion of directed patrol assignments, the department has developed an imaginative approach to *prioritizing directed tactics and service calls.* Communications personnel have the option of classifying each service call as either immediate response, delayed response, or phone-in/walk-in calls. Calls such as armed robberies, aggravated assaults, disturbances, and alarms always receive an immediate response. In general, if an incident is in progress, the perpetrators are still in the area, or if there is a danger to human life or the destruction of property or evidence, a unit is dispatched immediately. By answering all other calls on a delayed basis and using phone-in or walk-in reports for a small number of other calls, the department has created the blocks of time needed to initiate and complete directed patrol activities.

2. Program Implemention

An important element in the program implementation process has been attempts to keep personnel informed of any planned changes in the patrol program. Kansas City has adopted an approach to planning change that seeks the active support and input of patrol officers. In many of its patrol experiments, including directed patrol, the department has used a *task force* of patrol administrators, planners, supervisors, and officers to analyze patrol problems, develop potential solutions, describe program elements, and prepare an implementation plan. By combining planning experts with operations personnel, the department has been able to analyze patrol problems and develop comprehensive patrol programs that are tempered by the realities of day-to-day police work.

The Kansas City task force produced a very comprehensive document detailing the way the patrol workload could be modified to create blocks of patrol time. In addition, the program plan describes the purpose of each directed patrol tactic, the crime problem for which each is appropriate,

and the various responsibilities of watch commanders, sector sergeants and patrol officers for implementing each tactic.[4]

An important feature of the Kansas City directed patrol program has been a commitment to *decentralized and participatory management*. This has been achieved in two ways. First, as we have mentioned, all levels of the patrol force participated in the design of the program. More importantly, however, has been the effort to decentralize the day-to-day implementation of the program to patrol sergeants. Directed patrol has enabled sergeants to play a much more responsible role in planning and directing patrol activities. Rather than merely acting as an arbiter of internal departmental policies and street supervisor, directed patrol sergeants make daily decisions about where officers will be deployed and what specific activities they will engage in.

Sergeants have been provided with two management information tools to facilitate their decision-making capabilities. The *Manpower Utilization Forecast* projects both the number of service calls and time needed to service these calls. By using this, sergeants are able to project the amount of time that can be allocated to directed patrol tactics. A second information tool provides sergeants with information about the *geographic concentration of incidents*. This computerized map permits sergeants to concentrate their officers in problem areas for both service calls and directed patrol activities. In addition, detailed crime analysis is also available so that sergeants can fine-tune basic deployment strategies.

An important feature of the Kansas City program has been the careful *monitoring of the extent to which the directed patrol activities are actually being implemented on the street*. During early phases of the project, program monitors, by reviewing the amount of time devoted to directed patrol, and the way sergeants use directed tactics, discovered that the program was not being implemented as completly as had been planned. They discovered, for example, that sergeants sometimes had difficulty using the workload forecasting tools, were hesitant to alter beat boundaries, and occasionally chose inappropriate directed patrol tactics.

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[4] Kansas City Police Department, Directed Patrol: Implementation Plan -- Community-Specific, Crime-Specific, Service-Specific Policing (Kansas City, Missouri: Kansas City Police Department, September 1975).

Careful monitoring of the implementation process has enabled program managers to pinpoint impediments to change and to develop remedies for these problems. As a result, program managers have discussed these implementation programs with patrol sergeants, reviewed the tactical planning process, and are developing training materials to better acquaint sergeants with the analysis and planning demands of directed patro. It should be noted that Kansas City is not the only department to have experienced difficulty in decentralizing decision-making and requiring sergeants to act as program managers and problem analysts. However, by carefully monitoring program implementation, Kansas City has short-circuited several potential problems and has begun to make changes that will insure the full implementation and success of directed patrol.

C. Directed Deterrent Patrol: South Central Connecticut

The directed patrol programs supported by the South Central Connecticut Criminal Justice Supervisory Board have sought to *replace random preventive patrol with tactics based upon crime analysis*. The program was initially developed by the Supervisory Board and the New Haven Police Department. Since its inception and successful trial in New Haven, regional planners have adapted the program to meet the law enforcement needs of several suburban communities in the New Haven area.[5]

The directed patrol program in New Haven was a result of police administrators' feelings that random preventive patrol was largely ineffective in detering criminal activities. Department and *regional planners were seeking a system that would increase the effectiveness of patrol yet operate within the existing patrol budget and manpower constraints of the department*. The final solution to the problem was the decision to use detailed crime analysis as the principle means to direct patrol activities. In effect, New Haven dropped most of its random preventive patrol activities and replaced them with crime-specific directed patrol tactics.

In many respects, the working concepts of the Kansas City and South Central Connecticut programs are similar. Both resulted from dissatisfaction with the ineffectiveness of preventive patrol, and both use crime analysis to deploy officers

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[5] Banford, East Haven, Hamden, Milford, North Haven, and West Haven.

and direct activities. Three important distinctions, however, can be made. First, Kansas City has developed a catalogue of crime prevention, deterrence, and apprehension oriented patrol tactics as part of its directed patrol program, whereas South Central Connecticut has focused primarily upon deterrence and saturation patrol tactics.

Second, although both programs have attempted to create blocks of uninterrupted patrol time, their approaches have been different. Kansas City has developed a rather elaborate system for prioritizing service calls which includes stacking as well as telephone, station house, and mail-in reports. South Central Connecticut has achieved similar results by giving directed patrol assignments the highest priority. Directed patrol can be interrupted only for a limited number of emergency calls and for serious on-scene incidents.

Finally, Kansas City has emphasized decentralized planning and has made the sergeant the focus for managing the directed patrol program. Although program planners in New Haven intend to decentralize some of the directed patrol decisions to sergeants, the program was implemented and has operated with a very limited amount of participation by officers, sergeants and watch commanders. However, the directed patrol programs in Branford, East Haven, Hamden, Milford, North Haven, and West Haven, unlike New Haven, were planned and have operated with a considerable amount of participation by sergeants and officers.[6]

1. Program Elements

Although New Haven and each of the suburban communities have adopted the same principles in developing their programs, each department has adapted the system to meet the needs of their community. At the heart of the directed deterrent program is the *regionally-supported computer and crime information system.* All of the departments in the region regularly enter and retrieve workload, crime, and suspect information from New Haven's police computer system. The computer system is capable of providing neighborhood-specific crime maps, detailed crime analysis reports by location, time of day, and day of week, and patrol unit activity reports. The latter

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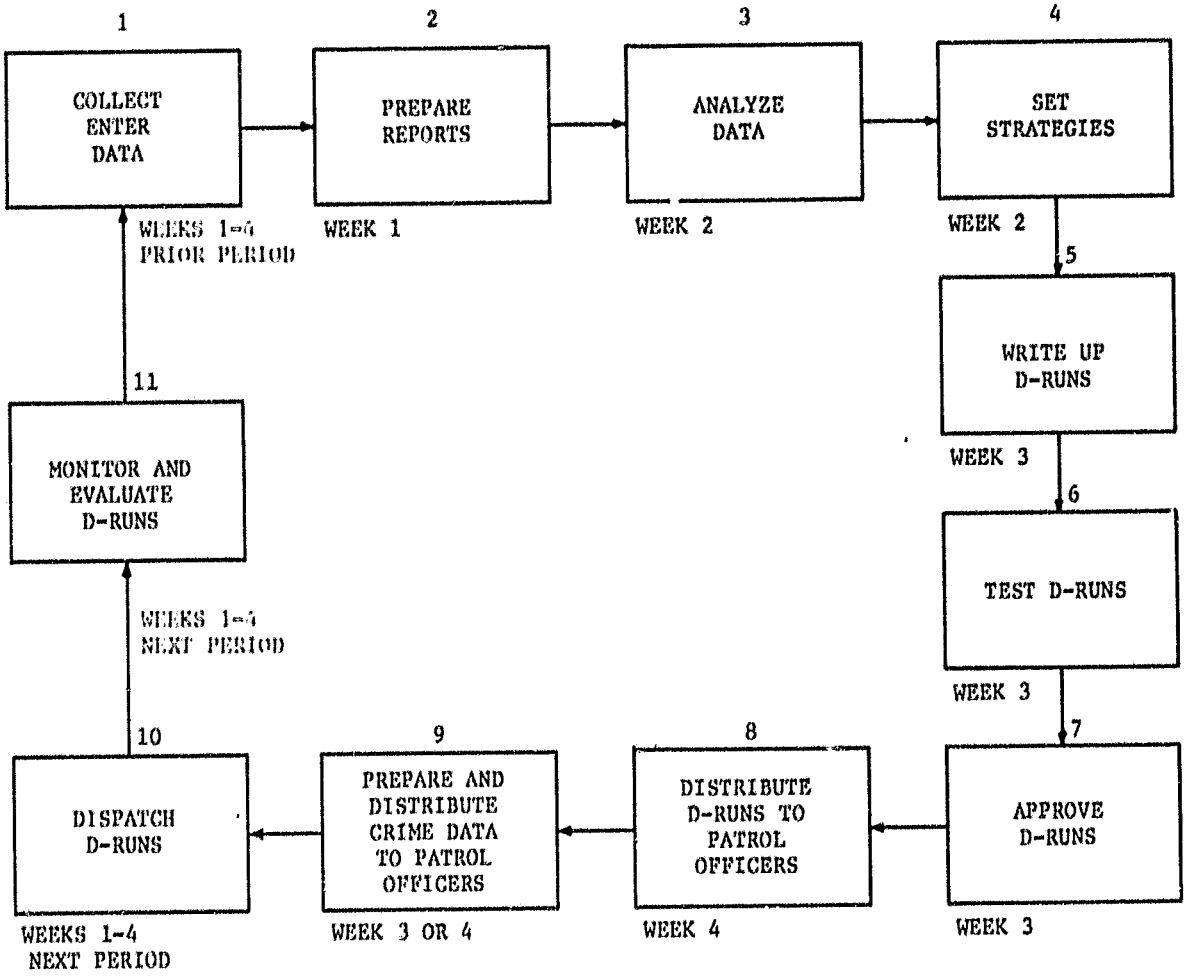
[6] For a description of the New Haven program, see: Directed Deterrent Patrol, available from the Police Department. Innovative Patrol Operations describes the program in the smaller suburban communities and is available from the South Central Connecticut Supervisory Board in New Haven.

has been particularly useful in determining the amount of committed and non-committed patrol time and in planning the amount of time that can be used for directed deterrent patrol.

Exhibit 32 illustrates the process used by the New Haven department to plan directed deterrent patrols. Highlights of the system are the selection of target crimes and appropriate tactics, preparation of written, step-by-step instructions for uniform patrol to follow, and collection of officer feedback about the directed patrol run. The planning and implementation cycle usually takes 28 days; however, once a deterrent run has been prepared and added to the department's tactical library, it can be reactivated in a much shorter time period.

EXHIBIT 32

DIRECTED DETERRENT PATROL PLANNING CYCLE



Although each of the departments has adopted a planning cycle similar to that illustrated in Exhibit 32 and each has instituted a planning team of patrol administrators, managers and officers, the departments have adopted a wide range of operational responses. In New Haven, the *directed deterrent runs* (D-runs) have focused upon suppressible street and property crimes. The principal method for attacking these crimes has been highly visible saturation patrol by uniformed patrol officers. To do this, officers are relieved of their service call responsibility while on a D-run and are dispatched on a D-run by communications personnel. Patrol sergeants and watch commanders have played only a small role in planning and implementing the D-run activity.

The directed patrol program in each of the suburban communities illustrates variations on the theme of analyzing problems and developing appropriate tactics. Although street crime and burglary have been the principal problem targeted, these communities have also targeted and successfully addressed vandalism and traffic problems. In addition, the departments have used the workload analysis to develop more flexible approaches to deploying officers. Hamden and East Haven, for example, have abandoned equal shift staffing in favor of a deployment pattern that matches the number of officers on each shift to the patrol workload. Other departments in the area are using temporal workload analysis to support their attempts to drop inefficient equal shift staffing clauses from their union contracts.

Some of the departments have radically altered beat boundaries to conform to workload patterns. East Haven has abandoned its beats completely and uses daily crime and workload analysis to direct all patrol activities. In addition, East Haven has adopted a split patrol force by using some units to handle service calls while the remainder are assigned exclusively to directed patrol activities. This has enabled patrol officers to engage in covert apprehension oriented activities that sometimes require large blocks of uninterrupted time. In sum, the programs supported by the South Central Connecticut Criminal Justice Supervisory Board have demonstrated the diverse options departments have when developing a program based upon careful problem analysis.

2. Program Implementation

One of the more interesting features of the directed deterrent program in the New Haven area has been the *involvement of the Regional Supervisory Board.* The Board supported development of the directed deterrent program in New Haven and has played a very active role in assisting the smaller suburban

communities to adopt and adapt the program to their individual needs. Some of this assistance has been in the form of LEAA grants. But perhaps more important has been the day-to-day planning support provided to the smaller departments by the regional planners. This planning support ranges from assistance in using the regional criminal justice computer system and interpreting workload and crime data provided by the system to helping departments set up planning teams to develop directed patrol activities. The supervisory board has enabled seven communities in the region to implement directed patrol programs and plans to initiate similar projects in other communities in the region.

The *organization of planning teams* by the suburban departments has been a key ingredient in developing directed patrols. Because the planning team includes command personnel as well as the patrol officers, most affected by the directed patrol, it has enhanced program commitment and acceptance. Continued use of the planning teams and the periodic rotation of personnel onto the team is building each department's ability to engage in continuous operational planning. In addition, the planning team has enabled the smaller departments, which do not have fulltime planning groups, to systematically and regularly analyze and plan patrol operations.

The planning team approach and the directed patrol program in the South Central Connecticut area has reached the point where the program is stable and can be easily implemented by other departments. Regional planners will support implemention of the program in the remaining communities in the region during the next year. In addition, the easy transferability of the directed patrol program can be attested to by the experience of Fort Madison, Iowa.

Several personnel from the Fort Madison Police Department and planners from the South Central Iowa Crime Commission in Fairfield, Iowa, visited the South Central Connecticut region and have successfully implemented a directed patrol program in Fort Madison. This experience represents one of the few successful examples of technology transfer that we observed while visiting numerous departments in preparing this document on patrol. It suggests that the South Central Connecticut directed patrol model can be effectively implemented in a new setting without major program development efforts.

D. Patrol Emphasis Program: Cleveland Heights, Ohio

The Cleveland Heights PEP program is one of the most comprehensive directed patrol efforts undertaken. It has involved the

reorganization of both the patrol and detective divisions, the extensive redeployment of officers, the establishment of a new career structure, and an underlying concern for the activities of all mobile units. An essential element of the program is an ongoing and detailed analysis of service call and crime workload patterns. This analysis has been used to match officers' schedules to temporal and geographic fluctuations in the patrol workload. In addition, the Patrol Emphasis Program (PEP) has sought to upgrade the importance of high visibility saturation patrol as a police tactic.

1. Program Elements

The principal element for the reorganization of the Cleveland Heights department has been the *168-hour workload graph*. By recording the month, day, and time of all service calls, the department has been able to carefully describe fluctuations in the patrol workload. The graph has enabled the department to abandon an inefficient equal shift staffing system in favor of a deployment scheme that matches available personnel to realities of the patrol workload. Although the department has not adopted a formalized call prioritization system, it has used the 168-hour graph to deploy police personnel during peak periods. Patrol officers as well as investigators and communications specialists are also scheduled according to the graph.

The redeployment in Cleveland Heights has been accompanied by a much more *aggressive patrol program*. Crime analysis has been used to identify the times and places that would benefit most from increased police visiblity and deterrence. Highly visible saturation patrol, field interrogations, and traffic stops have been used extensively to emphasize police omnipresence and to discourage the potential criminal. By matching deployment to workload and selectively assigning one and two-officer units, the department has tripled the number of units assigned to patrol during peak service and crime periods. The result has been optimum utilization of police personnel and a very effective crime fighting program.

To increase the level of deterrent patrol and to emphasize the value of high visibility, the department has reassigned a number of detectives to uniform patrol. The now small centralized detective division is primarily responsible for long-term investigations, case processing, and court preparations. The remainder of the detectives are deployed in uniform as a *tactical unit* that handles the most serious service calls and provides immediate investigative service to all crime calls. The uniformed investigations in the tactical unit are assigned during peak crime hours (usually 2 p.m. to 12 a.m.). In addition, they are deployed on the basis of crime analysis to provide saturation level patrols in high crime areas.

Cleveland Heights, in addition to restructuring the role of their detectives, has also redefined the mission of its *traffic bureau.* The department has used an aggressive traffic enforcement program as a means to increase police visibility and onmipresence. In many departments, the traffic bureau works primarily between 7 a.m. and 6 p.m. to facilitate traffic flow. In Cleveland Heights, however, traffic cars, especially radar units, are deployed primarily betwen 4 p.m. and 2 a.m. -- the period of peak criminal activity. The mission of the traffic bureau has been expanded to include a crime deterrence and apprehension mission. The department has found, for example, that deploying a radar unit to a high crime area can be effective in reducing criminal activity. In addition, the bureau's high number of traffic stops for moving violations has resulted in the apprehension of suspects wanted for traffic violations and other criminal activity.

2. Program Implementation

The Cleveland Heights experience demonstrates the utility of carefully matching deployment to workload. Departments may find, however, that what appears to be a realistic and straightforward approach to deployment may not be so easy to implement and sell to patrol officers. Scheduling tends to be one of the most sensitive issues faced by patrol commanders. Most officers would prefer to work the day shift and deployment systems that require more officers to work odd hours -- particularly the evening watches -- are not likely to be popular.

To overcome the resistance to a new schedule and the increased deployment between 12 p.m. and 2 a.m., Cleveland Heights has provided incentives for officers who would staff this overlay shift. The overlay shift is staffed by senior patrol officers and detectives who have been grouped into a tactical unit. Officers in the tactical unit, unlike other patrol officers, do not rotate through the three shifts but are permanently assigned to the overlay watch. To encourage officers to work the overlay shift, the department has created the appointed position of patrol investigator, which carries a $50 per month increment to their base pay. In addition, since the cars used by the tactical unit are not needed during other periods of the day, the department has permitted tactical officers who reside in the city to take these patrol cars home. The take-home patrol car has been regarded by both the department and officers as a fringe benefit.

In developing efficient deployment systems, departments should consider the adoption of similar incentives to attract officers to permanently staff the extra positions needed between 12 a.m. and 2 a.m. Analysis may indicate that it is cheaper for a department to pay officers extra for working the busy evening period than it is to maintain an equal shift staffing plan that

artificially inflates the number of personnel needed on the night and day watches.

E. Split Patrol: Wilmington, Delaware

The basic goal of the Wilmington split patrol program has been *to increase police productivity by providing concentrated patrol coverage in areas of the community experiencing high crime rates*. Like the South Central Connecticut program, Wilmington administrators also wanted to improve patrol effectiveness without increasing the number of patrol personnel or patrol costs.[7] To achieve its goal, Wilmington launched a two-part program that involved (1) major changes in the way officers are deployed, and (2) the implementation of new patrol tactics. The result has been an increase in patrol productivity and a decline in criminal activity in the city.

1. Program Elements

Like several directed patrol programs, the Wilmington experience was affected by the Kansas City preventive patrol experiment and the feeling among patrol administrators that random patrol was not a very effective patrol technique. In addition, departmental planners also felt that patrol operations should be organized to reflect the dual nature of patrol work. As a result, Wilmington split the patrol force into two groups:

- *a basic patrol force* of 27 units that responds to calls for service, does random patrol, and performs limited amounts of directed activity. This force is deployed temporally and geographically according to the total patrol workload;
- *a structured patrol force* of 16 units which engages almost exclusively in directed crime prevention, deterrence, and apprehension activity. Structured units are deployed and assigned specific activities according to the results of detailed crime analysis. In addition, these officers respond to serious in-progress criminal complaints and perform both uniformed and covert patrols.

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[7] Nicholas M. Valiente and James T. Nolan, Wilmington Split Patrol Experiment, Planning Report (Wilmington, Delaware: Wilmington Police Department, 1975).

One of the most important factors in establishing the split patrol program in Wilmington was the *detailed workload analysis* that preceded the program's implementation. Wilmington had been deploying an equal number of officers to each shift. Using the Patrol Car Allocation Model (PCAM),[8] departmental administrators were able to develop a deployment scheme that effectively matched officers' schedules to workload demands. Basically, by eliminating the extreme overstaffing on the night watch (12 p.m.-8 a.m.), and the number of officers deployed between 8 and 12 a.m., the department has created a structured patrol force that works during peak hours and concentrates upon crime problems. To support the split patrol and better enable basic units to handle service calls effectively, a call prioritization system was also established. Analysis of the patrol workload revealed that only 7% of all calls received were emergency calls that required an immediate response.[9] As a result, patrol administrators decided that a large number of service calls did not have to be answered immediately and could be stacked for up to 45 minutes until a basic patrol unit became available.

An additional refinement to dispatch procedures has further increased the efficiency with which service calls are handled. Prior to the directed patrol program, dispatchers attempted to hold calls until the beat car was available. This multi-queue approach to dispatch increased the number of units the department needed in order to insure that emergency calls were answered quickly. By adopting a single queue or single stacking line for all calls and dispatching officers across beat boundaries, it has been possible to decrease the amount of out-of-service time that must be scheduled in order to insure an adequate response time. As a result, basic units spend more time in-service and less time waiting for the next citizen call for service.

Upgrading the capability of the department's *crime analysis bureau* has also played a major role in supporting the Wilmington Program. This unit designs tactics on a daily basis for sixteen structured patrol units. The crime analysis or special operations bureau has become the clearinghouse for all crime prevention activities. In addition, it has been given the principle responsibility for coordinating efforts by the patrol and detective divisions to develop and implement deterrence and apprehension oriented tactics.

Commanders of the special operations bureau, patrol division, and detective division meet daily to map out and coor-

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[8] A description of the PCAM model is found in Chapter 2, p. 56.

[9] Valiente and Nolan, *op. cit.*, Chapter 2, p. 27

dinate attacks upon specific crime problems. Each morning these commanders review the previous day's tactical assignments, decide whether to continue, modify, or drop specific tactics. The special operations bureau is responsible for updating 14-day pin maps for burglaries and robberies, preparing special crime profiles as well as reports on suspicious persons and potential suspects. The importance of the crime analysis unit to the Wilmington program cannot be overestimated. *Rather than operating merely as a support function, crime analysis is at the heart of patrol operations in Wilmington.* For example, officers responsible for crime analysis are also actively involved in making deployment decisions and selecting appropriate strategies and tactics. In sum, crime analysis runs the street operations of the structured patrol units.

The tactics used by the Wilmington program focus primarily upon deterrence and apprehension. *Basic patrol units,* when not answering complaints or requests for service, are assigned fixed post duties that require only short blocks of time and can be interrupted to take service calls. These fixed post duties are determined by crime analysis and include: (1) monitoring schools at opening and closing times; (2) observing disorderly and nuisance locations; (3) operating radar; (4) checking parking violations in problem areas; and (5) doing property checks. When basic patrol units are assigned to fixed posts, they are given a description of the problem and suggestions on how to carry out the assignment.[10]

The tactics implemented by *structured patrol units* are based upon detailed crime analysis. Unlike the basic fixed post patrol tactics, these tactics require longer periods of time to complete and involve some plain clothes, covert activities. High visibility saturation patrols are the primary deterrence tactics used by the structured units. Covert patrols have been used against commercial and residential burglary as well as robbery. Officers use civilian clothes, unmarked vehicles, and occasionally taxi cabs, delivery trucks, and other service vehicles. In addition, the department has used decoys in areas experiencing high incidents of street crime. A particularly successful decoy operation has been the placement of "civilian type" cars with CB units in areas experiencing high auto and CB theft. These decoy stake-outs have resulted in a number of arrests. A similar tactic has been used with bicycles. Finally, the structured units have also been assigned suspect and location-oriented surveillance missions.

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[10] Valiente and Nolan, *op. cit.*, Chapter 2, p. 34.

2. Program Implementation

The implementation of the Wilmington program has not been without its problems. Several critical decisions by program administrators have played a very important role in assuring the success of this major reorganization of patrol operations. When the program was first implemented, structured patrol officers worked under the command of regular watch commanders and shift sergeants. In effect, sergeants were responsible for managing both basic and structured patrol units. The result was that most sergeants managed structured units the same way as basic units and, as a consequence, many of the structured patrol tactics were not being implemented.[11]

Two factors may have accounted for the failure of regular patrol sergeants and watch commanders to implement the structured patrol activities. First, although the Wilmington program required patrol supervisors to substantially change their management style and become heavily involved in analyzing crime data, pinpointing problems, developing tactics, and assigning officers specific directed patrol duties, they were not extensively retrained to be able to handle their new responsibilities. Secondly, it may be very difficult for supervisors to manage two different patrol approaches, one that is focused upon service call clearance and uniformed patrol, and another which uses a wide range of covert activities.[12]

Administrators and evaluators of the Wilmington program recognized very early in the project that many of the directed patrol tactics were not being utilized. They found that although the time was available to initiate a substantial directed patrol program, much of the time was being used for random preventive patrol. *To remedy this stagnating situation, the sixteen structured patrol units were placed under the command of a single patrol sergeant who was familiar with the split patrol concept and demonstrated an ability to use crime analysis imaginatively in deploying structured patrol tactics.* The result was an almost immediate increase in the amount of structured patrol. This increase has been accompanied by marked improvements in patrol effectiveness.

Some would argue that Wilmington, in splitting its patrol force, has created a specialized patrol unit. This view, however, needs to be tempered by at least one consideration.

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11 Kansas City seems to be experiencing similar problems.

12 Ibid.

From the inception of the program, the patrol managers were sensitive to the problem of elitism that has sometimes accompanied the creation of specialized tactical forces in other department. *To overcome this problem, the department regularly and routinely rotates all patrol personnel through the structured patrol unit.* Aside from eliminating the elitism problem, rotation has the advantage of familiarizing patrol officers with crime analysis and a wide range of tactics and operational procedures that regular patrol officers seldom encounter. In addition, by giving every patrol officer an opportunity to work in the structured unit and engage in more "crime-fighting" activity, patrol administrators believe they have raised the morale of the patrol division and decreased the desire of many officers to get out of patrol and into investigation.

CHAPTER 6

IMPLEMENTING A DIRECTED PATROL PROGRAM

- In some departments, watch commanders and first line supervisors have been reluctant and sometimes unable to carry out the crime analysis and planning responsibilities thrust upon them by directed patrol. The result has been that programs have floundered until administrators and planners were able to devise other strategies to fill the leadership void.

- In several departments, the investigative and traffic bureaus have opposed directed patrol programs because patrol officers were encouraged to take a more active role in investigations and in developing problem solving approaches to traffic problems.

- The use of covert operational tactics, especially stake-outs and decoys, by patrol officers has antagonized investigative commanders. The conflict has been intensified by the success these patrols have had in suppressing crime and apprehending offenders.

- Efforts by patrol administrators to gain more control over dispatch policy and the incorporation of dispatch into the patrol division or field operations bureau, in spite of its merits, is likely to be resisted by commanders in charge of communications.

- In one department, efforts to decentralize decision-making and encourage patrol officers to take more initiative has tended to alienate other divisional commanders who rely upon the traditional para-military model of organization and supervision.

The approach of this report has been to analyze some organizational and procedural aspects of police work and to indicate how adjustments in operational procedures can affect both

the efficiency and effective of patrol. The approach has been largely an empirical one: data has been collected, analyzed, and used to illustrate the benefits of various deployment, problem analysis, and operational techniques. As a consequence of this analysis, a number of specific recommendations to improve patrol have been offered. In addition, several case studies were included in Chapter 5 to illustrate how departments have used the various organizational and operational recommendations to implement directed patrol programs. Although this report is about "how to conduct patrol operations", equally important is the concern of how to implement change. How a department implements change profoundly affects the degree of success it will have in getting a program from the planning stage to the street.

Before undertaking the organizational and operational recommendations suggested in this document on patrol, administrators will need to carefully assess the probable impact of any changes upon their department. Although this volume is focused upon what departments can do to improve patrol productivity, our review of a number of directed patrol programs strongly suggests that program changes, even small and seemingly common sense changes, are much easier to plan than to implement successfully.

The goal of this chapter is to describe briefly the complexity of the patrol system and to highlight some of the many organizational and human problems that patrol administrators have faced in implementing directed patrol programs. In addition, a number of specific suggestions are made that can greatly facilitate the implementation of an innovative patrol program.

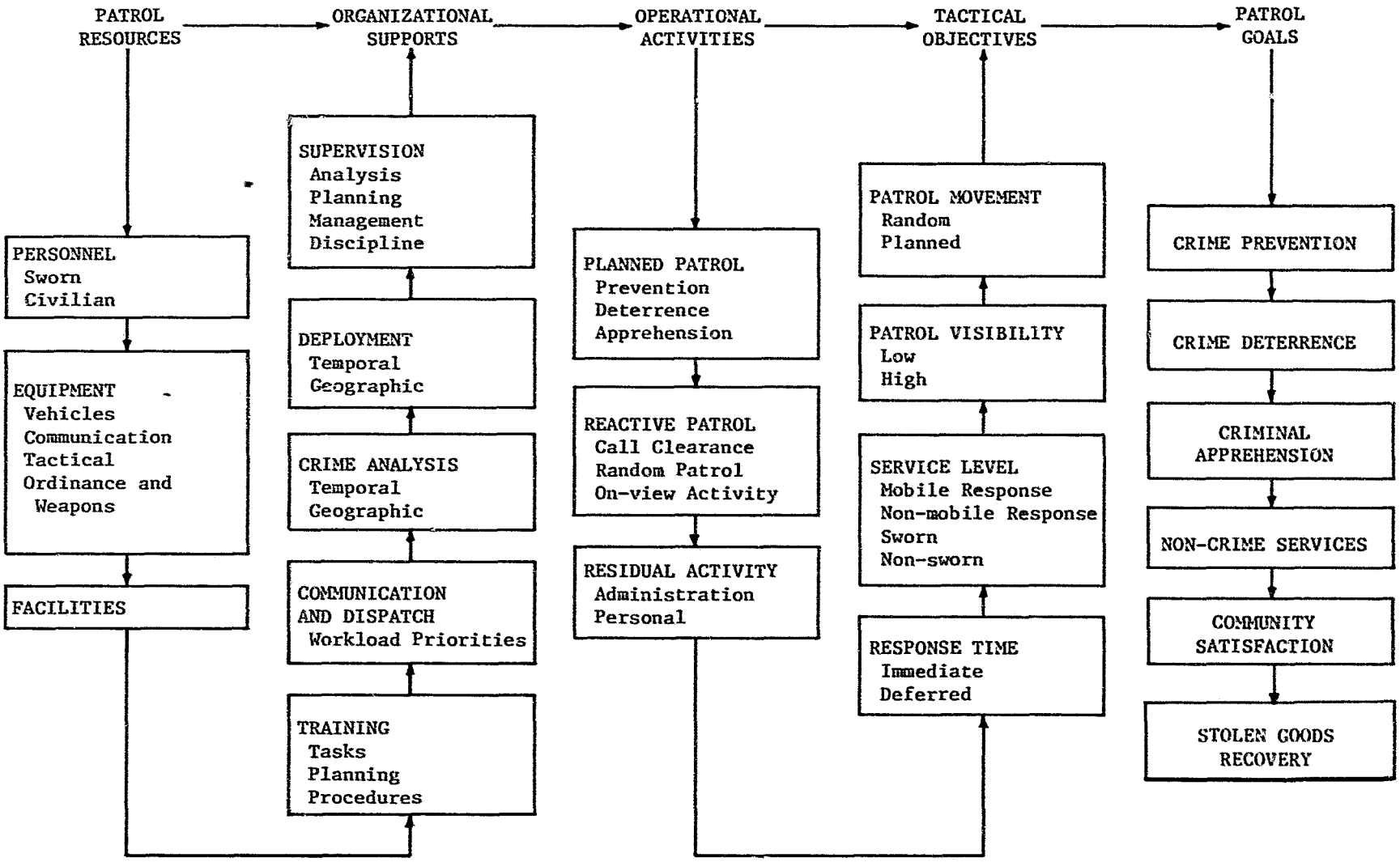
This chapter has been divided into two sections. The first section provides an overview of the patrol system and illustrates the kinds of decisions patrol administrators must make in designing a directed patrol program. This discussion will enable administrators and planners to begin to ask basic questions about how a directed patrol program might affect their department. The second section addresses critical problems of organizational change and recommends a number of things patrol administrators can do to facilitate the implementation of a successful directed patrol program.

A. The Patrol System and Organizational Change

Exhibit 33 displays the various elements of the patrol system that planners and administrators must deal with when contemplating the implementation of a new patrol program. The exhibit identifies the various goals and tactical objectives of patrol.

EXHIBIT 33

THE PATROL SYSTEM



These are the guiding principles that administrators have used to organize patrol operations. Although the overall goals apply to all divisions of a department, the tactical objectives refer primarily to patrol operations. It is through the manipulation of patrol resources, organizational supports, and operational activities that a department seeks to realize its tactical objectives, e.g., desired level of patrol visiblity, patrol movement, response time, and service. By realizing its tactical objectives, the patrol division thereby contributes to the attainment of the overall goals of the department.[1]

Because police patrol is such a complex amalgam of resources and activities, implementing a new program is not an easy task. Whether a department decides merely to alter its deployment patterns or to adopt all of the recommendations contained in Volume I of this document, administrators will encounter a number of organizational and human impediments to change. Every change that a department undertakes will undoubtedly alter the way in which officers, supervisors and patrol administrators work and relate to one another.

In order to illustrate both the complexity of the patrol system and the importance of carefully assessing the implications of a change in patrol practices, we have chosen to examine what might happen if a patrol manager altered a tactical objective, like patrol movement. If a patrol administrator were to attempt to gain greater control over the way officers patrolled by substituting some pre-planned patrol activities for random preventive patrol, this would require a number of changes in operational activities and organizational supports. It might involve upgrading crime analysis, proposing new dispatch procedures, and providing additional training for supervisors and officers to enable them to engage in crime analysis and patrol planning. In terms of operational activities, a planned or directed patrol program will require departments to design specific tasks and decide when and under what conditions these prevention, deterrence, and apprehension activities will be substituted for random patrol.

Describing the changes recommended in this volume merely as operational does not suggest the fundamental, far-reaching nature of these changes. Although they are operational, it is important to emphasize that they will dramatically affect what officers do, the way they do their work, and how they relate to

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1. A more complete description of the patrol system and a thorough discussion of the interrelationships between patrol resources, activities, support systems, tactics, objectives, and goals, is contained in: Theodore H. Schell, *Traditional Preventive Patrol: An Analytical Framework and Judgemental Assessment*, (Washington, D.C.: University City Science Center, 1976); available in microfiche or on loan in hard copy from the National Criminal Justice Reference Service, P.O. Box 24306, Washington, D.C. 20024.

one another. As a consequence, when making adjustments in the various elements of the patrol system, administrators will also need to consider the context within which the patrol system operates.

Our review of directed patrol programs has indicated that two features of the patrol context are critically important to the success of the program. The first concerns the relationship between the patrol division and other divisions of the department.

The rather aggressive role that we have proposed for patrol in this report may require officers to engage in activities that were formerly the exclusive responsibility of communications/dispatch, traffic, investigative, or crime prevention units. If this is the case, changes in patrol will generate keen concern and, perhaps, open hostility from other divisions of the department. At the very least, program planners must be aware of these problems during the planning stages of the program. If conflict develops, administrators must be prepared to justify changes in patrol responsibilities to other divisional commanders as well as to the Chief.

The second and no less significant problem is the effect program changes will have upon patrol personnel, especially first-line supervisors and officers. Directed patrol will require officers to make substantial modifications in the way they do their job. Although most of the directed patrol activities we have suggested are familiar to officers, the way they are assigned and carried out adds a new routine to the patrol process. Finally, if program planning and task assignments are decentralized, sergeants, and then officers, will find more of their time consumed in crime analysis, squad planning, tactical development, and evaluation of the effect of various patrol activities.

Patrol administrators and planners will need to consider the new demands being placed upon their patrol personnel and develop training and advisory supports to insure complete program implementation. Members of the department will need to adapt themselves to the various elements of a directed patrol program. This adaption will require:

- *Acceptance by first-line supervisors* of new analysis and management responsibilities. Supervisors will need to analyze area crime and traffic problems, and then develop geographic and time-specific directed patrol activities. An increased responsibility must also be borne by supervisors for assessing the impact of directed

activities and evaluating officers on how well they adapt to directed patrol assignments.

- *Acceptance by patrol officers* of directed patrol activities and new schedules and shift assignments that match actual workload demands. The loss of free or random patrol time and the acceptance of new performance evaluation standards that complement the directed patrol program are primary considerations.

- *Acceptance by communications/dispatch personnel* of increased control by the patrol division over dispatch policy, workload prioritization schemes, and the development of alternative call response patterns.

- *Acceptance by investigative personnel* of aggressive efforts by patrol officers to complete more detailed preliminary investigations, engage in area witness canvasses, and perform some non-uniformed covert patrol activities.

- *Acceptance by traffic, crime prevention, and community relations personnel* of the more aggressive role patrol officers will play in performing these activities as part of their directed patrol assignments.

Program administrators need to be aware of how increased responsibilities will affect the patrol division as well as other departmental units. *However, these impacts should not be used as an "excuse" for rejecting a directed patrol program.* Program development and program implementation are difficult tasks, but the benefits a department can expect from a directed patrol program outweigh the problems encountered during a program's implementation. In some departments, although directed patrol has radically altered patrol officers' schedules, assignments, and responsibilities, it has contributed substantially to an increased sense of mission, and morale among patrol personnel. This has been especially true in Cleveland Heights and Wilmington, where police effectiveness has been improved and officers have come to enthusiastically support the program.

B. Facilitating Program Implementation

We have summarized some of the more important steps administrators can take to insure a smooth and orderly development of a directed patrol program.

1. Participatory Planning

It is helpful to let patrol personnel who will be affected be the change participate in the process of planning and development. This provides them with a sense of involvement and commitment to the project's success. It gives the officers an opportunity to voice their concerns and reservations from the outset, and it allows the planning process to benefit from the ideas and advice of experienced patrol officers and supervisors. Kansas City and the communities of South Central Connecticut have made extensive use of planning teams comprised of patrol administrators, planners, managers, and officers to plan their programs and develop day-to-day directed patrol assignments.

2. Officer Training

It is important that all officers be re-trained to carry out the directed patrol program. Training should be designed to relieve uncertainties about the project and to provide all personnel with reasons for particular changes and how the changes will affect their jobs. In addition, the training must provide officers with the basic skills needed to implement directed patrol assignments. San Diego, for example, undertook an extensive training program prior to implementing Community Oriented Policing.

3. Supervisor Training

Special technical and motivational training should be given to first-line supervisors. Their cooperation can be a critical factor in successful project implementation. Several departments have encountered serious implementation problems because insufficient attention was paid to defining sergeants' responsibilities and instructing them in their new duties. Any program that attempts to decentralize decision-making and expects first-line supervisors to adopt new analysis, management, and planning styles will require sergeants to undergo extensive re-training. This training must emphasize the new management and planning responsibilities to be borne by the first-line supervisors.

4. Program Responsibility

Individual responsibility for the entire project and its various components should be clearly established from the beginning.

This will enhance individual accountability for the performance of particular tasks. Command and supervisory personnel should be strict in their demands for cooperation in the project and compliance with its operational guidelines. Positive incentives can be offered by giving special recognition to officers who perform with particular distinction.

5. Performance Monitoring

A system for monitoring project performance should be established and be fully operational prior to implementation. Careful project monitoring provides a means of quickly identifying existent and emerging problems. A department should be willing and able to make necessary adjustments as problems develop. It is unwise to become locked into all the particulars of a project. Difficulties inevitably arise during implementation, and the overall effectiveness of a project should not be jeopardized by an unbending commitment to particular project components. The monitoring systems in Kansas City and New Haven have enabled program managers to identify problems early and take timely remedial action.

6. Outside Assistance

Contacting departments which have developed similar projects can be helpful in anticipating and overcoming implementation problems. Their experiences can be an invaluable source of guidance and direction. In addition, departments can avoid the heavy developmental costs of new programs by reviewing, adapting, and borrowing patrol techniques that other departments are using successfully. Fort Madison, Iowa, in a short time and with only minimal start-up costs, was able to institute a directed patrol program after reviewing the programs in South Central Connecticut.

7. "Political" Considerations

It should be recognized that the process of developing and implementing changes and innovations in patrol can be and often is highly political. In an ideal world, all the members of a department would willingly cooperate in efforts to improve patrol productivity, with conflict arising only when there are honest differences of opinion. In reality, however, projects are often viewed as benefiting some groups or individuals more than others, and the relative sense of gain or loss can have significant consequences for implementation. In implementing a new project, it is important to consider how it will be affected by the internal political realities of a department as well as opinions of individual officers. Patrol administrators may consider the use of monetary and achievement incentives to stimulate the acceptance of new pro-

grams. Wilmington, for example, has gained acceptance for its re-deployment and directed patrol program and increased officer morale by permitting officers to participate in specialized patrol operations. The selective use of pay incentives and take-home cars by Cleveland Heights has created enthusiasm for the redeployment of a select number of officers to staff the tactical patrol units during the evening and early morning hours. Most of the officers now deployed as uniformed patrol investigators were formerly a part of the detective division.

8. Public Education

Some changes in patrol practices, such as prioritization of calls for service and deferred response practices, may require re-education of the public prior to implementation. Call prioritization, phone reports, and walk-in reports have been used successfully by a number of departments. However, it would be useful to explain the policies and changes to the community and inform citizens of the ways in which call prioritization will enhance the effectiveness of their police department. Kansas City preceded its call prioritization program with a public education program. In addition, dispatchers have been careful to acquire the citizen's acceptance of stacking procedures before delaying a response.

9. Performance Evaluation

Departments should develop an officer performance evaluation system that takes into account the major elements of the directed patrol program. Since directed patrol requires officers to match their activities to community problems and frequently to implement new tactics, the rewards system of the department should be changed to reinforce the new program. This is particularly true for sergeants and watch commanders who will be required to design deployment strategies and tactics based upon workload and crime information. Instead of rating officers *only* on how well they handle street incidents, patrol administrators will need to carefully monitor their analysis, planning, and management contributions. Developers of the San Diego program recognized that community oriented policing made new demands upon both supervisors and officers, and, as a result, developed a performance evaluation system to complement these changes.

CHAPTER 7

PROGRAM EVALUATION

Evaluation should be an integral part of any effort to improve patrol productivity. It provides the only valid and reliable means of identifying the results of changes in patrol operations and assessing the effects of different project components. Evaluation should be viewed not only as a research tool designed to maximize the extent to which a project is achieving its stated goals and objectives, but also *as a vitally important management tool which allows patrol administrators to determine the extent to which a project is actually being implemented on the street.* By using evaluation in the latter way, it facilitates the early identification of implementation problems and suggests ways of coping with these problems.

Experimental or quasi-experimental evaluations which are designed to analyze cause and effect relationships can be tremendously complex and expensive. However, this is not the place for a detailed discussion of highly sophisticated research techniques.[1] Here we present only some relatively simple, straightforward, and inexpensive evaluation procedures. In most cases, these procedures rely on data which are either routinely collected or which could be easily collected. In addition, these techniques can be used by departmental personnel who have had little special training or experience in evaluation research. In fact, the evaluation designs suggested in this chapter can be routinely used by watch commanders.

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[1] A good overview of evaluation is contained in: Carol H. Weiss, Evaluation Research: Methods for Assessing Program Effectiveness (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972). Evaluation designs specific to law enforcement include: E. Albright, *et al.*, Evaluation in Criminal Justice Programs: Guidelines and Examples (Washington, D.C.: U.S. Government Printing Office, 1973); and M.D. Maltz, Evaluation of Crime Control Programs (Washington, D.C.: U.S. Government Printing Office, 1972). In addition, evaluative assessments of various police programs are contained in the National Evaluation Program reports: Theodore H. Schell, *et al.*, Traditional Preventive Patrol - Phase I Summary Report (Washington, D.C.: U.S.

The development of evaluation procedures should take place during the planning stage of a patrol project. This will facilitate the smooth collection of data, the timely preparation of evaluation reports, and the generation of background data against which to judge a project's impact. It will also enable administrators to closely monitor a project's progress from the very outset. The most important part of the evaluation of patrol operations is the development of an effective data collection, storage, and retrieval system. An evaluation can only be as good as the information on which it is based. Records should be kept on all measurable aspects of a patrol project. It is especially important that separate records be maintained for different types of directed patrol activities. This will allow evaluators to compare their relative effectiveness and efficiency.

Two basic types of measures are generally employed in an evaluation: process and outcome measures. *Process measures* are used to gauge the extent to which a planned program is actually being implemented. In most cases, process measures are merely tallies of activities carried out and the time spent conducting these activities. Although they tell program managers what is being done, they do not indicate how effective the operations are. Examples of some process measures would be a simple count of the number of hours devoted to directed patrol activities, the number of security checks, the number of hours of saturation patrol, the number of area investigative canvasses, and the amount of time devoted to crime prevention activities.

Too frequently, program administrators have ignored process measures when designing program evaluations. This is a serious omission that can radically affect the implementation of new programs. Process measures, by providing feedback on the extent to which a program is being implemented, provide valuable guidance to program managers. These measures have enabled patrol administrators to identify directed patrol program elements that were not being fully implemented. Events in New Haven and Wilmington illustrate the value of collecting information about program implementation.

- Shortly after New Haven implemented its directed deterrent patrol program, administrators ascertained, by a simple activity count, that dispatchers

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Department of Justice, Law Enforcement Assistance Administation, National Institute of Law Enforcement and Criminal Justice, 1976); and William G. Gay, *et al.*, Neighborhood Team Policing - Phase I Summary Report (Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, 1977).

were cancelling a large number of directed assignments. As a result, program planners developed new dispatch rules that insured initiation and completion of nearly all directed patrol assignments.

- By carefully monitoring the extent to which first-line supervisors were using crime analysis to develop and deploy structured patrol units, Wilmington administrators discovered that few directed patrol assignments were being made. Structured patrol officers were answering service calls and doing random patrol as if the split patrol program had not been implemented. As a result, to insure implementation of the split patrol program, all structured officers were placed under the supervision of one sergeant. The result has been a marked increase in directed patrol.

Outcome measures are used to determine the impact of a program and to indicate how well a program is achieving its goals and objectives. These are the measures that have generally been used by police to gauge their department's effectiveness. Although departments have tended to focus upon outcome measures, like apprehensions, clearances, traffic violations, and reported crimes, these are only a few of the outcome measures that can be used. In judging a directed patrol program, administrators might also consider cost or productivity indicators as well as the impact of the program upon community satisfaction and officer morale.

The principal concern in this chapter is to describe some basic outcome measures that can be used to assess the crime fighting potential of directed patrol programs. Examples of some of these measures would be changes in the level of suppressible crimes, the number of apprehensions, the number of traffic accidents in areas where traffic problems have been a directed patrol target, and the cost effectiveness of various directed tactics. Although we will not suggest that departments undertake extensive officer or community attitude surveys to gauge the reaction of these populations to the program, administrators should be aware of officer and community attitudes toward the program and be prepared to take corrective action. Finally, although the following sections of this report discuss process and outcome measures separately, they are frequently used in conjunction with one another. *In fact, it is nearly impossible to determine the effectiveness of a program or its specific elements*

unless information about program implementation as defined by process measures is also analyzed.[2]

A. Evaluating Workload Management Procedures

The deployment and workload management mechanisms described in this document are primarily administrative procedures designed to report the implementation of directed patrol tactics and are evaluated primarily by process measures. The objectives of these procedures have been to insure peak officer availability during busy periods, create "blocks of patrol time" long enough to permit directed patrol activities, and equalize the workload among watches and officers.

The information needed to evaluate the efficiency of a department's deployment system is contained in Chapter 2. Basically, patrol managers should strive to schedule patrol officers so that as the service call workload increases, the amount of time available for preventive patrol increases proportionally. This will insure that sufficient time is available during busy periods to handle service calls and to perform directed patrol activities. If, for example, the number of service calls handled during a shift is 44% of the daily total, than approximately 44% of the directed patrol time should also be available during that shift.

Although some departments have used response time to adjust deployment patterns, we think the time available for directed patrol activities is more adequate for two reasons. First, response time as a mesure of patrol effectiveness is appropriate to only a small percentage of the service call workload (10-20%) which requires an immediate, emergency response. Most calls can be answered on a delayed basis, and for these calls response time is an inappropriate measure. Second, concentrating upon minimizing response time has led many patrol commanders to neglect the development and initiation of directed patrol tactics.

Assuming that a department has deployed officers efficiently, further manipulation of the patrol workload can be achieved by prioritizing service calls and directing patrol assignments. Simple counts of the number of emergency responses and

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[2] For a discussion of the important role process measures play in program evaluation, see: William G. Gay, *et al., op. cit.*, pp. 38-40.

delayed service calls provide an indication of how completely call prioritization policy is being followed. If problems develop, analysts can review call priority assignments to identify discrepancies between a call's classification and the way dispatchers actually assigned the call. The general goal of prioritization is to gain control over when calls will be responded to so that "blocks of patrol time" can be created. These blocks of time are absolutely essential for the implementation of directed patrol activities. In prioritizing workload management, patrol managers will need to know the number and duration of the blocks of time available for directed patrol tactics. In general, a department should strive to create several 30 to 45 minute "blocks of time" during each shift when an officer can engage in directed patrol activities.

In addition to analyzing the availability of blocks of patrol time, departments would be wise to evaluate the impact of call prioritization and phone and walk-in report systems upon citizens attitudes toward the police. Unlike the process measure above, these attitudinal measures are outcome measures. The effects of changes in deployment and response policies on a community's satisfaction with its patrol services can be at least partially gauged by counting the number of citizen complaints and comparing them with the number of complaints received during a similar time period prior to the change in policy. If a large number of complaints are received, a survey of citizens whose calls were not responded to immediately or were handled entirely over the telephone could be made. This would allow patrol commanders to gauge the magnitude of the complaints, identify specific dispatch problems, and develop additional dispatch procedures to ensure citizen confidence.

B. Evaluating Directed Patrol Activities[3]

The *process measures* that apply to directed patrol activities are designed mainly to measure the extent to which specific activities are actually being implemented. In general, they will tell patrol administrators the time a tactic was implemented, the number of activities implemented, and the amount of time used by the officers to carry out each activity. Exhibit 34 presents a format by which process information about directed patrol activities can be collected, as well as the time spent in call-for-service, administrative, and personal assignments.

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[3]Evaluation of the effects of directed patrol activities will rely primarily upon measures of deterrents, apprehension, service delivery, community satisfaction and recovery of stolen goods. For a more detailed discussion of the reliability and validity of available measures see: Theodore H. Schell, *op. cit.*, Chapter 1.

EXHIBIT 34

DIRECTED PATROL ACTIVITY LOG

Officer_____ Location _____ Date _____

Directed Activity Calls for Service	Number Assigned	Number Completed	Time Initiated	Time Used
Crime Prevention: Community education Security survey Property marking Neighborhood watch				
Subtotal				
Crime Deterrence: Directed patrol Saturation patrol Field interrogation				
Subtotal				
Criminal Apprehension: Decoys & stake-outs Suspect identification Suspect search				
Subtotal				
Residual Activities: Random patrol Administrative Personal				
Subtotal				
TOTAL:				

This form is designed for use by individual patrol officers. However, it could also be used by sergeants and watch commanders to monitor directed activity for an entire watch.

Although the process data yields no information about the effectiveness of the process elements, when this information is compared to crime rate and other outcome data, it can become a tool for analyzing the impact of particular patrol tactics. In addition, requiring patrol officers to record their directed activities requires them to be more aware of what they are doing and indicates the high level of concern that patrol managers have for the program.

The goals of directed patrol are to prevent and deter crime and to apprehend offenders. In order to judge a program's effectiveness, administrators will need to collect *outcome measures* that analyze how crime patterns have changed because of directed patrol activities. It should be cautioned that none of the measures listed below are infallable. Crime rates, for example, are affected by law enforcement activities as well as changing social and economic conditions, and the willingness of citizens to report crime. In spite of these limitations, attempts to compare crime trends both before and after a program is established and between program and similar non-program comparison areas can provide administrators with valuable feedback about program effectiveness.

1. Crime Prevention and Deterrence

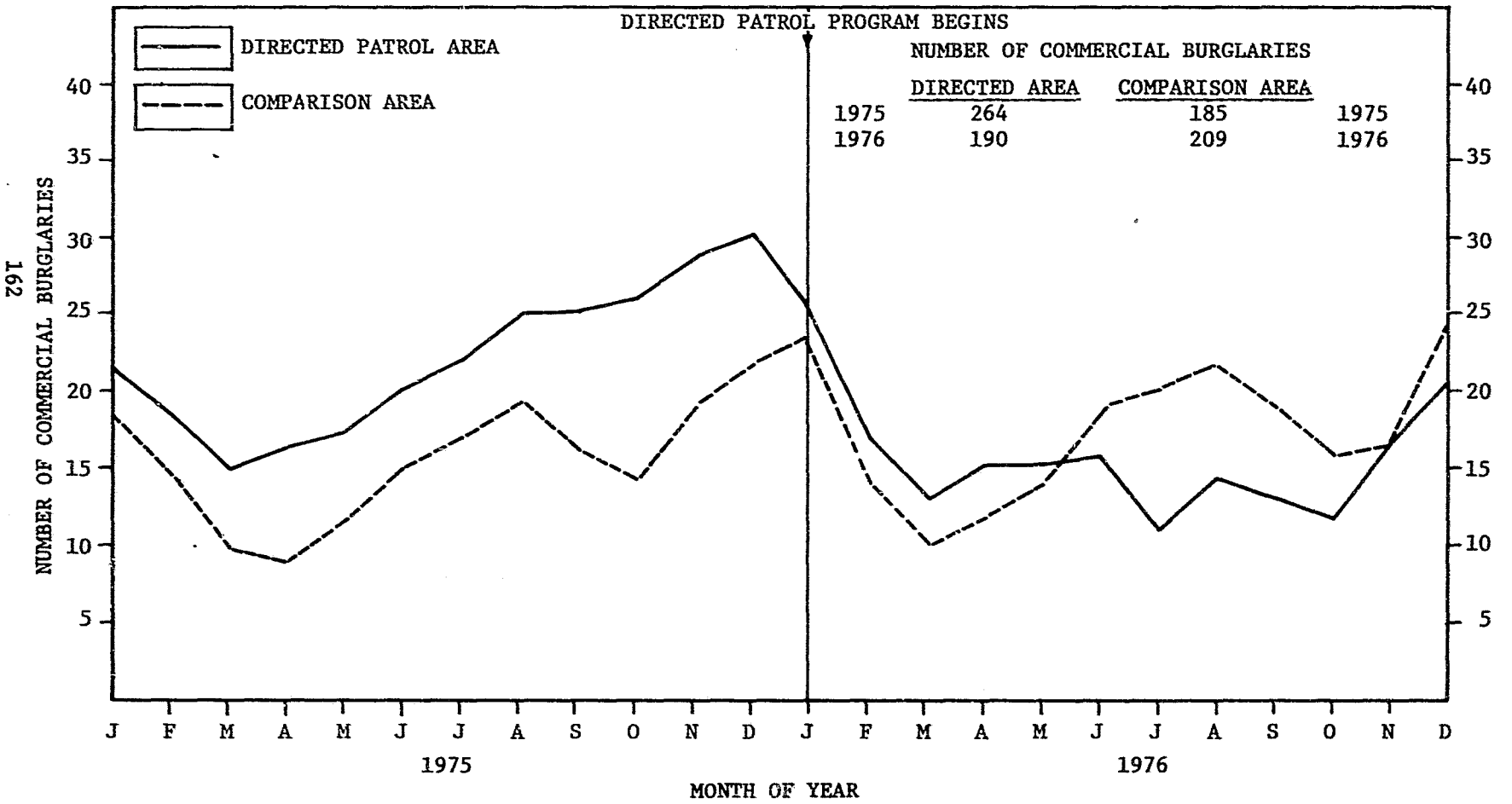
The effectiveness of prevention and deterrence activities is difficult to measure, since there is no way to judge the number of crimes that did not take place as a result of police activities. In spite of this insurmountable problem, departments have traditionally used changes in the reported crime rate as a surrogate measure to evaluate program effectiveness. As a result, evaluators have counted the number of suppressible crimes that have occurred to measure prevention and deterrence rather the number of crimes that have been deterred. The one exception to this procedure has been the attempt to evaluate the impact of target hardening crime prevention measures. By counting the number of attempted burglaries that have been foiled by improved door and lock systems, it is possible to estimate the prevention value of security-focused crime prevention programs.

Two commonly-used ways to measure crime trends have been to compare crime data before and after program implementation and between a directed patrol area and a comparison area policed in the traditional way. When these methods are used, analysts expect that crime rates in directed patrol areas will change more favorably than rates in the comparison areas.

Exhibit 35 illustrates the temporal and spatial evaluation design described above. Examination of this hypothetical

EXHIBIT 35

CRIME TREND ANALYSIS



data indicates that commercial burglary in the directed patrol area declined after the program began, and that there were fewer burglaries in the directed area than the comparison area. This data would seem to indicate the program was effective in suppressing commerical burglaries. If the reported crime rate in the directed and comparison areas remained stable over the two-year period, administrators could probably conclude the program had little effect. Similar kinds of comparative analysis can be performed to assess the effect of directed patrol upon other suppressible crime and traffic conditions. Small agencies that implemented directed patrol programs throughout their entire community can compare the reported crime rates in similar surrounding communities which use traditional patrol methods to judge the comparative impact of their directed patrol programs.

At the very least, departments should adopt comparative evaluation procedures similar to those in Exhibit 35 (page 162) to chart crime trends. Once established, the procedure can be done in a short time, is easily interpreted, and is a valuable guide for deploying directed patrol activities. Finally, trend analysis can graphically demonstrate to patrol officers the merit of planned and directed assignments based upon crime pattern analysis.

The crime trend analysis prescribed in Exhibit 35 is the starting place for more detailed and specific evaluation techniques. To pinpoint more carefully the impact of a program, evaluators may want to assess program elements in more detail. For example, in most cases directed tactics are used only in selected areas or during specific times. If this is the case, evaluators should confine their analysis to the target times and target areas, rather than the entire community. In other cases, evaluators might want to assess the impact of a particular tactic. If this occurs, it would be necessary to use that tactic by itself in one area and then compare changes in reported crime with other areas of the community where the tactic is not being used.

Finally, evaluators may want to consider the impact of directed patrol tactics upon displacement. It has frequently been argued that prevention and deterrence oriented tactics merely displace crime rather than reduce it. Displacement can take place in three ways: criminals may change the geographic area in which they operate; the times of day when they work; or the type of criminal activity they engage in. To analyze crime displacement, evaluators should monitor crime rates in areas adjacent to areas where directed patrols are operating. Crime rates should also be monitored for the hours when directed patrol tactics are not being used and for changes in the incidence of non-target crimes.

Basically, evaluation requires administrators to keep accurate information about the number of suppressible crimes, the time of occurrence, and the place of occurrence, as well as process data about the use of various tactics. When this outcome and process data is recorded, it is possible to prepare a large number of crime analysis and evalution reports that examine the impacts of specific directed patrol activities upon the prevention and deterrence of suppressible crime.

In summary, the following evaluation strategies can be used to assess the deterrent effects of directed patrol tactics:

- Comparison of the level of reported suppressible crimes immediately before, during and after the use of directed patrol in a particular area;

- Comparison of reported crime rates in one area where deterrence-oriented directed patrol tactics are being used with rates in a similar comparison area which is patrolled randomly;

- Comparison of officer hours devoted to deterrence-oriented directed patrol activities with changes in the level of reported crime. This can be used to estimate the number of officer hours per potentially deterred crime. This can be compared with similar data from an area patrolled randomly.

2. Criminal Apprehension

The impact of specific directed patrol activities upon apprehensions are much easier to evaluate than are attempts to measure prevention and deterrence aspects of patrol. Apprehensions are real events that can be counted and evaluated both by their number and their quality. Basically, evaluators need only to collect information about the number of arrests, the number of arrests that pass the first judicial screening, and the number of crimes cleared. When this arrest data is compared to data about directed patrol tactics and information about the circumstances of arrest, it can become a very powerful tool to evaluate the effectiveness of various patrol activities. The effectiveness of various tactics can be evaluated by using the following outcome measures:

a. The number of arrests. A format similar to that used in Exhibit 35 to evaluate the level of reported crime can be used to evaluate arrest data. Program managers should compare the number

of arrests made in an area before, during, and after a directed patrol program is established. In addition, it would be helpful to chart similar data for a comparison area where directed patrol tactics have not been implemented. Increases in the number of arrests in the directed patrol area would be an indicator of program success. However, it should be noted that a directed program can suppress and displace crime from the target areas and yield fewer opportunities for arrest.

b. Tactical productivity. Evaluators and program administrators should also be concerned with the *comparative productivity of different tactics*. By collecting specific information about the circumstances leading to an arrest, it is possible to evaluate individual tactics. The most basic breakdown might be a comparison of the number of arrests made during random patrol vs. those made as a result of directed activities.

Evaluators should also consider evaluation of specific directed patrol tactics. For example, which patrol activities contributed to an arrest: area witness canvass, field interrogation, suspect area search, decoy, stake-out, tactical alarm, hidden camera, etc.? By analyzing this information, patrol managers will be able to judge the comparative effectiveness of different tactics. Exhibit 36 presents a format to collect and comparatively evaluate the impact of various apprehension tactics. By combining process information about the level or number of hours spent doing different patrol tactics with the circumstances surrounding an arrest, it is possible to develop comprehensive information about the relative merits of different tactics.

c. The quality of arrests for target crimes. The most widely accepted measure of arrest quality is the percentage of arrests which pass first screening by the prosecutor. Arrest quality can be assessed by looking at the percentage of arrests which lead to convictions; however, there are many factors over which the police do not have control which can intervene between an arrest and its final disposition by the courts. In examining arrest quality, records

EXHIBIT 36

EVALUATION OF APPREHENSION-ORIENTED PATROL TACTICS

PATROL TACTIC	HOURS SPENT	# OF ARRESTS	CRIMES CLEARED	PRODUCTIVITY RATIOS	
				HOURS ÷ ARRESTS	HOURS ÷ CLEARED
UNIFORM PATROL					
Area Witness Canvass					
Area Search					
Field Interrogation					
Suspect Surveillance					
Random Patrol					
Subtotal					
COVERT ACTIVITY					
Stake-Outs					
Decoy					
Tactical Alarm					
Hidden Camera					
Subtotal					
TOTAL					

should be kept on the proportion of cases in which the offender(s) were released without charge, the proportion in which the charge was reduced, and the proportion in which the initial police charge was accepted. *The reasons for the prosecutor's decision should also be recorded and analyzed, since this can be of considerable help in improving arrest quality.*

d. The number of crimes cleared. Clearance rates are the percentage of crimes reported to the police that are considered solved. Crimes can be cleared by arrest, by suspect confessions, or by M.O. comparisons and witness identifications. One arrest may clear a number of crimes. Use of clearance rates as a measure of effectiveness has justly been criticized because of the inconsistent standards which are applied in making clearances. However, the number of crimes cleared by an arrest does provide an indicator of the value of that arrest, since the apprehension of multiple offenders is generally felt to be of more importance than the apprehension of novice criminals.

C. Summary Recommendations

Rather than view the evaluation process as an esoteric problem that should be left to social scientists, there is a real need for patrol administrators to integrate evaluation into the patrol management and planning process. The approach to evaluation presented here has sought to describe simple evaluation techniques that can be used by patrol managers, including first-line supervisors, to better develop and plan a directed patrol program. *The process measures will enable managers to judge the extent to which directed activities are being performed, while the impact measures enable an assessment of the effectiveness of various prevention, deterrence, and apprehension oriented tactics.*

1. Patrol administrators should integrate the crime analysis and evaluation processes as a means to develop, modify, and improve directed patrol operations.

2. Every department should monitor the extent to which the patrol force is deployed according to workload demands. Periodic deployment

adjustments should be made when the workload and deployment patterns are out of phase.

3. Patrol administrators should periodically review the way in which calls are serviced and adjust service response patterns to provide "blocks of patrol time" for directed activities.

4. Patrol officers should be reqired to keep a log of all directed patrol assignments. This data should be reviewed and compiled by sergeants and watch commanders and used as a patrol planning tool.

5. Every department should analyze reported crime data to measure the prevention and deterrence effectiveness of various patrol tactics. Where possible, data from directed patrol areas should be compared with periods before the program began and with areas patrolled randomly.

6. Every department should analyze data concerning the circumstances that led to an arrest. Wherever possible, the number of arrests that can be attributed to a directed patrol tactic or other patrol actions should be evaluated. This can be used to rate the effectiveness of specific patrol tactics and can serve as an invaluable guide in planning directed patrol assignments.

APPENDIX

APPENDIX A

AN ANNOTATED BIBLIOGRAPHY

ON ROUTINE PREVENTIVE PATROL

The purpose of this annotated bibliography is to provide guidance to police administrators as they search available literature for insights to improve the effectiveness and productivity of routine preventive patrol operations.

In this bibliography, we have been extremely selective, choosing only those books and articles which we believe to be sufficiently important to merit first order attention by the reader. The selection was based upon application of the following criteria: (1) the work has had a significant influence upon the conduct of patrol throughout the country; (2) it presents an analytical discussion which we believe provocative and interesting; (3) it highlights a matter of significant controversy and extreme importance to the conduct of patrol; or (4) it presents valid, empirically-based findings which provide answers to important patrol-related questions. As a result, this bibliography suggests only a starting place; the reader is encouraged to pursue subjects of interest by following up on bibliographic and department-specific references found within the readings and to contact the project staff for more specific guidance.

Before turning to the presentation of the bibliography itself, several additional points might be raised. In general, the literature on all aspects of the patrol functions has, until recently, been largely descriptive with recommendations for change based primarily upon the personal experiences and observations of the authors. This, however, began to change dramatically in the late 1960's with the publication of the Task Force Report: The Police by the President's Commission on Law Enforcement and Administration of Justice. Since that time, an increasing emphasis has been placed upon the conduct of empirically based analyses aimed at clarifying and testing the assumptions and hypotheses which for may years constituted the "conventional wisdom" espoused by the police commuity. Descriptive works began to incorporate a more analytical element as concepts and constructs drawn from the management, administrative and social sciences were adapted in efforts to organize and integrate existing knowledge and information about patrol. This work has, in turn, been buttressed by an increased emphasis upon empirical research, work in which systematically collected data was carefully analyzed in order to illuminate the relationships between various aspects of patrol and the effective-

ness of the patrol function. Most significant is the very recent emphasis which has been placed upon program evaluation and carefully controlled experiments, both of which has sought to determine cause and effect relationships, i.e., the specific impacts of patrol activity upon the effectiveness of patrol in deterring crime, apprehending offenders, providing non-crime related services, and providing a sense of citizen satisfaction with the police and security within the community.

The program reports and evaluations and the reports of experimental findings, while providing the richest potential source of information, are still fraught with problems as the experience of departments and researchers in conducting such inquiries is still limited. To a degree, the discipline is handicapped because research and the preparation of careful reports are expensive and time-consuming endeavors: they require the collection of baseline (or pre-program) data, the careful documentation of all program activities, the collection of on-going data, and a careful statistical and contextual analysis to determine the impact of the program. Unfortunately, such reporting is rarely found, as the conduct of a formal evaluation is often beyond the means of local departments, and the collection of baseline data prior to project implementation may require delaying a program which the department believes to be essential to the improvement of the patrol function.

Given the characteristics and the limitations of available literature, the materials presented in this bibliography provide only partial solutions to significant problems and only general guidance rather than specific, step-by-step procedures. In addition, they reflect the experiences of only a limited number of jurisdictions, each of which had to confront its own operating realities and constraints in carrying out the patrol function. As a result, in reviewing each of the materials listed and described below, the particular circumstances of the practitioner's department must be kept in mind, and careful consideration must be given to the following questions: How can the results of research in one jurisdiction be made applicable to another? How can the general concepts be adapted and applied to the needs of individual departments? We believe that the materials presented in this bibliography will provide assistance in thinking systematically about patrol and in considering available options for improving the quality of patrol within jurisdictions throughout the country. In that way, it will assist departments in addressing the significant, general, and jurisdiction-specific problems for which solutions must be rapidly found.

Albright, Ellen, *et.al.* Evaluation in Criminal Justice Programs: Guidance and Examples. Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, 1973. (Available from GPO-2700-00210)

Initially intended as a manual for local evaluations of projects funded under L.E.A.A.'s High Impact Program, this volume provides an excellent introduction to the evaluation of crime control programs. It focuses on the measurement of program effectiveness and the organization of evaluation activities. Page 1 to 65 present material which is particularly relevant to the evaluation of patrol operations.

Boydstun, John E. San Diego Field Interrogation Final Report. Washington, D. C.: Police Foundation, 1975.

This volume reports the results of a year-long experiment on effects of field interrogations. The experiment examined their impact on arrest rates, level of suppressible crime, and police-community relations. It found the use of field interrogations contributed to the deterrence of suppressible crimes, provided some assistance in making arrests and did not have a negative impact on police-community relations. While the authors properly stress that generalizations from their findings should be made with extreme care, this is, nevertheless, the best available study of field interrogations and it should be of interest to departments throughout the country.

Boydston, John, *et al.* Patrol Staffing in San Diego: One-or-Two-Officer Units. Washington, D.C.: Police Foundation, 1977.

This comparative study of 22 one-officer and 22 two-officer units in San Diego sought to evaluate whether or not the substantial extra cost of two-officer units was justified. The study examined the difference in one and two-officer units in terms of performance, efficiency, safety, and officer attitudes. Although the two-officer units cost $112,045 on 83% more to field than one-officer units, the study reports that one-officer units performed as well as two-officer units; and that one-officer units were substantially more effective. In addition, the study reports that one-officer units had a safety advantage, and that officers expressed a shift preference for two-officer units.

Buck, George, *et al.* Police Crime Analysis Unit Handbook. Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement of Law Enforcement and Criminal Justice, 1973. (Available from GPO-2700-00-232)

This handbook provides a model that can be used as a starting point in creating a new or improving an existing crime analysis program. Although the report is not an operational manual, it does address the major aspects of crime analysis and focuses especially the organization of a crime analysis capability.

Chaiken, Jan M. Patrol Allocation Methodology for Police Departments. Santa Monica, California: Rand Corporation, 1975.

This report reviews several mathematical modeling methods that police can use to allocate patrol resources. It provides an introduction to some of the major questions planners need to address in deploying patrol officers. The book recommends that departments use performance measures, primarily response time, to allocate and schedule officers. Several computerized allocation formulas are described.

Gay, William, *et al.* National Evaluation Program Phase I Summary Report: Neighborhood Team Policing. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, 1977.

This National Evaluation Program Report summarizes a nationwide assessment of team policing programs. In addition to assessing the effectiveness of various team policing activities, the report also discusses evaluation procedures that can be applied to other patrol programs. The report cautions program administrators to carefully monitor the extent to which planned innovations are actually being implemented by patrol personnel. In many team policing programs there was a failure to implement the most basic components of the system.

Kansas City, Missouri Police Department, Kansas City, Missouri, Marvin Van Kirk, Chief of Police. Response Time Analysis Study. To be published by National Institute of Law Enforcement and Criminal Justice of the Law Enforcement Assistance Administration.

This study of police response time should be read by all law enforcement planners, administrators, and managers. The study, limited to Part I crimes, examines response time in terms of (1) the time citizens take to call the police, and (2) the time it takes the police to respond to service calls. The findings of the report have major implications for patrol operations and service call clearance. The study indicates that the amount of time it takes citizens to call the police frequently exceeds the amount of time it takes the police to respond. In many instances, the citizen delay in calling the police minimizes the value of a rapid emergency response.

Kelling, George L., *et al.* The Kansas City Preventive Patrol Experiment: A Summary Report. Washington, D.C.: Police Foundation, 1974.

The report calls into question two widely accepted hypothesis about patrol: first, that visible police presence prevents crime by deterring potential offenders; second, that the public's fear of crime is diminished by such police presence. The report has been heavily criticized on methodological grounds and readers are urged to be careful in interpreting the results. In spite of the report's limitations, the patrol workload analysis and discussion of how officers use their patrol time can be extremely helpful in improving patrol efficiency and effectiveness.

Kuykendall, Jack L. and Peter C. Unsigner. Community Police Administration. Chicago, Illinois: Nelson-Hall, 1975

This book on police patrol focuses primarily upon how departments can better plan and manage their operations. The book discusses various organizational and leadership styles and recommends a considerable amount of participant planning and decision making. A good discussion of management by objectives is followed by a discussion of how police administrators can manage operations by adopting modern management techniques. The sections on program budgeting and evaluation provide valuable management information.

Larson, Richard C. Urban Police Patrol Analysis. Cambridge, Massachusetts: The MIT Press, 1972.

This book provides an excellent introduction to how operations research and quantitative analysis can be applied to police patrol operations. The author examines a number of critical patrol procedures including emergency response demands, hazard and workload formulas, dispatch policies, and call prioritization schemes. The book discusses computer simulations of several operational innovations that can improve patrol productivity.

Maltz, Michael D. Evaluation of Crime Control Programs. Washington, D.C.: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, 1975. (Available from GPO-2700-00163)

This publication represents an excellent starting point for law enforcement personnel interested in exploring the process of program evaluation. It recommends procedures for planning programs, selecting areas for program implementation, choosing measures of effectiveness, and conducting an evaluation. The material is presented in a straightforward, readable fashion and the report includes a useful set of references for those interested in pursuing the subject at greater length.

Oberlander, Leonard, ed. Quantitative Tools for Criminal Justice Planning. Washington, D.C.: Law Enforcement Assistance Administration, U.S. Department of Justice, 1975.

The basic premise of this selection of essays is that data about the criminal justice system can be a valuable aid in planning and directing effective programs. The report describes a variety of techniques that can be used to organize and analyze criminal justice data. The various articles discuss the use of victimization surveys, uniform crime reports, criminal justice models and populative data.

National Commission on Productivity. Opportunities for Improving Productivity in Police Services. Washington, D.C.: U.S. Government Printing Office, 1973.

This publication presents an introduction to the measurement of police performance. In presenting the various measures, the report presents data from police and sheriff departments to illustrate how the measures can be used.

Reiner, G. Hobart, *et al.* National Evaluation Program Phase I Summary Report: Crime Analysis in Support of Patrol. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, forthcoming.

This National Evaluation Program Report presents the findings of a national evaluation of current knowledge about crime analysis. It contains a useful review and assessment of the "state-of-the-art" in crime analysis and some observations which should assist patrol administrators in using crime analysis to greater advantages.

Schell, Theodore, *et al.* National Evaluation Program Phase I Summary Report: Traditional Preventive Patrol. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, 1976.

This National Evaluation Program Report assesses a wide variety of both traditional and innovative patrol programs. Included are discussions of deployments, supervision, patrol tasks, and modes of patrol. This volume is a convenient starting place for police administrators considering innovations in the area of patrol operations. In addition to a discussion of various patrol procedures, the volume also discusses ways to monitor and evaluate patrol operations.

White, Thomas W., *et al.* Police Burglary Prevention Programs. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, 1975. (Available from National Criminal Justice Reference Service).

The report presents practical guidelines on the operation of burglary prevention programs which are based on the experiences of numerous departments. It includes helpful discussions of: the analysis of burglary problems; the evaluation of burglary reduction efforts; and patrol activities which can be used to combat burglaries.

Wolfe, Joan L. and John F. Heaphy (eds.). Readings on Productivity in Policing. Washington, D.C.: Police Foundation, 1975.

This collection of articles provides a general introduction to the process and problems of measuring and improving police productivity. The essays suggest a number of programs designed to improve productivity, indicate ways to measure productivity, and describes how to develop a productivity measurement program.

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PRESCRIPTIVE PACKAGE: "Improving Patrol Productivity
Volume I Routine Patrol"

To help LEAA better evaluate the usefulness of Prescriptive Packages, the reader is requested to answer and return the following questions.

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