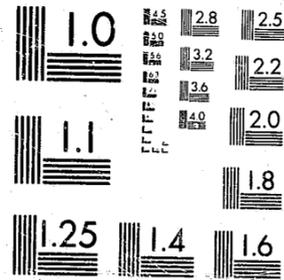


National Criminal Justice Reference Service



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



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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

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

National Institute of Justice
United States Department of Justice
Washington, D. C. 20531

Date Filmed

3/06/81

74094

U.S. Department of Justice
National Institute of Justice
Office of Development, Testing and Dissemination



Test Design

Differential Police Response to Calls for Service

Program Test Designs are developed by design groups composed of representatives of the National Institute of Justice and LEAA. The documents are prepared with contractual assistance, and are reviewed by a panel of experts conversant with the critical research and operational issues in the topic area.

The design group for the Differential Police Response to Calls for Service Program Test Design consisted of the following individuals:

National Institute of Justice

Jim Gardner, *Chairman*
John Bonner
Shirley Melnicoe
W. Phillip Travers

Law Enforcement Assistance Administration

Peter Xenakes

Advisory Committee members were:

Allen Andrews, Chief, Peoria Police Department, Peoria, Illinois
William Bieck, Director, Integrated Criminal Apprehension Program, Bureau of Police, Reading, Pennsylvania
Paul Earls, Captain, Communications Bureau, Charlotte Police Department, Charlotte, North Carolina
Tony Pate, Police Foundation, Washington, D.C.
Reese Robinson, Department of Planning, Wilmington, Delaware

The Design document was prepared by: Bonnie Lewin and Raydean Acevedo, Abt Associates Inc., Cambridge, Massachusetts.

October, 1980

Harry Bratt
Acting Director
National Institute of Justice

TABLE OF CONTENTS

	<u>Page</u>
<u>Preface</u>	i
I. <u>INTRODUCTION</u>	1
A. Rationale for Managing Citizen Calls for Service	1
B. Current Use of Differential Response Systems	4
C. Effectiveness of Differential Response Systems	7
D. Research Questions for Testing	10
II. <u>GOALS AND SCOPE OF THE FIELD TEST PROGRAM</u>	12
A. Action Goals	12
B. Scope of the Test Program	13
III. <u>PROGRAM COMPONENTS OF THE FIELD TEST PROGRAM</u>	14
Overview	14
A. Development of a Differential Response Model	15
B. Development of a Differential Response Capability	19
C. Implementation of the Differential Response System	25
IV. <u>EVALUATION ISSUES</u>	28
A. Analytic Framework	28
B. Evaluation Objectives	29
C. Evaluation Design	33
V. <u>IMPLEMENTATION AND NIJ SUPPORT</u>	37
A. Implementation	37
B. NIJ Support to Participating Departments	37
VI. <u>SITE SELECTION</u>	40
A. Criteria Considered Essential to Program Development and Implementation	40
B. Criterion Facilitating Evaluation of the Field Test Program	41
Glossary	42
Source Material for the Differential Police Response To Calls for Service Program Test Design	44

PREFACE

As part of its research and development mandate, the National Institute of Justice designs field test programs based on research findings. The knowledge and action goals of the Field Test Program are:

- To add to the knowledge base in law enforcement and criminal justice.
- To develop information on the effectiveness of specific criminal justice practices.
- To contribute to improved policy-making in the areas being tested.
- To identify those criminal justice practices in need of further development.
- To generate hypotheses for further research.

Each individual field test is an experiment, conducted in a limited number of sites, to determine the effectiveness of a concept or program strategy under controlled or quasi-experimental conditions, and to assess the transferability of the concept to other jurisdictions.

The goal of this particular field test is to develop and assess the utility of a comprehensive differential response system for managing the calls for service function of police departments. The design consists of program elements that will be uniformly implemented in three city police departments in the 100,000 to 500,000 population range and evaluated by the National Institute. This test has three primary evaluation objectives:

- To assess the impact of a differential response system on police practices.
- To assess the impact of a differential response system on citizens.
- To assess the transferability of the program.

Each site selected to develop and implement the field test will be required to adhere to the administrative guidelines and program components detailed in this document. Both process of development and implementation as well as effects of the field test will be evaluated by the Institute in accordance with the experimental evaluation design contained in this document. Sites will be chosen on the basis of the selection criteria presented in the final section of this document.

I. INTRODUCTION

A. Rationale for Managing Citizen Calls for Service

The increased volume of citizen-initiated calls for service in recent years, coupled with strained police budgets, has made it increasingly difficult for police departments to respond to all calls for service in the traditional manner of sending out a patrol unit as quickly as possible while maintaining their current level of activity in other areas. Departments have attempted to meet these competing demands through various approaches, all of which share the common objective of developing more efficient means of allocating available resources. These approaches include computerized communications systems to simplify and expedite public access to the police, computerized resource allocations plans, and efforts to return more officers to patrol duty.

The National Institute of Justice has been actively involved in this search for ways to improve the efficiency of various aspects of traditional patrol practices, and has sponsored two previous field tests in related areas: The Managing Criminal Investigations Test sought to increase the efficiency of the investigation process by various techniques, including expanding patrol officer involvement in investigations. The Managing Patrol Operations Test sought to increase directed patrol activities by systematically matching deployment to workload conditions.

The field test experiences in both of these programs, along with findings from other research efforts, has made the NIJ critically aware that the efficiency of patrol is dependent on the efficiency of the calls for service function. Improving the management of this function is not only necessary to provide departments with sufficient uncommitted time to perform non-calls for service activities, such as directed patrol or increased involvement of patrol officers in the investigative process, but equally important, is essential to assure that departments can rapidly respond to the increasing number of critical or emergency calls for service.

¹ Sumrall et al., Differential Police Response Strategies Study, Birmingham Police Department and Police Executive Research Forum, 1980, p. 2.

The current workload difficulties faced by many departments stem from three prevalent premises underlying the calls for service function. First, it is necessary to respond to virtually all citizen calls for service by sending out a patrol car; second, most calls cannot be delayed and must be answered as quickly as possible; and third, responding to calls for service takes precedence over other activities performed by patrol officers.² These traditional beliefs are based on the assumption that rapid field response is necessary in order to apprehend suspects, secure evidence, locate witnesses, reduce injuries, and assure citizen satisfaction.

However, this devotion to rapid response is questionable for two reasons. First, in light of rising levels of calls for service, many departments are simply unable to respond to all calls immediately. As a result, departments are forced to stack calls during peak periods, including critical calls which require an immediate response. Yet, oftentimes, citizens are still promised that a patrol unit will be sent immediately. When the patrol unit is not forthcoming, citizen satisfaction may be jeopardized. Further, patrol officers may be forced to reduce the amount of time they spend on responding to some--often critical--calls for service. Equally important, officers may be frequently interrupted from performing essential non-calls for service activities.³

Second, there is now a growing body of research and some program experience which challenges the belief that rapid mobile response is the most appropriate way to respond to all calls for service. This literature suggests that greater efficiency can be achieved in the calls for service function and other areas of police activity through the implementation of differential response systems which use call classification and prioritization techniques in applying a broad range of response strategies to calls for service.

Various studies on the composition of calls for service have shown that only a small percentage of calls received by the police (approximately 15 percent) are for crimes in progress or medical emergencies where a rapid mobile response is thought to be necessary to prevent or treat injuries or illness or to attempt to arrest suspects. The remaining 85 percent of the calls

²Gay et al., Improving Patrol Productivity, Vol. 1, Routine Patrol, Prescriptive Package, National Institute of Law Enforcement and Criminal Justice, 1977.

³A crucial finding in the Managing Criminal Investigations (MCI) Field Test was that in the test sites where the calls for service function placed constant demands on response units, police departments were unable to assign patrol officers to continuing investigations and could not provide sufficient time to patrol officers for initial investigations. The Managing Criminal Investigations Program Design recommends improved call screening procedures as an essential element for future MCI approaches. Greenberg and Wasserman, Managing Criminal Investigations, Program Design, National Institute of Law Enforcement and Criminal Justice, 1979.

are either crime incidents which are no longer in progress, and where suspects or evidence are unavailable, or non-crime related calls. Many of the non-crime related calls can be handled by various non-mobile responses. And, many of the crime related calls do not require an immediate mobile response, but rather can be delayed for a certain period of time or can be handled by non-sworn officers. It has been suggested that roughly 30 percent of the calls for service can be handled by non-mobile alternatives and 55 percent of the calls for service can be handled by delayed mobile response.⁴

Further support for the utility of differential response strategies comes from research on the effectiveness of rapid response on crime related incidents. The Kansas City Response Time Study, for example, found that rapid response led to an arrest in only 3.7 percent of the Part I offenses sampled. On scene arrests for discovery (not⁵ in progress) crimes, which comprised 62.3 percent of the sample, were rare.

Moreover, the traditional notion that citizens expect an immediate mobile response to all calls for service has also been called into question. The findings from several studies suggest that citizens are willing to accept delayed responses for certain calls provided that they are informed of an estimated arrival time and the officer arrives within the designated time. Pate's study on police response time indicates that the single most important determinant of citizen satisfaction is the difference between citizen expectations of police response time and citizen perceptions of actual police response time. If response times are no longer than expected, they can be quite long without reducing citizen satisfaction. However, if response times are longer than expected, satisfaction is reduced even though actual times are fairly short.⁶ Also, the Differential Police Response Strategies (DPRS) survey of citizen attitudes showed that for certain calls for service, citizens are willing to accept various non-mobile responses such as telephone reporting, walk-in reporting, and referrals to other agencies.⁷

These findings suggest that police departments can exercise considerable flexibility in designing alternative approaches for responding to citizen calls for service without jeopardizing the traditional objectives of assisting the sick and injured, apprehending suspects, and assuring citizen satisfaction. Through the implementation of differential response systems, departments should be able to systematically manage the calls for service demand and ensure that critical calls are answered immediately.

⁴Gay et al., op. cit., Ch. 3.

⁵Kansas City Police Department, Response Time Analysis, Executive Summary, National Institute of Law Enforcement and Criminal Justice, 1978.

⁶Pate et al., Police Response Time: Its Determinants and Effects, Police Foundation, 1976, p. iii.

⁷Sumrall et al., op.cit., p. 71.

B. Current Use of Differential Response Systems

Although many police departments use some alternative response strategies for certain calls for service, few departments have developed comprehensive differential response systems in which the full range of possible responses is considered for the full range of citizen calls. The implementation of such a system is dependent upon four elements. These elements include:

- Call Classification Schemes
Departments must devise ways of classifying calls based on information critical to subsequent dispatching decisions. Two types of information appear to be critical to determining reasonable responses: the nature of the incident and the time of occurrence. The classification scheme must be sufficiently precise to make fine distinctions among calls; the wider the range of responses, the greater the precision required.
- Response Alternatives
Departments must determine the appropriate response for each of the categories in the call classification scheme. The range of responses includes immediate mobile response, delayed mobile response, and non-mobile responses such as telephone reports, mail-in and walk-in reports, and referrals to or responses by other agencies.
- Training and Supervision of Communications Personnel
Training and supervision of communications personnel are essential to ensure that they collect information from citizens necessary to evaluate each call for service and assign it to the appropriate priority category and adhere to department policy on response alternatives.
- Non-mobile Response Capability
Departments must assign personnel to handle non-mobile responses such as telephone reporting, walk-in reporting, mail-in reporting, and referrals.

The DPRS study on current police practices in the areas of call classification, call intake, and use of alternative response techniques indicates that, with few exceptions, the importance attached to rapid response has limited the present capability of police departments to implement the elements of a differential response system.⁸ These findings, based on a mail survey of 175 police departments and other pertinent findings on current police practice in call screening, are reviewed below:

⁸ Ibid.

1. Current Call Classification Schemes in Police Departments

The DPRS survey indicates that, while 71 percent of the surveyed departments make some attempt to prioritize calls according to the urgency of the situation, these classification schemes make only general distinctions between calls that obviously require an immediate mobile response and those for which mobile response can be delayed. In many departments, the calls for service workload is still handled on a first come, first served basis.

Many departments also classify calls for service in terms of signal codes which reflect legal categories set by state statute or local ordinance. While these codes are theoretically designed to highlight the nature of each call for service, in practice they subsume a variety of different situations, each of which may require different responses. Further, in many departmental schemes, large numbers of calls are assigned to a miscellaneous or unclassified category.

The reliance on signal codes, as well as the importance attached to rapid response, results in complaint operators collecting minimal information from citizens before passing the call on to dispatchers. However, several studies have shown that the type of information collected by complaint operators has significant implications for the decision-making of dispatchers and patrol officers. The dispatcher's selection of the appropriate response strategy is constricted by the meager information collected by the operator.¹⁰ In turn, the information provided to patrol officers by the dispatchers influences not only the responding officers' preparation for appropriate response at the scene of the incident, but their reporting behavior as well.¹¹

2. Call Intake Procedures

The importance traditionally attached to expeditious report taking and dispatching is also reflected in the way in which complaint operators and dispatchers are prepared to carry out their jobs. The DPRS study survey found that complaint operators and dispatchers received little training or supervision. Thirty-one percent of the departments provided no training to

⁹ Ibid., p. 30.

¹⁰ Antunes and Scott, Calling the Cops: Police Telephone Operators and Citizen Calls for Service, Indiana University, 1980.

¹¹ Pepinsky, "Police Patrolman's Offense-reporting Behavior," Journal of Research in Crime and Delinquency, Vol. 13, No. 1, January 1976, pp. 33-47.

operators, while 25 percent of the departments provided no training to dispatchers. Departments which trained complaint operators and dispatchers provided only a minimal amount. Also, operators were seldom given much guidance on how to respond to calls for service. Only 35 percent of the departments gave telephone operators written instructions on how to deal with varying types of citizen calls. Only 41 percent of the departments used a standardized set of questions to ask citizens who requested service.¹²

The limited training, supervision, and guidance provided to complaint operators and dispatchers, coupled with the widespread use of civilians who often have little knowledge of police practices, result in their exercising considerable discretion in determining the type of responses citizens will receive.¹³ Studies have shown that communications personnel cope with their largely unguided discretion by sending out a patrol unit to the majority of calls. As Antunes and Scott note, this response enables communications personnel to "shift the ultimate decision about what action should be taken to the officer dispatched to the scene who presumably will have more information about the particular incident, and in any event is professionally trained to make such decisions."¹⁴

The lack of supervision and training also influences the manner in which operators interact with callers. Antunes and Scott found that complaint operators were often terse and abrupt with citizens, and unless specifically asked, provided little information to citizens on the nature of the police response. Citizens were not informed on the length of time they would have to wait before a unit would arrive and often were not provided with explanations for police unwillingness to respond to certain calls.¹⁵

¹² Sumrall et al., op. cit., p. 32.

¹³ The DPRS survey found that 44 percent of the departments exclusively employ civilians as dispatchers and 64 percent of the departments exclusively employ civilians as operators. Ibid., p. 31.

¹⁴ Antunes and Scott, op. cit., p. 28. Maxfield found that the switch from sworn to civilian dispatchers in San Francisco in 1972 resulted in an increase in the number of patrol cars dispatched and a decrease in the number of calls handled over the phone. Civilians were less likely to resolve the situation themselves than sworn officers who had training and street experience. Further, patrol officers frequently refused calls from the civilian dispatchers asking for reassignments, and civilians more frequently granted their requests, resulting in an increase in service times for incidents. Maxfield, Service Time, Dispatch Time, and Demand for Police Services: Helping More by Serving Less, Indiana University, 1979, p. 8.

¹⁵ Antunes and Scott, op. cit., p. 30.

3. Use of Alternative Response Strategies in Police Departments

The DPRS survey indicates that only 20 percent of the departments send a sworn officer to all calls for service. The remaining 80 percent of the departments use some type of alternative response mechanisms such as delayed mobile response (71 percent), telephone reporting (62 percent), station house reporting (54 percent) and appointment scheduling (25 percent).¹⁶ However, these responses are only used for a small proportion of calls for service. Few departments have systematically applied the full range of alternative response strategies to the full range of citizen calls.

Antunes and Scott's analysis of police responses to calls for service in the metropolitan areas of Rochester, St. Louis, Tampa, and St. Petersburg further confirms the frequent use of mobile response. Overall, a patrol unit was promised for 49 percent of the calls. A unit was promised in over 70 percent of the calls about violent crimes, interpersonal conflicts, public nuisances, suspicious circumstances, nonviolent crimes, and medical assistance. Referrals to outside agencies and internal units of the police department were made in 15 percent of the calls.¹⁷

C. Effectiveness of Differential Response Systems

Since so few police departments have implemented comprehensive differential response systems, and even fewer departments have undertaken rigorous evaluations of their efforts, there is a paucity of information on the effectiveness of these procedures in managing the calls for service demand. To date, empirical documentation on the impact of differential response procedures is limited primarily to evaluations undertaken on programs in the Wilmington, Delaware and Kansas City, Missouri Police Departments.

The Wilmington Police Department has undertaken two projects in recent years to increase their efficiency in managing the calls for service demand. The first project, the Wilmington Split-Force Experiment, involved two components: a patrol component and a communications related component. In the patrol component, patrol resources were divided into two units: a basic unit, responsible for responding to calls for service, and a structured unit, responsible for undertaking directed activities and, if necessary, responding to critical calls for service. The communications related component involved three procedures. The first procedure involved the implementation of a

¹⁶ Sumrall et al., op. cit., p. 35.

¹⁷ Antunes and Scott, op. cit., p. 23.

prioritization scheme for classifying calls for service. Three priority designations were used: in-progress calls, which required an immediate response by either the basic or structured unit; basic patrol critical calls, which required a response by the first available basic unit; and basic patrol, which required an eventual response by the basic unit. The second procedure involved the dispatch of calls on a first come, first served basis within each of the three priority designations, irrespective of whether the calls originated in the unit's designated response sector. The third procedure involved formally advising callers if responses to non-critical calls for service were to be delayed, and the amount of time that it would take for the patrol unit to arrive. When all basic units were busy, callers were informed that their call would be delayed for 30 minutes.

The findings from the evaluation of the Split-Force Experiment provide varying levels of support¹⁸ for the effectiveness of the three communications related procedures. The study indicates that:

- Complaint takers and dispatchers were often confused about the three priority designations. They tended to categorize calls for service as either critical or non-critical. However, the delay time (time between the receipt of a call and the dispatch of a unit) and travel time were shorter for critical calls than for non-critical calls, demonstrating that the department was able to respond appropriately to these requests.
- The first come, first served dispatch within each priority designation had both positive and negative effects. Although it resulted in decreased delay times and decreased workload imbalances among units, it increased travel time and increased intersector dispatches. As a result, response time was unchanged. The increased number of intersector dispatches had an adverse effect on patrol officers who felt a lack of sector identity since calls were dispatched to the first available unit, regardless of which sector the call originated in.
- The formalized delay procedure was implemented with some success but was often underutilized. The evaluation suggested that greater use of the formalized delay procedures could serve to reduce the lack of sector identity mentioned above which resulted from the first come, first served dispatching procedures.

¹⁸ Tien et al., An Alternative Approach in Police Patrol: The Wilmington Split-Force Experiment, National Institute of Law Enforcement and Criminal Justice, 1978.

- Analysis of citizen satisfaction with the formalized delayed response, based on telephone surveys of a sample of residents who had called for police service on a non-critical matter before and during the program, indicated that citizens were just as satisfied with a response time of less than 10 minutes as they were with a response time of 20 minutes, provided that they were advised of the delay.

The second project, Management of Demand for Police Services, undertaken as a follow-up to the Split-Force Experiment, sought to further increase the efficiency of the calls for service response by implementing a reactive system of managing calls for service. This system involved the use of call prioritization techniques and a range of responses, including immediate response; formalized delayed mobile response, including the use of appointment responses by field units; and non-mobile responses, including referrals, telephone reporting based on a call back system, and walk-in reporting. Preliminary, unpublished findings from the evaluation of this project indicate that the department has met its overall objectives of decreasing the number of complaints dispatched to the Basic Unit by 20 percent and decreasing the number of basic patrol units by 20 percent. These findings indicate that the managing demand for service concept is viable and productive, but also that it may be utilized to a greater extent.¹⁹

The Kansas City, Missouri Police Department implemented a call prioritization system as part of its Directed Patrol Project to ensure that uncommitted blocks of time were available for directed patrol assignments. Under the call prioritization system, call intake personnel screened incoming calls for service in terms of three response alternatives: immediate response, delayed response of up to 40 minutes for non-emergency calls, and call diversion for non-urgent calls including walk-in reporting, telephone reporting, and referrals to other agencies. The effectiveness of these procedures was evaluated by the Kansas City Police Department.²⁰

The findings on the use of formalized delay parallel those of the Wilmington Split-Force Experiment. A total of 10.2 percent of the calls for service were delayed, for an average of 22 minutes. While the use of delayed response assured patrol unit availability for emergency calls during peak workload periods, the evaluation indicates that the percentage of calls handled by delayed response was smaller than originally anticipated and that

¹⁹ Presentation by Dr. Michael Cahn, Public Systems Evaluation at NIJ Special National Workshop on Research Methodology and Criminal Justice Program Evaluation, March 17, 1980.

²⁰ Kansas City Police Department, Directed Patrol Project, Final Evaluation Report, January - December 1979, Kansas City Police Department, 1980.

the percentage of calls handled in this manner could be increased. Analysis of data on walk-in and telephone reports, which accounted for 26.8 percent of all reports handled, yielded similar findings. While the use of these two alternatives resulted in a time savings of 32,124 hours, equivalent to 17 patrol man years, an analysis of the types of calls handled by walk-in and telephone reports indicates that there is a greater potential for the expanded use of these strategies. The evaluation suggested that continued success of the three alternatives is dependent upon the ability of dispatch personnel to screen incoming calls for service and to determine the appropriate response.

D. Research Questions for Testing

Although these studies provide varying levels of support for the utility of differential response systems involving call prioritization techniques and alternative response strategies as mechanisms for managing the calls for service demand, they also raise numerous questions for future research:

- First, the optimal use of alternative response techniques has not been demonstrated. While it has been suggested that as much as 55 percent of the calls for service can be handled by delayed mobile responses and 30 percent of the calls for service can be handled by various non-mobile responses, the available evaluations indicate that the percentage of calls for service handled by these responses is much lower.
- Second, it has yet to be determined what types of alternative response techniques are appropriate for what types of calls for service.
- Third, it is not clear what procedures are necessary to increase the use of alternative techniques. It has been pointed out that the call classification schemes which are based on existing signal codes do not provide sufficient information to determine the appropriate police response. Also, it appears that communications personnel are not adequately trained to use these simple call classification schemes, let alone more sophisticated models. Both of these factors may contribute to the underutilization of alternative response techniques.
- Fourth, in light of the limited use of comprehensive differential response systems, minimal attention has been focused on their impact on police patrol practices. Further, information is needed on the extent to which patrol resources devoted to responding to calls for service can be decreased and used for non-calls for service activities. Information is also needed on patrol officer acceptance of alternative responses.

- Finally, the costs of implementing alternative response techniques have not received adequate attention. While it has been suggested that alternative responses will be less costly than the traditional responses of sending out a mobile unit, the anticipated savings must be weighed against the costs of training communications personnel and other affected personnel in the new procedures, in assigning additional personnel to carry out the non-mobile techniques, and in terms of citizen attitudes and patrol officer acceptance of the new response techniques.

In light of the current need of police departments to improve the efficiency of the management of the calls for service function, and the need for further empirical documentation on the impact of differential response systems on police practices and citizens, the National Institute of Justice is supporting a field test of a comprehensive differential response system for managing citizen-initiated calls for service. This test will be administered under controlled conditions involving the random assignment of non-critical calls for service to traditional and new response alternatives. (As will be discussed in later sections of the Test Design, if a citizen refuses the alternative response called for under the experimental design, the department should provide the type of response requested by the citizen.) The specific action goals and scope of the test effort are described in Section II of this document. Section III presents the programmatic components of the test and Section IV, the evaluation issues to be addressed. The implementation schedule and site selection criteria can be found in Sections V and VI, respectively.

II. GOALS AND SCOPE OF THE FIELD TEST PROGRAM

A. Action Goals

There are two primary action goals of the program to be field tested and several objectives associated with each goal.

The first goal is to increase the efficiency of the management of the calls for service function. Through the implementation of a comprehensive differential response system, it is expected that departments will be able to rapidly respond to the increasing number of critical or emergency calls for service and have sufficient uncommitted time to perform non-calls for service activities. The objectives associated with this goal are:

- To assure that calls for service of greater urgency receive priority treatment;
- To reduce the rate of non-critical calls for service handled by immediate mobile responses;
- To increase the rate of non-critical calls for service handled by delayed mobile responses;
- To increase the rate of non-critical calls for service handled by non-mobile responses; and
- To increase the amount of officer time available for non-calls for service activities.

The second goal of the program is to maintain or improve citizen satisfaction. In many departments, call intake personnel fail to provide sufficient information to citizens on the nature of the police response for their calls. Citizens are often not informed that their calls will be delayed, but rather promised a patrol car immediately, and are not informed of the length of time it will take a patrol unit to arrive. As part of this test program, communications personnel will receive training and supervision to ensure that citizens receive adequate explanations on the nature of the police response and to ensure that the designated response is delivered. It is anticipated that these activities will facilitate citizen satisfaction with the differential response program. Objectives associated with this goal are:

- To provide satisfactory explanations to citizens at call intake on the nature of police response to their calls; and
- To provide satisfactory responses to citizens for resolving their calls for service.

B. Scope of the Test Program

Participating departments will engage in a variety of activities for the purposes of developing and implementing a differential response system. It is anticipated that the implementation of the differential response system will, over time, reduce the number of calls for service which are dispatched. As such, departments would have increased patrol resources which could be used for addressing crime and service-related problems. This freed up time could be used for various directed patrol options, including crime prevention activities, such as community education, security surveys, target hardening, and property marking techniques; crime deterrence activities, such as saturation patrol and field interrogation; criminal apprehension activities, including decoys and stakeouts and suspect identification; and involving patrol officers in the investigative process.

However, departments are strongly encouraged not to undertake formal new programs for using the freed up time during the field test period. This limitation is suggested for three reasons. First, it is expected that the full field test period would be required to ensure that findings regarding calls for service patterns and resultant workload reductions are valid (for example, changes in the calls for service workload might occur as a result of seasonal variations). Second, new programs might jeopardize achievement of the goals of the programs. For example, a new community education program might result in an increase in the volume of calls for service and thus reduce the extent to which efficiency in the calls for service function can be achieved. Finally, new programs might confound the evaluation of the differential response program. For example, it would be difficult to determine whether changes in levels of citizen satisfaction are a result of the differential response system or of other new activities.

III. PROGRAM COMPONENTS OF THE FIELD TEST PROGRAM

Overview

This section describes the administrative guidelines and activities to be undertaken for the development and implementation of a differential response system in the departments selected to implement the field test. The differential response system ultimately involves the use of:

- a new call classification scheme to categorize calls for service along certain dimensions;
- the application of a range of response techniques, including immediate mobile responses, delayed mobile responses, and non-mobile responses; and
- various changes in call intake procedures, including the establishment of an Expeditor Unit to handle the bulk of calls which are eligible for non-mobile responses.

The development and implementation of the differential response system will be accomplished by undertaking three sequential program components: 1) development of a differential response model for classifying citizen-initiated calls for service and for determining the types of response alternatives for call categories; 2) development of a differential response system capability; and 3) implementation of the differential response system. The first two components will be addressed during an eight month pre-implementation period and the third component will occur during a ten month implementation period. The implementation schedule is summarized in Section V.

As noted in the Introduction and explained more fully in Section IV, Evaluation Issues, the differential response system will be administered under controlled conditions, involving the random assignment of non-critical calls for service to traditional and new response alternatives in order to determine the effect of the program on police practices and citizens. The implications of the evaluation for the development and implementation of the differential response system are also noted in the following discussion of the program components.

A. Development of a Differential Response Model

Implementation necessitates first that departments develop a differential response model. The model includes three elements: developing a classification scheme which will enable calls to be categorized along certain dimensions; determining the types of response alternatives; and determining the appropriate response alternative for each call category.

Departments participating in the test program will be required to implement a call classification system that is uniform across sites and will be required to implement similar types of responses for similar categories of calls. This level of uniformity is necessary to ensure that the field test provides an adequate basis for determining the comparative effectiveness of the differential response program in multiple settings. The evaluation findings of this field test will be strengthened under this approach since if there are consistent results in all sites, they provide complementary evidence of the effectiveness of the selected approaches. If the elements of the model are not implemented with a suitable degree of uniformity and the evaluation findings are inconsistent, it will not be possible to determine whether the findings are a function of unique site characteristics or the variation in the program components.

Following grant award, the managers of each police department will engage in a joint planning effort to obtain consensus on a uniform call classification scheme and on the types of responses to be used for given categories of calls. To facilitate this planning process, a technical assistance contractor will provide consultant services in the area of organizational development. The issues to be addressed during this planning effort are discussed below, according to the elements of the differential response model:

1. Call Classification Scheme

In order to determine the appropriate police response for the full range of citizen-initiated calls for service, the classification scheme must be sufficiently precise to make fine distinctions among the calls for service, and thus, must be based on information which will permit communications personnel to determine the dynamics of the specific incident. Current classification schemes based on signal codes do not provide this level of information. While the particular call classification scheme to be used in the field test cannot be specified at this time, the scheme to be developed by the three departments will include, at a minimum, two types of information --the nature of the incident and its time of occurrence.

The DPRS study, which included the development of a model for classifying calls, provides some guidance on the dimensions that departments might

consider for classifying calls in terms of the nature and time of occurrence. This project suggests that in determining the nature of the incident, three factors need to be considered. The first factor is whether an incident has already happened or potentially could happen. For example, a call for a prowler who could be a potential robber is more important from the standpoint of the requirement for a quick response than a burglary that has already been committed.²¹ The second factor is whether the incident involved property or persons. This categorization reflects the two basic distinctions made by criminal law and provides the police with some idea of the type of event they will be handling. The third factor is whether the call is of a service nature. These calls could involve minor crimes or simply the provision of some form of assistance. Based on these three factors, eight categories of incident types are suggested. These include: major personal injury; major property damage/loss; potential personal injury; potential property damage/loss; minor personal injury; minor property damage/loss; other minor crime; and other minor non-crime. As indicated by the developers of this classification scheme, however, these are not the only factors which departments may consider pertinent. Other factors could include the age of the victim, the geographical location of the incident, or calls from different types of institutions (i.e., schools, banks, hospitals).²²

The time interval between the occurrence of the incident being reported and the actual report to the police department is also an important element in determining the appropriate police response. Many incidents are reported hours or days after the incident occurred. In many of these cases, the delay in citizen reporting of the incident negates the value of immediate mobile response. Even for certain calls which are in-progress, immediate mobile response may not be required. The DPRS study suggests three time intervals by which incident types could be divided: in-progress; proximate, defined as those incidents that occurred less than one hour before the citizen contacted the department; and cold, defined as reports received more than one hour after their occurrence.

By considering the various dimensions regarding the nature and time of occurrence of incident, it is expected that the police managers in the test sites will be able to develop a uniform call classification system which will be acceptable to all parties. Consensus will be necessary regarding the definition and number of incident categories included in the classification scheme; the types of calls which fit into the classification categories; the number of time categories to differentiate calls within the incident time categories; and the definition of the time categories.²³ It

²¹ Sumrall et al., op. cit., p. 52.

²² Ibid., p. 51.

²³ While it is expected that agreement on a uniform call classification scheme will reduce the number of calls which are classified as miscellaneous, it is recognized that a certain percentage of calls may remain unclassified

is recognized that the percentage of calls for service within the various categories in a uniform call classification scheme might vary across the three selected departments based on the current nature of the calls for service workload. However, as previously noted, a uniform call classification scheme is necessary in order to facilitate cross-site comparisons among the departments.

2. Types of Responses for Managing Calls for Service

There are three basic classes of responses and additional options for each class of response which can be considered in developing a differential response model for calls for service. These are as follows:

- Immediate Mobile Responses
 - one vs. two officer units
 - one or more units
 - sworn vs. non-sworn personnel
- Delayed Mobile Responses

In addition to the options specified for immediate mobile responses:

 - calls would be delayed for a set period of time
 - calls would be responded to by scheduling an appointment with the citizen
- Non-Mobile Responses
 - telephone reports
 - referrals to other agencies
 - mail-in reports
 - walk-in reports in response to police direction
 - no response

The selected police departments will be required to implement the three basic classes of responses. However, the departments will have some latitude in choosing among the various options under each basic class of response. For calls requiring immediate mobile response, it is anticipated that the departments will vary regarding the use of sworn versus non-sworn personnel, one or more units and one vs. two officer units. Decisions regarding vehicle preference (i.e., first come, first served, irrespective of the beat where the call originated) may also vary across the departments for these calls.

due to differences among the cities. This percentage should be kept to a minimum level, to be determined jointly by the managers from the three departments, and to be monitored as part of the study.

For calls requiring delayed mobile responses, the departments will be expected to respond to these calls within 30-40 minutes.²⁴ It is strongly encouraged that these calls be responded to by the car assigned to the beat where the call originated.²⁵ However, if the call can not be responded to within this time frame by the beat car, cars from other beats should be dispatched so as to prevent a delay period exceeding 30-40 minutes. Departments will have latitude regarding whether to use appointment scheduling in which a mobile unit would respond to a call for service at an appointed time. If appointment scheduling is used, the maximum delay time would not be applicable.

For calls requiring non-mobile responses, all departments will be expected to implement a minimum of three response options. Two of these options, telephone reporting and referrals to other agencies, will be uniformly implemented in each selected department. Departments may vary on their choice of a third option or additional options, such as walk-in reports or mail-in reports.

3. Matching Calls for Service with Selected Responses

The three police departments will be required to agree to a certain level of uniformity regarding the types of responses which will be used for given categories of calls. Consensus should be obtained among the departments on the types of calls requiring immediate mobile responses; delayed mobile responses; and non-mobile responses. This level of uniformity is necessary to ensure that similar categories of calls receive the same class of response. However, it is recognized that there may be departmental circumstances which necessitate different responses for similar categories of calls. For example, a department which has the capability to process and use evidence may place a higher priority on sending a patrol unit to a delayed burglary report than a department without such capability.²⁶ The extent to which this variation will occur will be addressed in the planning effort.

²⁴This time frame is based on the findings reported earlier on citizen satisfaction on formalized delays and the suggestion that patrol officers need at least 30 minutes of uninterrupted time to take any constructive preventive crime measures (Gay, op.cit., p. 74). However, if this time frame is not feasible, it may be modified in negotiations between NIJ and the test sites.

²⁵The preference for assignment of the beat car for calls requiring delayed mobile response is based on the findings reported earlier on the Wilmington Split-Force Experiment.

²⁶Sumrall et al., op.cit., p. 70.

Although a level of uniformity in matching calls for service with selected responses will be required, the individual departments will have latitude in selecting the particular response options under each of the three basic classes of responses for given categories of calls. For example, drawing on the DPRS study classification scheme of incident types, a call which has been categorized across the sites as proximate, minor property damage/loss, might be handled in one police department by taking a telephone report, while in another department, the same call might be handled by requiring the citizen to walk-in to the police department to file a report.

For illustrative purposes, Figure 1 presents an example of a format for a differential response model (the classification categories are those developed by the DPRS project). The X's indicate possible responses for calls which have been categorized by nature of the incident and the time of occurrence. By the end of the planning process, it is expected that the test sites will devise a similar model based on their joint judgments regarding the type and number of classification categories and type of responses for given categories of calls.

B. Development of a Differential Response Capability

Following the development of a differential response model, the selected departments will undertake a variety of planning, training, and data collection activities to prepare for the implementation of the differential response system and to facilitate the evaluation of the program. This component includes eight elements.

1. Revise Call Intake Procedures

Implementing a differential response system is obviously a more complicated process than the traditional practice of immediate mobile response for all calls for service, and as such, will require significant changes in the call intake procedures in communications.

The use of a differential response model places increased responsibility on complaint operators and dispatchers. The current devotion to immediate mobile response usually requires that complaint operators collect minimal information from citizens to classify the call according to signal codes before passing the information on to the dispatchers. Under a differential response system, complaint operators will be required to collect an expanded range of information from citizens in order to evaluate each call in terms of the dimensions of the call classification scheme--nature and time of occurrence of the incident and other appropriate criteria--and assign each call

**FIGURE 1
TYPE OF INCIDENT/TIME OF OCCURRENCE**

	MAJOR PERSONAL INJURY			MAJOR PROPERTY DAMAGE/LOSS			POTENTIAL PERSONAL INJURY			POTENTIAL PROPERTY DAMAGE/LOSS			MINOR PERSONAL INJURY			MINOR PROPERTY DAMAGE/LOSS			OTHER MINOR CRIME			OTHER MINOR NON-CRIME			
<u>RESPONSE ALTERNATIVES:</u>	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	IN-PROGRESS	PROXIMATE	COLD	
Immediate Mobile Response	X	X	X	X			X	X					X			X									
Delayed Mobile Response																									
• Based on Set Time Period					X	X			X	X				X	X			X	X			X			
• Based on Scheduled Appt.					X	X								X				X							
Non-Mobile Response																									
• Telephone					X	X					X	X				X	X			X			X	X	X
• Walk-In																									
• Mail-In																									
• Referral																									
• No Response																							X	X	X

to the appropriate classification category. Based on the selected departmental response strategies for given categories of calls, the complaint operator will also have to inform the citizen of the appropriate response.

A differential response system will also place increased responsibility on dispatchers who must ensure that departmental policies regarding the handling of emergency calls are carried out. Dispatchers will also be required to manage the calls which are being handled by delayed mobile response to assure that departmental policy regarding the length of time a call will be delayed and citizen expectations are met. Participating departments will be required to closely monitor dispatchers' adherence to departmental policy in these areas.

Participating departments will be expected to undertake several procedures to ensure that call intake personnel are adequately prepared to implement the differential response techniques. First, departments will be required to develop written guidelines on the new call classification procedures. Second, departments will need to review the types of information currently collected by complaint operators to determine how much additional information will be required to classify calls along the dimensions determined through the planning process. Third, departments will be required to develop a set of standardized questions to facilitate the classification of calls and thereby enable complaint operators to quickly determine which calls require an immediate mobile response. Fourth, departments will be required to develop standardized explanations for informing citizens of the appropriate response. Finally, departments may need to develop new call intake forms to address the elements of the call classification scheme and to facilitate the evaluation of the program. (Program requirements for facilitating the evaluation are discussed on pp. 24-25.) The technical assistance contractor will assist departments in addressing the first four areas.

2. Training of Call Intake Personnel

Following the development of the call intake procedures, the technical assistance contractor will assist in the development of training for communications personnel on the new procedures. The training will focus on communication skills, including how to ask the standardized questions for complaint evaluation and instructions for classifying calls according to the uniform call classification scheme.

3. Pre-Testing of Call Intake Procedures

Following the training sessions, complaint operators will pre-test the new call classification techniques for a short time period, but will still

respond to calls for service in the department's traditional manner. Complaint operators will use the standardized questions in their conversations with citizens; will classify each call in terms of the dimensions of the uniform call classification scheme; and will record the appropriate information on each call using the new call intake forms. This pre-test period will provide the complaint operators with the opportunity to indicate any operational problems regarding the new call intake procedures so that appropriate modifications can be made. In addition, observation of complaint operator-citizen conversations will be undertaken during this period to assure that operators are properly carrying out the new procedures.

It is anticipated that the three elements described above will be completed by the end of the second month of the program period.

4. Data Collection and Analysis of Citizen-Initiated Calls for Service

Over the next six months, complaint operators will classify citizen-initiated calls for service according to the new call classification procedures in order to establish baseline data on the calls for service workload. However, during this time period, they will still respond to calls for service in the department's traditional manner. The establishment and subsequent analysis of these baseline data will serve several purposes. First, it will enable the departments to accurately determine the volume and nature of various types of calls received over various time periods and the percentage of calls which will be handled by immediate mobile response, delayed mobile response, and non-mobile response. Second, this data base will permit departments to determine the required organizational changes to respond to calls according to the new procedures, including, for example, whether adjustments in the staffing levels for complaint operators and dispatchers are necessary; how many personnel will be required to staff the Expeditor Unit which will handle the bulk of non-mobile calls for service; and the volume of calls which can be referred to outside agencies. Third, the data base will permit the evaluator and the departments to determine the duration of the field test's experimental design phase by providing an indication of the calls for service workload. (Lower workloads will require a longer test period.)

5. Preparation and Submission of Preliminary Program Plan

Each department will be required to submit a preliminary program plan to the NIJ for review. The plan will describe the department's progress in undertaking the above mentioned activities and the anticipated organizational changes to respond to calls according to the new procedures, based on a preliminary analysis of calls for service workload. This plan will be submitted by the end of the sixth month. While NIJ is reviewing this plan,

the departments will undertake the other activities described below to prepare for the implementation of the differential response system.

6. Develop Procedures for Facilitating Implementation of the Differential Response System

a. Develop Relationships with Outside Referral Agencies

Since departments will be required to use outside referral agencies for certain calls for service, several activities will be necessary to establish working relationships with these agencies. These include: identifying the available non-police public and private agencies, such as animal control, crisis intervention units, detoxification centers, and utility companies; establishing communications with the appropriate managers of these agencies; determining the range of services they currently offer, their hours of availability, and their capacity for handling referred calls; and establishing agreements pertaining to the operating procedures for diverting calls to these agencies. The baseline data developed during this phase will permit the departments to estimate the percentage and types of calls which the outside agencies can anticipate receiving once the differential response system is implemented. Following the establishment of agreements with these agencies, each department should develop a directory of referral agencies to be used by complaint operators and staff of the Expeditor Unit in referring calls. The directory should specify the operating procedures, eligibility criteria, and hours of availability of the outside agencies. The department should also develop procedures for amending this directory as services provided by the referral agencies change or are no longer available and as new agencies are added.

b. Develop Procedures for the Expeditor Unit

Each department will be required to develop procedures for the operations of an Expeditor Unit (i.e., complaint report writing unit) comprised of individuals who will be responsible for handling calls screened by complaint operators as appropriate for non-mobile responses. Staffing and appropriate supervision of the Expeditor Unit will be the responsibility of each police department. Staffing options might include use of sworn officers, civilian employees, or volunteers. (While the NIJ test funds cannot be used to pay for the salaries of the Expeditor Unit, some of the test funds can be used to support the equipment-related expenses of the Unit such as telephone lines.) The location of the Expeditor Unit (i.e., within communications or another division) will be left to the discretion of each department. However, departments will be required to implement procedures to facilitate close working relationships between the Expeditor Unit and the communications division.

The Expeditor Unit will, at a minimum, be responsible for handling calls which have been screened by the complaint operators as eligible for telephone reporting. Additionally, it is anticipated that the Unit may handle calls eligible for referrals to outside agencies which cannot be completed by the complaint operators at call intake. Diversion of these calls to the Unit would occur in situations where the information requirements necessary to make a referral by the complaint operators are lengthy. In addition, if a department selects mail-in reports as an option, the Unit would be responsible for mailing out the appropriate forms and reviewing the completed forms. Also, if the department uses walk-in reporting, the Unit would be responsible for taking these reports. However, placement of the responsibility for walk-in reporting within the Unit would only appear appropriate if the department does not have neighborhood precincts. Departments which use appointment scheduling as an option for delayed mobile response may want to consider having the Unit schedule an appointment with the caller and then refer this information to the appropriate dispatcher, who would inform the patrol units of the calls requiring this response.

Departments which have used Expeditor Units for telephone reporting have handled these calls in one of three ways. First, some departments request that citizens call the Unit directly after the complaint operator has determined that the call is appropriate for the Unit. Second, in some departments, appropriate calls are referred directly by the complaint operator to the Unit at the initial point of contact with the citizen. This mechanism assures that contact with the citizen is maintained. And third, in some departments, a call back system is used whereby the complaint operator obtains the phone number of the citizen and advises him that the Unit will call him back. This mechanism avoids the problem of having too many telephone reports at a given period of time and too few at other periods of time and thus enables the Unit to better manage the workload. The test departments have the option of selecting the appropriate mechanism for taking telephone reports. However, since a critical feature of alternative response techniques is citizen convenience, the first option, in which the citizen must call the department twice, would appear to be less preferable than the other two options for telephone reporting.

7. Coordination of Data Needs

It is anticipated that the departments will need to revise the call intake forms used by complaint operators to reflect the elements of the new call classification scheme and the new response alternatives. They will also need to develop forms for the Expeditor Unit. Since much of the data required for the evaluation of the program will be extracted from these forms, the evaluator will collaborate with the departments in developing the data elements to be included in these forms. This will prevent unnecessary duplication of data collection efforts and will ensure that special data needs related to the evaluation can be integrated into the departments' regular data collection process. For example, as part of the evaluator's effort to develop a

data base useful for interpreting the results of the test program and to ensure the integrity of the experimental evaluation, it would be important to require each complaint operator to record on the call intake form whether the designated response under the experimental procedures was provided to the citizen. This information would provide a useful check on complaint operator adherence to experimental procedures and citizen acceptance of the designated response.

8. Preparation and Submission of Final Program Plan for NIJ Review

The concluding activity of this component involves the preparation of a final plan by each department for the administration of the differential response system for NIJ review. The plan will describe the department's overall progress in undertaking the task activities called for in this component. It would include, for example, any suggested modifications in program procedures based on NIJ's review of the preliminary program plan; the final analysis of the baseline data; a description of the structure, functions, and staffing levels for the Expeditor Unit, and the department's efforts to establish agreements with outside referral agencies; and the new forms developed in consultation with the evaluator.

C. Implementation of the Differential Response System

Implementation of the differential response system over the ten month implementation period involves three elements: generating support for the program; training of personnel; and monitoring the activities of communications personnel and the Expeditor Unit in administering the differential response system.

1. Generating Support for the Program

The departments will be required to undertake appropriate activities to facilitate acceptance of the program by personnel within the departments. This would involve briefing all command personnel and units within the police department on the scope of the program and the resultant changes in operating procedures.

2. Training of Personnel

Training will be provided to complaint operators, dispatchers, staff of the Expeditor Unit, and first line supervisors of patrol officers. Complaint

operators will receive training on the evaluation design procedures for assigning the appropriate type of response to calls, and on communication skills to assure that citizens are provided adequate explanations of the designated response. Training of dispatchers will focus on assuring that they understand department policy on the time frame and procedures for dispatching calls requiring immediate and delayed mobile responses. The training of the Expeditor staff will focus on report writing skills and communication skills. Also, training for communications staff and Expeditor staff might involve field observation of patrol officer responses to calls for service. Training of the first line supervisors of the patrol officers is necessary to ensure that they have a clear understanding of the types of calls which will be handled by field officers under the new procedures.

3. Differential Response System Activities

Following completion of the training activities, each department will implement the differential response system. During this period, complaint operators will be required to evaluate each citizen-initiated call for service in terms of the dimensions of the call classification scheme in order to assign the call to the appropriate classification category and determine the appropriate response. All calls which are classified into categories which require an immediate mobile response will be referred to the dispatchers. As indicated in the Evaluation Issues section, the remaining non-critical calls for service will be randomly assigned to receive either the new response alternatives (experimental group) or traditional response alternatives (control group). Calls which are classified into categories which are eligible for delayed mobile response will either receive a delayed mobile response (experimental group) or an immediate mobile response (control group). For those calls which will be delayed, the complaint operator would inform the citizen of this response and the expected arrival time of the unit and refer the call to the dispatcher, who would then dispatch a unit within the designated time frame. Similarly, for those calls which will be handled in the traditional fashion, the complaint operator would inform the citizen that his call will be responded to immediately and would refer the call to the dispatcher for immediate dispatch.

Calls classified into categories which are eligible for non-mobile responses will either receive the appropriate non-mobile response option (i.e., telephone reporting or referral) or the department's traditional response (either immediate mobile response or delayed mobile response, depending upon current policy). For those calls which will be handled by the non-mobile response options, the complaint operator would inform the citizen of the appropriate procedures, and where appropriate, divert the call to the Expeditor Unit. For example, the caller would be requested to walk in to the station house to file a report or would be referred to the Expeditor Unit for a telephone report. For those calls which will receive the traditional response (i.e., immediate mobile response), the complaint operator would inform the citizen of the designated response and refer the call to the dispatcher. Procedures

for implementing the random assignment process will be developed at each site through negotiations with NIJ, site representatives, and the evaluator.

The dispatch or communications supervisor will be required to continually monitor the calls which have been assigned to receive either immediate mobile responses or delayed mobile responses to ensure that departmental policy for these responses is met.

The Expeditor Unit will handle the calls which have been screened by the complaint operators as appropriate for their unit. At a minimum, this will include telephone reports and referrals which cannot be processed by the complaint operator. Depending upon departmental procedures, the Unit might also handle calls eligible for mail-in reporting, walk-in reporting, and appointment scheduling.

It is anticipated that citizens might refuse to receive the response alternative called for under the experimental design. For example, a citizen might demand that a patrol unit be dispatched for a non-critical call which under the random assignment procedures is designated to receive a non-mobile response. In these cases, the complaint operator should provide the response alternative requested by the citizen, either an immediate or delayed response, as deemed appropriate.

The first month of the program activities (month nine) will serve as a pre-test period of the experimental procedures. During this period, any necessary modifications in the call classification scheme, response alternatives, and random assignment procedures will be made. Following this pre-test period, the departments will be required to provide supervision and in-service training to ensure that communications personnel and staff of the Expeditor Unit adhere to the new call classification and response procedures. In order to maintain the integrity of the evaluation design, complaint operators will be required to provide written explanations of calls for service which result in deviations from the experimental procedures. The supervisor of the communications unit should periodically monitor complaint operators' conversations with citizens to ensure that citizens are provided adequate explanations of the response alternatives. In-service training should be provided to address any problems which might arise. Ongoing supervision of the Expeditor Unit and in-service training will be required to ensure that the staff of the Unit has adequate phone communications and report writing skills and adequate knowledge of the existing referral agencies' procedures.

IV. EVALUATION ISSUES

The purposes of this section are to present the analytic framework and evaluation objectives of the field test program and to provide a discussion of the evaluation design requirements. An independent organization will be selected by the NIJ to conduct the evaluation. The evaluation grantee will work closely with the program staff in each site to collect the data required by the evaluation design. A full description of the evaluation effort will be set forth in the NIJ solicitation for the evaluation of the field test.

A. Analytic Framework

Through the implementation of a process and outcome evaluation in each site, the evaluation will examine the extent to which the test sites achieved the action goals and objectives of the differential police response to calls for service field test as delineated in Section II.

The primary purpose of the process evaluation will be to document the degree to which the differential response system was implemented as planned. While it is anticipated that the departments selected to implement the field test are those best suited to achieve the goal and objectives of the program (based upon the current needs of their police departments and their demonstrated willingness to undertake the program requirements), past field test experiences have shown that the process of program implementation often results in changes in the program design. While some of these changes may be necessary to improve the feasibility of the design based on local variations across departments, others may result from unexpected changes in a jurisdiction--for instance, an increase in the volume of calls for service --and essentially are expected to represent necessary compromises. The process evaluation, in providing detailed documentation of the process of implementation and changes which occurred in test sites, is critical for determining whether the program is responsible for the observed outcomes. Also, the process evaluation is essential for identifying factors which are related to goal attainment and those which impede program implementation; and unanticipated side effects of the program. The identification of these issues is important for an understanding of the necessary conditions for implementing similar programs in other jurisdictions.

The primary focus of the outcome evaluation will be on improvements in the efficiency of the calls for service function and effects of the differential response system on citizen satisfaction. The evaluation will involve establishing the linkages between the findings of the process and outcome evaluation. Of special concern will be the consideration of possible non-programmatic interpretation of observed outcomes.

B. Evaluation Objectives

There are three primary evaluation objectives of the field test program:

1. To Assess the Impact of the Differential Response System on Police Practices

It has been a recurrent theme of this test document that the development and implementation of a differential response system for managing calls for service will have a significant impact on current operations of police departments. While a differential response system should be expected to have a major impact on the communications division of a department, it will also affect patrol operations. To the extent that the communications division is able to successfully implement differential responses and thereby achieve greater efficiency in managing the calls for service demand, patrol resources traditionally devoted to calls for service activities should be reduced and, in turn, can be used for other activities. The evaluation will be concerned primarily with assessing the changes which occur in the communications division and the associated changes in patrol activities related to responding to calls for service. However, the evaluation will also document the ways in which individual officers make use of freed up time for non-calls for service activities which might occur as a result of the implementation of the differential response system. As noted in Section II, departments are strongly encouraged not to undertake formal new programs for using freed up time during the field test period. Should departments undertake such programs, the evaluation will not be concerned with assessing their impact. Rather, the evaluation activities in this area will be limited to describing the nature of these programs.

Both process and outcome measures will be collected by the evaluator to address this evaluation objective.

- a. Process Component

The process component will encompass the activities undertaken during the pre-implementation and program implementation periods. During the pre-imple-

mentation period, the evaluator will observe the planning activities undertaken to develop a uniform differential response model and new call intake procedures; the training sessions provided to police managers, communications personnel, and staff of the Expeditor Unit; the efforts undertaken by each department in implementing the new call classification procedures; establishing and analyzing the baseline data on the calls for service workload; and developing the procedures, guidelines, and organizational modifications for facilitating program implementation. Three issues are of particular interest during this phase of the evaluation. The first is the nature of the call classification scheme developed by the police managers and the extent to which it differs from the traditional classification schemes used by these departments. The evaluator will also identify the factors that contribute to the development of a new call classification scheme and any constraints which impede its development. The second area of interest is the extent to which the response alternatives selected by the police managers differ from the traditional responses used by these departments. The third area of interest is the adequacy and types of training provided to personnel on the new call intake procedures and the nature and ramifications of the organizational modifications undertaken to facilitate the implementation of the differential response system.

During the implementation period, the evaluator will document the process of implementation and the degree to which the differential response model, as developed during the pre-implementation period, was implemented as planned. Several issues are of particular interest during this phase of the evaluation. The first involves communications personnel adherence to the new call classification scheme and experimental procedures for assigning response alternatives, as indicated by the percentage of calls which receive a response which deviates from policy guidelines. The second area of interest is the extent to which the call intake procedures result in more accurate classification of calls as indicated by the percentage of calls which are reclassified upon officer arrival at the incident. The third area of interest is the degree of understanding and acceptance of the program by communications personnel, Expeditor staff, and patrol officers.

The fourth area of interest is adequacy of the in-service training and supervisory practices of communications personnel and staff of the Expeditor Unit. The final area of interest is the identification of other factors which might account for any modifications in the differential response system. These might include, but are not limited to, changes in the volume and nature of citizen-initiated calls for service, communications and Expeditor personnel turnover, the way in which supervisory personnel communicate the goals and requirements of the program to both communications personnel and patrol officers, citizen resistance to the new procedures, and changes in the referral practices of outside agencies.

b. Outcome Component

Under this component, the evaluator will address the extent to which the test sites achieved the first program action goal:

- To increase the efficiency of the calls for service function, through attainment of the following objectives:
 - To assure that calls for service of greater urgency receive priority treatment;
 - To reduce the rate of non-critical calls for service handled by immediate mobile responses;
 - To increase the rate of non-critical calls for service handled by delayed mobile responses;
 - To increase the rate of non-critical calls for service handled by non-mobile responses; and
 - To increase the amount of officer time available for non-calls for service activities.

The types of questions to be addressed in examining this goal and its objectives include, but are not limited to:

- Does the program result in a reduction in the rate of calls for service traditionally, but no longer, handled by immediate mobile response?
- Does the program result in an increase in the rate of calls for service handled by delayed mobile responses?
- Does the program result in an increase in the rate of calls for service handled by non-mobile responses?
- Does the program result in quicker response times (both delay and travel time) for calls of greater urgency?
- Does the program result in a change in service time (travel time and time on scene) for given categories of calls?
- Does the program result in a change in patrol unit utilization (fraction of time patrol unit is committed to responding to calls for service during its tour of duty)?

- Does the program result in a change in officer workload utilization (ratio of calls for service workload to number of available officer hours or patrol unit utilization factor divided by the number of officers per unit)?
- Does the program result in an increase in the amount of time available for non-calls for service activities?
- Does the program result in changes in the frequency of calls for service for various categories of calls?
- Does the program appear to have an effect on arrest and clearance rates?
- What are the costs of implementing a differential response system?

2. To Assess the Impact of the Differential Response System on Citizens

The evaluator will address the extent to which the test sites achieve the second program action goal:

- To maintain or improve citizen satisfaction, through the attainment of the following objectives:
 - To provide satisfactory explanations to citizens at call intake on the nature of police response to their calls; and
 - To provide satisfactory responses to citizens for resolving their calls for service.

The types of questions to be addressed in examining this goal and its objectives include, but are not limited to:

- Are citizens satisfied with the handling of their calls by complaint operators at call intake?
- How does citizen satisfaction with the differential response strategies compare to citizen satisfaction with the traditional response strategies, for given categories of calls?

- For similar categories of calls, does citizen satisfaction with the differential response strategies vary by type of response option used?

The evaluator will assess citizen responses to the program by conducting surveys of citizens who requested police services and by analyzing the frequency of citizen refusals of alternative responses and the frequency of citizen complaints to the police departments. This assessment will provide further empirical documentation of citizen satisfaction based on actual experience with a range of alternative responses for a range of citizen calls.

3. To Assess the Transferability of the Program

In assessing the transferability of the differential response system to other police departments, the evaluation will determine whether the test sites achieved the action goals and objectives of the field test and identify the conditions which facilitated or impeded goal achievement. As noted at the outset of this section, the process evaluation will document the extent to which the differential response system was implemented as planned. Should any of the test sites experience implementation problems which cannot be overcome, the process evaluation would identify the characteristics of sites and departments which should be avoided in future replication efforts. At the same time, the process evaluation would serve to identify the characteristics of departments or cities which would be favorable settings for the implementation of a differential response system. In addition, through the analyses of process and outcome measures, the evaluation will be able to determine any necessary refinements in the elements of the differential response system.

C. Evaluation Design

In order to assess the effects of the differential response to calls for service program on police practices and on citizen satisfaction, an experimental design will be implemented in each police department during the program implementation period. Under this design, non-critical calls for service will be randomly assigned to receive either the new response alternatives (experimental group) or the traditional response alternatives (control group). The use of this experimental design involving random assignment is required since it is the only method for ensuring that the evaluation yields definite conclusions about the program effects. It minimizes the chance that significant pre-program differences, such as variations in the characteristics of complaint operators, will exist in the two groups, and it assures that these groups will be exposed to the same environmental changes except for the treatment conditions. Therefore, it reduces the possibility that non-program factors, such as changes in citizen composition of neighborhoods

or changes in non-calls for service police practices, will be interpreted as program effects.

Under this design, each complaint operator will use both the new response alternatives and traditional response alternatives on a random basis during the course of the experiment for responding to non-critical calls for service. As calls are received, each complaint operator will collect the necessary information from citizens to classify calls according to the dimensions of the uniform call classification scheme. Calls which are classified into categories which require an immediate mobile response (critical calls) will be referred to the dispatcher and will not be part of the experiment. The remaining non-critical calls which are classified into categories for which the response alternatives of delayed mobile response or non-mobile responses are available will serve as the starting point of the experiment. Based on a random number system, calls which have been classified by the complaint operator into categories which are eligible for delayed mobile response will either receive a delayed mobile response (experimental group) or the department's traditional response of immediate mobile response (control group). Similarly, calls which have been classified by the complaint operator into categories which are eligible for non-mobile responses will either receive the appropriate non-mobile response (experimental group) or the department's traditional response, such as immediate mobile response.²⁷

For example, referring to the differential response format on p. 20, an incoming burglary call would be classified into the major property loss/cold category for which a delayed mobile response is possible. If, based on the random number system, this call falls into the experimental group and thus is to receive a delayed mobile response, the citizen would be informed that an officer will arrive within a certain time interval (i.e., within 30-40 minutes). The complaint operator would record this response on the call intake card and transmit it to the dispatcher, who would then dispatch a unit within the designated time period. On the other hand, if a similar burglary call is received by the same complaint operator, for example five minutes later, and based on the random number system, the call falls into the control group and thus is to receive an immediate mobile response, the citizen would be informed that a unit will be dispatched immediately (as if the delayed mobile response does not exist). The complaint operator would record this response on the call intake card and transmit it to the dispatcher, who would send a unit immediately.

²⁷ It is likely that the definition of "traditional" response might vary across departments according to current procedures for handling calls. For example, if under the new call classification procedures, it is determined that a larceny could be handled by a non-mobile response and Department A currently responds to this type of call by immediate mobile response, then this response would be its "traditional" response. However, if Department B currently responds to a larceny by delayed mobile response, then this response would be its "traditional" response.

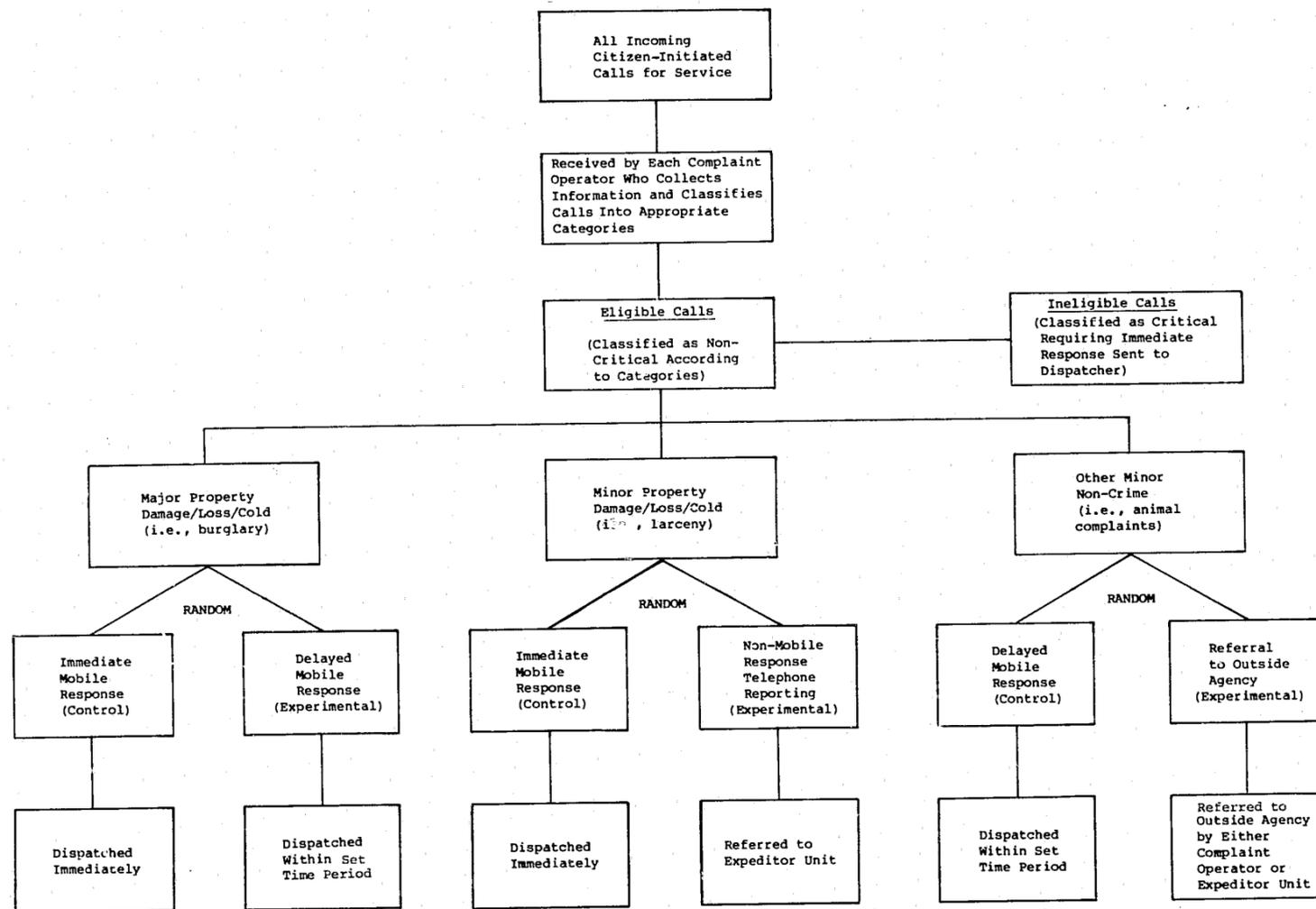
Similarly, an incoming larceny call would be classified into the minor property loss/cold category for which a non-mobile response such as telephone reporting is possible. If based on the random number system, this call falls into the experimental group and thus is eligible for telephone reporting, the citizen would be informed that his call will be referred to the Expeditor Unit. On the other hand, when a similar larceny call is received by the same complaint operator, for example ten minutes later, and based on the random number system, the call falls into the control group and is to be handled in the traditional manner of immediate mobile response, the citizen would be informed that a unit will be dispatched immediately (as if the Expeditor Unit does not exist). This information would be transmitted to the dispatcher, who would then dispatch the call immediately. Drawing from the differential response format, the experimental design procedures are illustrated in Figure 2.

The implementation of this evaluation design will permit reliable comparisons between non-critical calls handled in the traditional manner and non-critical calls handled by the alternative response techniques in terms of the police efficiency measures and citizen satisfaction measures indicated on pp. 31-32. These comparisons will address the question of whether greater efficiency in the calls for service function can be achieved without jeopardizing citizen satisfaction.

It is anticipated that the experimental design will be in effect during the day and afternoon shifts. However, the extent to which it will occur on the midnight shift depends upon whether the participating departments choose to operate the Expeditor Unit during this shift. The duration of the experiment will depend on the time frame necessary to generate the requisite number of calls within each category of the classification scheme to provide for an adequate level of statistical power for the analyses to be conducted. The final sample sizes within each category might be reduced as a result of citizen refusals to accept the designated response. The baseline data developed by each department during the pre-implementation period will serve as the basis for determining the duration of the experimental design.

To facilitate implementation of this evaluation design, during the pre-implementation period activities all complaint operators will receive appropriate training on the design requirements. In addition, the evaluator will assist the police departments in devising a random number system for complaint operator assignment of non-critical calls to either the experimental or control groups. In departments which do not have computer aided dispatch, possible mechanisms might involve either having stacks of pre-coded labels or pre-printed radio cards which indicate the appropriate response for each of the call categories. In departments which have computer aided dispatch, the assignment of calls to either the experimental or control groups could be accomplished through programming changes.

**FIGURE 2
EXPERIMENTAL DESIGN PROCEDURES**



V. IMPLEMENTATION AND NIJ SUPPORT

A. Implementation

The proposed test effort has been designed for implementation within three jurisdictions. The test is designed in two stages over an 18-month period (see Figure 3). The initial stage, the pre-implementation stage, will involve up to eight months of planning, training, data collection activities, and program plan review by the NIJ, for the purposes of developing a differential response model and developing a differential response capability. The second stage will involve implementing the differential response activities and will extend over a maximum of ten months.

A separate grant will be awarded by NIJ to an independent firm to evaluate the field test. The evaluation will extend for 24 months. This time frame will enable the evaluators to observe both phases of the program and spend an additional six months analyzing the data and preparing the final report.

B. NIJ Support to Participating Departments

NIJ support will be provided in the form of training and financial assistance. A consulting firm will be retained by the Institute to provide implementation assistance to the participating departments. Support will include training for communications personnel (operators and dispatchers), staff of the Expeditor Unit, and field supervisory personnel; consultant services to aid the departments in the planning and implementation of the program components; and various conferences and meetings to enable selected program participants from each department to discuss problems and issues of mutual concern. Funds will also be included to support research utilization efforts such as hosting visiting police officials so they may observe program operations.

Funds will be made available to each participating department for the 18-month period to cover a project director and management analyst; telephone service costs to support the Expeditor Unit; participation of police managers, communications personnel, staff of Expeditor Unit, and field supervisory personnel in training provided by the NIJ training contractor; and other

**FIGURE 3
TIMETABLE AND TASKS FOR FIELD TEST**

TEST PROGRAM	CUMULATIVE TIME IN MONTHS																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
PRE-IMPLEMENTATION PHASE																									
• Develop Differential Response Model																									
- Planning Session	—																								
• Develop Differential Response Capability																									
- Revise Call Intake Procedures	—																								
- Train Personnel		—																							
- Pre-test Call Intake Procedures		—																							
- Baseline Data Collection and Analysis			—	—	—	—	—	—	—																
- Submit Preliminary Program Plan to NIJ						—																			
- Develop Procedures for Expeditor Unit and Referral Agencies							—																		
- Coordinate Data Needs with Evaluator	—							—																	
- Submit Final Plan for NIJ Review									—																
IMPLEMENTATION PHASE																									
• Implement Differential Response System																									
- Generate Internal Support									—																
- Train Personnel									—																
- Pre-test Experimental Procedures									—																
- Implement and Monitor Random Assignment Procedures										—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
EVALUATION:																									
PRE-IMPLEMENTATION PHASE																									
• Collaboration on Design of Forms for Evaluation		—						—																	
• Assist in Quality Control of Baseline Data Collection			—	—	—	—	—	—	—																
• Determine Sample Sizes and Length of Experiment									—																
• Data Collection for Process Component	—	—	—	—	—	—	—	—	—																
IMPLEMENTATION PHASE																									
• Develop Random Assignment Procedures									—																
• Train Program Staff on Procedures									—																
• Monitor Pre-test of Random Assignment Procedures									—																
• Oversee Random Assignment										—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
• Data Collection for Outcome Analysis											—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
• Data Collection for Process Component											—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
• Analysis											—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

training costs not provided by the training contractor. The Institute will determine the amount of funding to be provided to each site based on an assessment of several factors, including the current state of development of the department's call screening system and the volume of call for service workload.

VI. SITE SELECTION

The site selection criteria are divided into two categories. The first category consists of those criteria which are considered essential for the successful development and implementation of the differential police response to calls for service field test program. The second category consists of a criterion which, while not essential, would enhance the validity of the evaluation findings of the field test program.

A. Criteria Considered Essential to Program Development and Implementation

- The prospective site must be a city police department serving a population between 100,000 to 500,000.
- The prospective department must have direct control over dispatch operations for police services.
- The prospective department must not currently be in the process of implementing either computer aided dispatch or 911 and must not be anticipating implementing either of these during the field test period. This criterion does not preclude departments which already have these systems operational.
- The prospective department must not have any organizational, political, or legal constraints that would impede the process of implementation. These include, but are not restricted to: contractual prohibitions; opposition from the local police union; and absence of an approved Equal Employment Opportunity Plan.
- The prospective department must not have, or be in the process of implementing, any other programs which would impede the evaluation of the field test.
- There must be an indication of interest and cooperation and written commitment from key officials (mayor or city manager) supporting the police chief's interest in the program.

- The prospective department must agree to provide necessary personnel for staffing the Expeditor Unit and for supervising the Unit.
- The prospective department must provide a profile of its citizen-initiated calls for service workload, preferably for the most recent 12-month period. At a minimum, this profile should include:

- The number and percentage of calls for service for each signal code used by the department by time of day (by hour, if available, or by watch); and
- The types of response strategies presently used.

It is also desirable that the departments provide the following data elements, if available:

- Response time defined by two intervals: delay time (time between receipt of call and dispatch of a unit) and travel time (time between dispatch of a unit and arrival of the unit) for calls, by signal code; and
- The number and percentage of calls for service (by signal codes, if available) handled by immediate mobile, delayed mobile, and non-mobile techniques.

- The prospective department must agree to participate in a planning process with the other selected sites following grant award for the purposes of obtaining consensus on a uniform call classification scheme and on a certain level of uniformity in the types of responses for given categories of calls.
- The prospective department must agree to participate in the evaluation of the field test and adhere to the evaluation design requirements.

B. Criterion Facilitating Evaluation of the Field Test Program

The following criterion, while not considered essential, would greatly enhance the validity of the program findings. It should be considered as a preferred criterion which will be applied if there are a number of candidates who meet the essential criteria spelled out above.

- Preference will be given to departments which agree not to undertake formal new programs during the field test period for using the freed up time which might result from the implementation of a differential response system.

GLOSSARY

Appointment Response: Response by a patrol unit at a designated time arranged with the citizen.

Beat: A designated geographic area to which a single patrol car is assigned. Also called sector in some departments.

Calls for Service Workload: Number of calls for service responded to by a patrol unit weighted by corresponding service times.

Citizen-Initiated Calls for Service: All requests for police assistance made by citizens, including alarms, and received by the communications center. For purpose of the field test, this definition does not include on-view incidents requiring police intervention.

Critical Calls: Calls for service where an immediate or emergency police response is necessary to prevent or treat injuries or interdict criminal activities. Most in-progress calls where suspects or evidence are available would be considered critical. These are time critical calls where an officer can take some kind of prevention, deterrence, or apprehension action, or provide other emergency services.

Delay Time: Length of time between when a call for service is received by the police and when a radio dispatcher dispatches a patrol unit to handle the call. It includes two intervals: the length of time between when a call is received by the complaint operator and when sent to the dispatcher, and the length of time between when the dispatcher receives the call and dispatches a patrol unit.

Delayed Mobile Response: Response to a call for service by a patrol unit which is not an immediate response. There are two options for delayed mobile response: 1) response within 30-40 minutes, or 2) appointment response.

Efficiency: Extent to which citizen-initiated calls for service workload can be handled at a minimum cost in resources.

Expeditor Unit: A unit within the department which will handle calls requiring non-mobile responses. At a minimum, the unit will handle telephone reports and referrals to non-police agencies. It might also handle mail-in and walk-in reports.

Immediate Mobile Response: Response to calls for service by a patrol unit as soon as possible.

Mobile Response: Response to calls for service by a patrol unit.

Non-calls for Service Activities: Patrol resources which are not used for responding to calls for service. Includes administrative tasks; officer-initiated activities; and preventive or directed patrol activities.

Non-critical Calls: Calls for service which require a response by either police or other non-police agency but not on an immediate or emergency basis.

Non-mobile Response: Response to calls which can be handled by telephone reports, walk-in reports in response to police direction, mail-in reports, and referrals to non-police agencies.

Officer Workload Utilization: Ratio of calls for service workload to number of available officer hours or, equivalently, the patrol unit utilization factor divided by the number of officers per unit.

Patrol Unit: Any police vehicle or other unit normally assigned to call response, i.e., cruiser, wagon, foot, mounted, scooter, motorcycle, marine unit.

Patrol Unit Utilization: Fraction of time a patrol unit is responding to calls for service during an eight hour tour or, equivalently, the ratio of calls for service workload to number of available unit hours.

Response Time: Length of time between when a call for service is made and when a patrol unit arrives at the scene of the incident. It includes delay and travel time.

Service Time: Length of time between when a dispatcher sends a patrol unit to handle a call and when the unit indicates that the service is completed. It includes travel time and on-scene time.

Travel Time: Length of time between when a dispatcher sends a patrol unit to handle a call and when the unit arrives at the scene of the incident.

SOURCE MATERIAL FOR THE DIFFERENTIAL POLICE RESPONSE
TO CALLS FOR SERVICE PROGRAM TEST DESIGN

Antunes, George, and Scott, Eric J. Calling the Cops: Police Telephone Operators and Citizen Calls for Service. Bloomington, Indiana: Indiana University, 1980.

Colton, Kent, and Brandeau, Margaret. A National Assessment of Police Command, Control, and Communications Systems, An Interim Report. Cambridge, Massachusetts: Public Systems Evaluation, 1979.

Gay, William; Shell, Theodore; and Schack, Stephen. Improving Patrol Productivity, Vol. 1, Routine Patrol, Prescriptive Package. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1977.

Greenberg, Ilene, and Wasserman, Bob. Managing Criminal Investigations, Program Design. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1979.

Kansas City, Missouri Police Department. Directed Patrol Project, Final Evaluation Report, January - December, 1979. Kansas City, Missouri: Kansas City Police Department, 1980.

Kansas City, Missouri Police Department. Response Time Analysis, Executive Summary. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1978.

Maxfield, Michael G. Service Time, Dispatch Time, and Demand for Police Services: Helping More by Serving Less. Bloomington, Indiana: Indiana University, 1979.

Pate, Tony; Ferrara, Amy; Bowers, Robert; and Lorence, Jon. Police Response Time: Its Determinants and Effects. Washington, D.C.: Police Foundation, 1976.

Pepinsky, Harold E. "Police Patrolmen's Offense-reporting Behavior". Journal of Research in Crime and Delinquency, Vol. 13, No. 1, January, 1976, pp. 33-47.

Scott, Eric J. Case Disposition: An Assessment of Literature on Police Referral Practices. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1979.

Sumrall, Raymond; Roberts, Jane; and Farmer, Michael. Differential Police Response Strategies Study. Washington, D.C.: Birmingham Police Department and Police Executive Research Forum, 1980.

Tien, James; Simon, James; and Larson, Richard. An Alternative Approach in Police Patrol: The Wilmington Split-Force Experiment. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice, 1978.

END