NATIONAL EVALUATION PROGRAM:

PHASE I REPORT

TRADITIONAL PREVENTIVE PATROL: A SITE-SPECIFIC EVALUATION DESIGN

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INTRODUCTION

This volume is the fifth and last of a series which describes the results of a national evaluation of traditional preventive patrol. The first volume, ISSUES of TRADITIONAL PREVENTIVE PATROL: A Review and Assessment of the Literature, critically reviewed the literature describing patrol operations. Textbooks and manuals on police management and patrol, research reports, and the documented experiences of police departments were reviewed and assessed from the perspective of their contribution to information describing patrol operations. The second volume was a compilation of working notes describing site visits to police and sheriffs' departments throughout the country where attempts are being made to improve patrol operations. The third volume, TRADITIONAL PREVENTIVE PATROL: An Analytical Framework and Judgemental Assessment, developed an analytical framework which constitutes, perhaps, the first systematic description of the traditional preventive patrol function. The framework displays the inter-relationships among the goals and objectives of preventive patrol and the resources and processes which are used to achieve them.

The fourth volume, TRADITIONAL PREVENTIVE PATROL: A Design for Phase II Research, describes research projects which address five inter-related topics: task assignments, modes of transportation, officer characteristics, deployment, and supervision. The research projects proposed address each of these areas, and were designed to increase the level of knowledge regarding the contribution of each aspect of patrol to the overall patrol function.

These four volumes are summarized in Summary Report: A Review and Assessment of Traditional Preventive Patrol.

This volume, TRADITIONAL PREVENTIVE PATROL: A Site-Evaluation Design, describes a conceptual approach for use by police administrators to determine and examine critically their patrol operations and their opportunities for improving patrol effectiveness. It is written more as an essay offering guidelines to evaluation than as a detailed, step-by-step methodology. There are several reasons for this approach. The first, and perhaps most important, is that this evaluation design is based upon an assessment of patrol operations which concluded that very little empirically valid data exist within departments, and that valid and reliable measures of patrol effectiveness are lacking. The second reason is that patrol operations vary considerably among individual departments; it would not be appropriate to offer a single, rigorous evaluation design for application by departments with different characterstics.

In sum, the following essay, which has three sections, describes a conceptual approach for evaluating patrol operations. The evaluation design offers guidelines which, it is believed, can be readily adapted by patrol administrators to fit their own unique operations.

The first section summarizes the model of traditional preventive patrol which was developed in the third volume of this report, TRADITIONAL PREVENTIVE PATROL: An Analytical Framework and Judemental Assessment, and upon which this evaluation design is based. More detailed explanations of the model are found in both the Assessment and the Summary volumes.

The second section describes an approach for evaluating patrol operations. In priciple, the design calls for a detailed examination of the entire patrol system, not just of 1 or 2 highly visible or problematic components of patrol. The evaluation design allows for the use of critical judgements which are based upon the experience and available data within individual departments.

The third section of this essay discusses briefly the benefits to be obtained from applying this first-order evaluation design.

TRADITIONAL PREVENTIVE PATROL:

A Site-Specific Evaluation Design

--Practical Guidelines for the Evaluation of Patrol--

The Model of Traditional Preventive Patrol

This evaluation design is based upon a descriptive model of preventive patrol which was developed in the volume TRADITIONAL PREVENTIVE PATROL: An Analytical Framework and Judgemental Assessment. The model deals with: input requirements, the resources used by patrol supervisors; processes, the methods by which these inputs are combined and directed to achieve strategic and tactical objectives; strategic and tactical objectives, the immediate operating concerns of the department; patrol goals, the desired effects of patrol upon the community; and operating constraints, the socio-economic, demographic, geographic, and other factors which limit preventive patrol effectiveness. Exhibit I presents a flow diagram of this model.

The model was developed around the most commonly accepted goals of patrol: deterrence, apprehension, provision of non-crime services, provision of a sense of security and community satisfaction with the police, and the recovery of stolen goods. The model depicts how these goals are achieved.

The inputs and processes which are available to patrol administrators are described as: officer characteristics, transportation modes, deployment practices, supervision, and in-service task assignment. These are the factors which are generally acknowledged to be under direct control of patrol administrators. Administrators have considerable control over selecting the types of officers to assign to patrol, determining the patrol mode to use, developing deployment practices, supervising patrol officers, and assigning in-service tasks. Manipulation of these 5 factors affect the degree to which the strategic and tactical objectives of preventive patrol are achieved: desired levels of patrol visibility, predicability of officer movement, response time, preventive patrol activity, service provision, officer-community compatability, officer knowledge about the community, and officer corruption and misconduct. The technology and knowledge needed to pursue these objectives effectively are, for the most part, known.

The 8 strategic and tactical objectives are, in this model of traditional patrol, presented as the operational links between patrol inputs and processes and the achievement of patrol goals. Patrol administrators, as they pursue these objectives, are attempting to achieve the 5 basic patrol goals.

In sum, the model illustrates how patrol administrators, on the basis of implicit and explicit assumptions, manipulate the resources (inputs) at their disposal through the processes of deployment, supervision, and task assignment to achieve the desired levels of the 8 strategic and tactical objectives. Achievement of these objectives is assumed to lead

to realization of the 5 basic patrol goals.

The evaluation design presented in this report places considerable emphasis on the analysis of the assumptions upon which patrol administrators base their operations. This follows from the conclusion that few of the traditional and emerging assumptions about patrol have been adequately examined in order to determine their merit.

A Site-Specific Evaluation Design

The evaluation design proposed here provides the basis for a detailed examination of a department's patrol division. There are 3 components. The proposed evaluation begins with an analysis of the assumptions governing patrol operations; assumptions are identified and reviewed, and any inconsistencies are resolved. This first component concludes with a determination of the level of consistency between operating assumptions and the activities of the patrol division.

The second component of the evaluation design examines the relationships between the activities of the patrol division and the strategic and tactical objectives of patrol. Objectives are reviewed in terms of the levels desired and those actually realized. Efforts to realize the desired levels of objectives are shown to be accomplished by changing operating assumptions and patrol activities.

The third component deals with a review of patrol goals, taking into account the inherent difficulties in measuring goal attainment. This component concludes with a general rule for making changes in patrol: Opportunities for a "least cost approach" occur when proposed increases in costs produce no perceived improvement in patrol. These three components, and their relationships, are shown in schematic form in Exhibit II. Each is discussed below in more detail.

Component 1: Analyze All Assumptions Governing Patrol Operations.

Each aspect of patrol is based upon either implicit or explicit assumptions. In general, departments pursue tactical and strategic objectives according to their assumed effect upon the achievement of patrol objectives.

The proposed evaluation begins with a departmental determination of their operating assumptions, as held by officers and managers at various levels throughout the department, which governs patrol operations. Levels to consider within the patrol division might include: division commander, station commander, watch or shift commander, street supervisors, and patrol units. Levels to consider outside the patrol division might include: chief's office, community relations, dispatch, and recruitment and training.

The assumptions of each level to be surveyed can be determined through use of an analytical framework described in the Summary.[1] Exhibit III summarizes the universe of assumptions relating patrol strategies and tactics to the goals of patrol. Charts of this type should be completed

1 Summary Report: A Review & Assessment of Traditional Preventive Patrol. University City Science Center (Washington, DC: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Lae Enforcement & Criminal Justice, 1976), pps.27-31

for each level in the department which is believed to have a significant effect upon patrol operations. However, since Exhibit III is believed to display the prevailing assumptions, it may be possible to review copies of Exhibit III with representatives from each level of a department, noting any differences.

After the assumptions relating patrol strategies and tactics to goals are determined, it is necessary to determine the universe of assumptions concerning the efficacy of alternative approaches to deployment, supervision, task assignment, selection of officer characteristics, and selection of patrol mode. The prevailing assumptions upon which these approaches are based are described in the Summary and presented here as Exhibits IV, Deployment;[2] V, Supervision;[3] VI, Task Assignment;[4] VII, Selection of Officer Characteristics;[5] and VIII, Selection of Patrol Mode.[6] The assumptions behind a patrol divisions' strategies and tactics can be determined by reviewing these charts with representatives from those departmental levels which affect the patrol division.

Examination of charts of this type will enable identification of inconsistencies in assumptions governing, first, the relationship between tactics and strategies and patrol goals and, second, the efficacy of alternative patrol activities.

At this point in the evaluation, it is necessary to resolve inconsistencies between the tactical and strategic assumptions and patrol goals. The method of resolving such inconsistencies can vary widely.

Some inconsistencies will be the result of misunderstandings, and their resolution may result naturally from their identification and subsequent discussion. Others may be the result of disagreements, perhaps requiring the involvement of command-level officials. Still other inconsistencies may result from factors such as lack of resources, court orders, and tradition which constrain operations at various levels regardless of the level of understanding or agreement. Resolution of inconsistencies due to external factors of this type would require various policy and management actions.

In practice, it is probably impossible to resolve all inconsistencies among the assumptions governing patrol. However, their identification alone should aid patrol administrators in understanding the reasons behind many apparent strengths and weaknesses in their patrol operations.

This component concludes with the determination of the degree of consistency between operating assumptions and actual patrol activities. Patrol activities can be characterized according to methods of deployment, task assignment, mode selection, officer characteristic solution, and supervision.

2 *ibid*, Exhibit IV, pp. 37-41
3 *ibid*, Exhibit V, pp. 44-45
4 *ibid*, Exhibit VI, pp. 49-50
5 *ibid*, Exhibit VII, pp. 57-61
6 *ibid*, Exhibit VIII, pp. 64-71

Examples of how the degree of consistency between operation assumptions and activities might be stated are:

Assumption	Activity
Rapid response to all calls for service is necessary.	Low response times occur only for crimes in progress and emergencies.
Citizens want opportunities to get to know patrol officers.	Patrol officers seldom leave their vehicles.
High supervisor-patrol officer ratios are desired.	There are relatively few supervisors.
Officers should be of the same racial background as the neighborhood they patrol.	No efforts are made to match patrol officer-neighborhood characteristics.

At this stage of the evaluation, it is only necessary to determine the inconsistencies between operating assumptions and activities, not resolve them.

Component 2: Analyze the Impact of Patrol Activities Upon Strategic and Tactical Objectives.

This component of the evaluation focuses upon the achievement of strategic and tactical objectives. First, the desired levels of each objective must be specified. Each of the 8 objectives -- visibility, predictabilty of movement, response time, preventive patrol activity, service provision, officer compatability with community, officer knowledge about the community, and officer misconduct and corruption -- must be reviewed with the intent to establish its desired level. The extent to which these objectives can be quantified will vary. In some cases, the nature of the objective itself will determine how it can be quantified. It is probably easier, for example, to quantify desired levels of response time than desired levels of officer compatability with the community. Other factors affecting the establishment of desired levels of objective achievement include data availability and analytical capabilities. Where it is not feasible to determine the desired level, it may be sufficient to indicate whether increases or decreases from current levels are desirable. As a beginning, available data describing each of the eight objectives should be assembled and reviewed.

Even where data is not available to quantify each of the objectives, it should be possible to determine judgementally how desired levels are being approached.

Where desired levels are being achieved or approached, this indicates that on-going activities may be satisfactory. Any inconsistencies between these activities and their supporting assumptions should be resolved by modifying assumptions. Where this condition exists, the assumptions upon which patrol activities are believed to be supported are faulty.

Changing activities to better reflect assumptions may, in fact, detract from objective achievement. Generally, where objectives are being achieved by activities which conflict with assumptions, it may be necessary only to modify the assumptions to make them consistent with activities.

Where objectives are not being realized, it is necessary to first determine if activities and assumptions are consistent. Where there are inconsistencies and the assumptions are believed to be valid, program adjustments are required to make activities consistent with assumptions. If assumptions and activities are consistent, yet program objectives are not realized, assumptions must be reviewed and modified and new programs developed.

In sum, this component identifies how the strategic and tactical objectives of patrol are achieved, and indicates where adjustments need to be made in either program assumptions or patrol activities.

Component 3: Analyze the Impact of the Strategic and Tactical Objectives Upon Goal Attainment.

Achieving the eight strategic and tactical objectives is assumed to result in attaining five goals of patrol: deterrence, apprehension, provision of a sense of security and confidence in the police, provision of non-crime services, and recovery of stolen property. As objectives are achieved, changes in goals need to be monitored through available crime and service statistics and community and departmental surveys. Where goals are not satisfactorily attained, a review of operating assumptions and activities should be instituted. Changes in assumptions should be made with respect to the achievement of patrol goals.

A general rule which can be followed in changing assumptions and activities is to limit resource expenditures at the level beyond which no improvement in goal attainment is percieved to result.

Exhibit II, again depicts the relationships between these three components. This evaluation design is conceptually quite simple, and does not require the use of highly quantified data. Its application can begin with the use of judgemental data which represent the experiences and opinions of personnel throughout the department. However, efforts should be made to incorporate statistically valid data in the evaluation; otherwise, its use could become very self-serving and biased.

Benefits of this Site-Specific Design

This evaluation design, again, is conceptually simple. Its application should provide patrol administrators with a basic understanding of the explicit assumptions governing their patrol operations, the effects of various activities upon strategic and tactical objectives and, subsequently, the perceived effects of these objectives upon patrol goals. Minimumly, use of this evaluation design should aid administrators in establishing a perspective from which to consider changes in patrol operations.

The design requires considerable reflection upon the preventive patrol operations of a department. Understanding tne degree to which assumptions and activities are consistent should increase an administrator's awareness of the strengths and weaknesses of patrol. Understanding the relationships among activities, objectives, and goals should aid in the identification of opportunities for improving patrol.

In sum, this evaluation design is first intended to assist patrol administrators in understanding their patrol operations quickly and efficently. Following this, it is hoped that opportunities for change would be identified which, if instituted, would result in percieved improvements in patrol operations. Finally, this approach to evaluation should make it possible for patrol administrators to design a more statistically and methodologically rigorous evaluation system which will meet their own unique needs.

EXHIBIT I

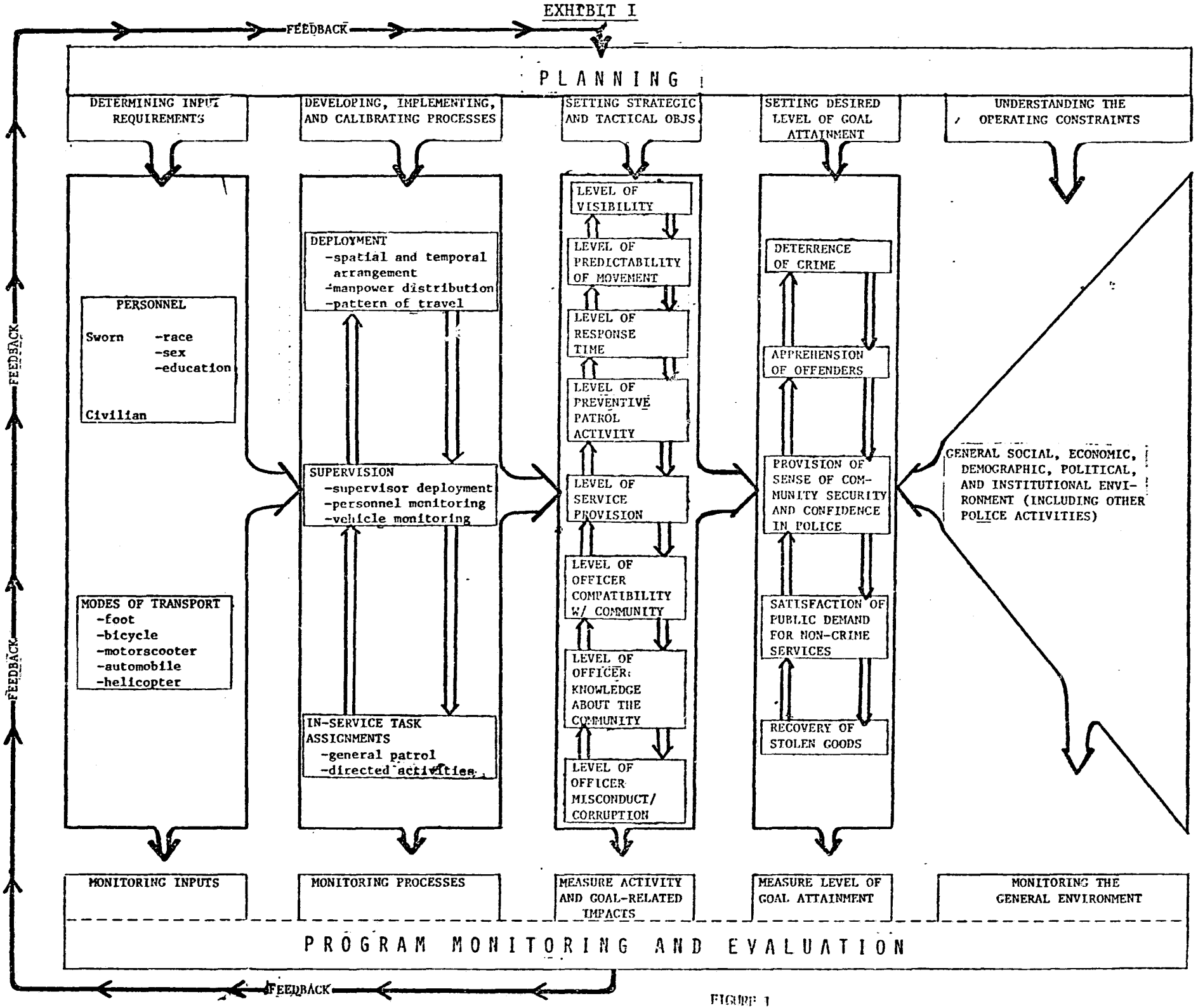

FIGURE 1

EXHIBIT II

FLOW DIAGRAM: SITE-SPECIFIC EVALUATION DESIGN

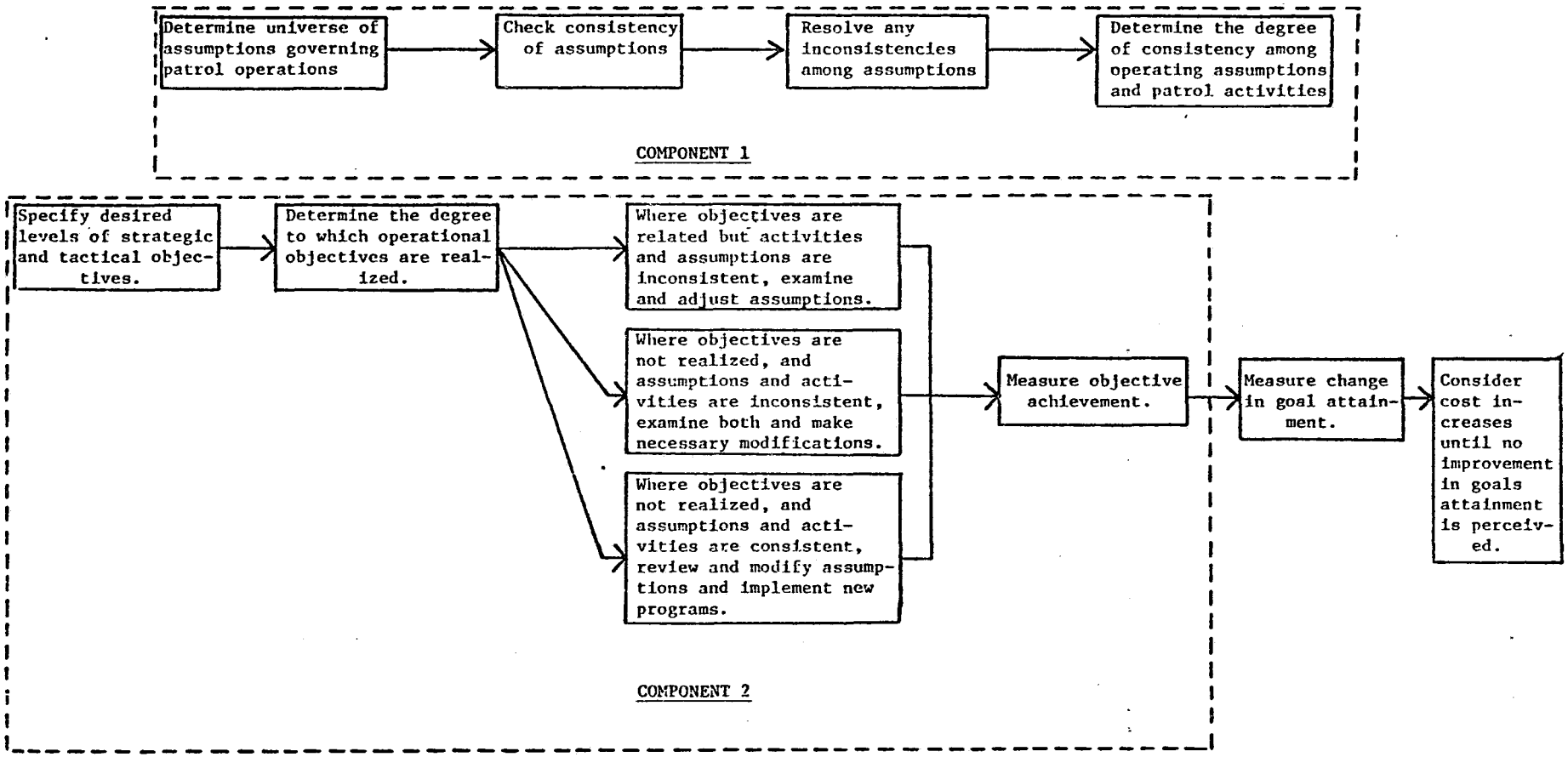

EXHIBIT III

PREVAILING TACTICAL AND STRATEGIC ASSUMPTIONS

OBJECTIVES \ GOALS	DETERRENCE	APPREHENSION	PROVISION OF NON-CRIME RELATED SERVICES	COMMUNITY SECURITY AND SATISFACTION	STOLEN GOODS RECOVERY
LEVEL OF VISIBILITY	The higher the level of visibility, the greater the deterrent effect of the patrol force.	The higher the level of visibility, the less likely the patrol officer is to intercept a criminal in the act of a crime.	Visibility has little effect on service provision, all else being equal. The effect which does exist derives from the enhanced ability of the citizen to hail an officer on patrol.	The higher the level of visibility, the greater the sense of felt security and satisfaction with the police.	Through its impact on apprehension, the level of visibility affects goods recovery (but not necessarily the prompt return to the rightful owner).
LEVEL OF PREDICTABILITY OF MOVEMENT	The less able the would-be criminal is to predict the presence of the patrol unit, the higher the deterrent effect of the patrol activity.	The less predictable the movement of the patrol unit, the more likely that the unit will intercept a crime in progress and apprehend the perpetrator.	The level of predictability of movement has no effect on service provision, all else equal.	The level of predictability of movement has an indirect effect upon felt community security and satisfaction through its direct impact upon deterrence and apprehension.	Through its impact on apprehension, the level of predictability affects the level of goods recovery (but not necessarily the prompt return to the rightful owner).
LEVEL OF RESPONSE TIME	The lower the response time, the greater the deterrent effect of the patrol operation as the would-be perpetrator perceives a heightened probability of apprehension.	Particularly with regard to responding to criminal acts in progress, the lower the response time, the higher the probability of apprehension.	The lower the response time, the more rapidly the service can be performed. With regard to emergency medical situations and to other circumstances that could escalate into criminal acts, response time is critical to effective service provision.	The lower the response time to any and all calls for service, the greater the level of felt security and community satisfaction. (We note however that a step function exists with regard to perceptions of elapsed time. Therefore, small reductions in time are likely not perceived.)	Through its impact on apprehension, the level of response time affects the level of goods recovery (but not necessarily the prompt return to the rightful owner).

EXHIBIT III

PREVAILING TACTICAL AND STRATEGIC ASSUMPTIONS
continued

OBJECTIVES \ GOALS	DETERRENCE	APPREHENSION	PROVISION OF NON-CRIME RELATED SERVICES	COMMUNITY SECURITY AND SATISFACTION	STOLEN GOODS RECOVERY
LEVEL OF PREVENTIVE PATROL	The higher the level of preventive patrol, the greater the deterrent effect of the patrol force. The more aggressive the activity of the patrol, the higher the deterrent effect due to the "communication" of increased presence and attentiveness to duty.	The higher the level of aggressive activity, the greater the level of apprehensions.	All else equal, the greater the level of aggressive activity, the less time available for the provision of non-crime related services.	Countervailing Assumptions Held Equally: 1. The greater the level of aggressive activity, the greater the level of security and satisfaction due to the increased level of attainment of the goals of deterrence, apprehension, and goods recovery. 2. The greater the level of aggressive activity, the more dissatisfied the general public as they come to view the police as a hostile force.	The more aggressive the patrol force, the greater the level of goods recovery (but not necessarily the prompt return to the rightful owner).
LEVEL OF OFFICER KNOWLEDGE ABOUT THE COMMUNITY	Countervailing Assumptions Held Equally: 1. The level of officer knowledge does not affect the level of deterrence (assuming a random patrol model). 2. The higher the level of officer knowledge, the more thorough the patrol of areas at times of high crime opportunity and, therefore, the greater the deterrent effect.	Countervailing Assumptions Held Equally: 1. The level of officer knowledge has no effect on the level of apprehension. 2. The greater the knowledge, the more likely the officer will intercept crimes in progress, and the more likely to be able to find a fleeing or hiding suspect and search an area.	The greater the level of knowledge, the more able the officer to provide effective and efficient services.	The greater the level of knowledge, the better able to tailor the patrol activity to the perceived needs of the residents, thereby enhancing their level of felt security and satisfaction.	Through its impact on apprehension, the level of community knowledge will affect the level of goods recovery, and thus the assumptions are contradictory. Note in addition, the level of knowledge enhances the ability to conduct a search for stolen cars in particular.

EXHIBIT III

PREVAILING TACTICAL AND STRATEGIC ASSUMPTIONS
continued II

OBJECTIVES \ GOALS	DETERRENCE	APPREHENSION	PROVISION OF NON-CRIME RELATED SERVICES	COMMUNITY SECURITY AND SATISFACTION	STOLEN GOODS RECOVERY
LEVEL OF SERVICE PROVISION	All else equal, the higher the level of non-crime related service provision, the lesser the availability of units for preventive patrol, and the lower the deterrent effect of the force.	All else equal, the higher the level of non-crime related service provision, the higher the response time to crime related calls for service and therefore the lower the probability of apprehension. In addition, non-crime related services detract from the time available to enforce local ordinances.		The higher the level and quality of service provision, the greater the level of felt security and satisfaction with the police.	Through its impact on apprehension, the level of service provision affects the level of goods recovery. In addition, the amount of time the unit spends out of service affects the time available to check for stolen cars.
LEVEL OF OFFICER COMPATIBILITY WITH THE COMMUNITY (SIMILARITY OF RACE AND LANGUAGE SKILL)	Countervailing Assumptions Held Equally: 1. Compatibility has no effect upon deterrence. 2. Compatibility enhances respect for the officer and thereby respect for the law, increasing the deterrent effect of patrol. 3. The higher the level of compatibility, the greater the likelihood of officer corruption and, therefore, the lower the deterrent effect.	Countervailing Assumptions Held Equally: 1. Compatibility has no effect upon apprehension. 2. Compatibility improves apprehension level as it engenders increased community cooperation with the police. 3. Compatibility increases the likelihood of corruption and thereby has a negative effect upon apprehension of those so protected.	The greater the level of officer compatibility, the more efficiently and adequately the officer is able to provide non-crime related services.	The greater the level of officer compatibility, the greater the level of felt security and citizen satisfaction.	Through its impact on apprehension, the level of compatibility affects the level of goods recovery.

EXHIBIT III

PREVAILING TACTICAL AND STRATEGIC ASSUMPTIONS

continued

STRATEGIES \ GOALS	DETERRENCE	APPREHENSION	PROVISION OF NON-CRIME RELATED SERVICES	COMMUNITY SECURITY AND SATISFACTION	STOLEN GOODS RECOVERY
LEVEL OF OFFICER CORRUPTION	The lower the level corruption, the greater the deterrent effect of the patrol force.	The lower the level of corruption, the greater the apprehension level of the patrol force.	The lower the level of corruption, the greater equity of service provision.	The lower the level of corruption, the greater the level of felt security and satisfaction due to the increased level of attainment of all other goals.	The lower the level of corruption, the greater the level of goods recovery (but not necessarily the prompt return to the rightful owner).

NOTE: *These are the prevailing assumptions which govern the operation of most all patrol forces throughout the country. There is substantially no empirically valid, reliable evidence to support any of these assumptions. However, we note that all those assumptions starred are supported by both a compelling logic and, in most cases, a body of experiential and/or tentative research findings.*

EXHIBIT IV

A UNIVERSE OF ASSUMPTIONS

FACTORS / STRATEGIES	DISPATCH PROCEDURES (including such procedures as: dispatch to calls for service on an as-received basis; priority screening and referral; vehicle location and status screening; and computer aided dispatch.)	SETTING OF BOUNDARIES (including such considerations as: workload analysis; the definition of neighborhood boundaries; travel time; and population density.)
LEVEL OF VISIBILITY	1. AVM and status screening systems by controlling level of response facilitate maintenance of desired level of visibility across the jurisdiction. 2. Referral of non-crime related calls to other agencies or non-sworn personnel increases visibility of patrol units.	1. Boundaries determined on the basis of workload considerations maximize deterrent effect as they yield level of patrol visibility based on historical projections of total service demands. Visibility level becomes a function of incident density and yields increased visibility in areas of high demand. 2. Boundaries determined on the basis of population density equalize visibility without consideration of incident levels. . . . . . . Travel time considerations affect the level of visibility regardless of population or workload considerations, as visibility of vehicle is a function also of speed and distance traveled.
LEVEL OF PREDICTABILITY OF MOVEMENT	When level of predictability of movement is a function of assigned patterns of travel, AVM and status screening systems facilitate maintenance of assigned route.	
LEVEL OF RESPONSE TIME	1. If availability of units is insufficient to allow immediate dispatch in response to all calls for service, dispatch on an as-received-basis may slow response to emergency situations and crimes in progress. 2. Priority screening facilitates immediate dispatch and thereby minimal response time to emergency situations and crimes in progress. 3. AVM systems and status screening permit determination of closest units for dispatch, minimizing response time. 4. Referral of non-crime related calls to other agencies or non-sworn personnel results in improved response time, since more units are available for dispatch.	1. Workload considerations, by placing units in proximity of anticipated incidents, minimize response time by minimizing distance. 2. Travel time considerations in setting boundaries minimize response time by increasing density of units in congested areas.
LEVEL OF PREVENTIVE PATROL ACTIVITY	1. AVM systems assist in controlling level of response to calls and monitoring officer activity thereby assuring maximum time availability for patrol activity. 2. Referral of non-crime services results in increased levels of patrol activity, since more time is available for patrol.	Boundaries based on workload considerations modified on the basis of a "desired level of patrol" facilitate availability of units for aggressive activity.

GOVERNING DEPLOYMENT

ESTABLISHING PATTERN OF TRAVEL (including such alternatives as: officer discretion; repetitive routing; and random travel.)	ASSIGNMENT OF EXTRA UNITS (including such considerations as: changes in anticipated workload and population density; and the utilization of civilian personnel.)
1. Officer discretion improves deterrence as the officer, knowledgeable of potential targets within the beat, projects a level of visibility where it has the greatest effect. 2. Repetitive routes equalize visibility across the routes traveled which themselves are determined on the basis of hazard formulas. Deterrence is maximized as visibility is maximized where it has the greatest effect. 3. Random travel equalizes visibility throughout the beat, combining equal visibility with high level of unpredictability, thereby maximizing deterrence and apprehension.	1. Varying number of units assigned to a given beat on the basis of workload matches the level of visibility to the density of incidents and thereby maximizes levels of deterrence and community satisfaction and security. Note: this is a function of community perception over time. 2. An *ad hoc* approach to varying the number of units is realized by the magnetic draw of units into areas experiencing high demand, thereby increasing visibility as a function of demand and enhancing deterrence.
Random travel maximizes the uncertainty associated with the units arrival at a given location thereby maximizing the deterrent effect as the likelihood of intercepting crimes in progress is increased.	
1. Officer discretion, by yielding patrol travel in areas of potential targets, minimizes response time. 2. Repetitive travel on routes of high target density minimizes response time. 3. Random travel, by equalizing the probability of movement across all points on the beat, minimizes reponse time given equal likelihood of incidents occuring at all points throughout the beat.	Varying the number of patrol units within beats on the basis of workload projections minimizes response time by guaranteeing maximum availability of units for response, and by clustering units in vicinity of anticipated demands. Typical calculations establish the number of units necessary to respond to a level of calls for service within the desired response time.
Patterns of travel based on repetitive routes yield aggressive activities in areas of high crime probability thereby maximizing effectiveness. Patterns of travel based on officer discretion yield aggressive activities in areas of high crime probability.	Varying civilian and sworn officer levels on the basis of workload considerations and then taking into account the desired level of preventive patrol activity, provides for the availability of units for patrol. The number of units assigned is typically derived on the basis of calculations which determine the number of units necessary to respond to calls within a given amount of time. Availability for patrol is typically treated as a residual.

EXHIBIT IV (cont.)

A UNIVERSE OF ASSUMPTIONS

continued

FACTORS / STRATEGIES	DISPATCH PROCEDURES (including such procedures as: dispatch to calls for service on an as-received basis; priority screening and referral; vehicle location and status screening; and computer aided dispatch.)	SETTING OF BOUNDARIES (including such considerations as: workload analysis; the definition of neighborhood boundaries; travel time; and population density.)
LEVEL OF SERVICE PROVISION	1. If availability of units is insufficient to allow immediate dispatch to all calls for service, dispatch on an as received basis may jeopardize the quality of service to the degree to which rapidity of response is important. 2. Priority screening facilitates immediate dispatch in response to emergency situations. 3. Computer aided dispatch facilitates determination of appropriate response. 4. AVM and status screening systems facilitate fastest response to emergency situations. 5. Referral of non-crime related services to other agencies or police divisions increases the amount of time available for crime-related services.	1. By setting boundaries to reflect the relative concentration of incidents across a jurisdiction, the proportional availability of officers to provide services of all types enhances the quality of service provision. 2. To the degree to which boundary considerations affect a minimization of response time, the provision of emergency services is facilitated. 3. By setting boundaries commensurate with neighborhood lines, officers become more cognizant of beat needs and the quality of services is thereby enhanced.
LEVEL OF OFFICER COMPATIBILITY WITH THE COMMUNITY	Computer aided dispatch facilitates assignment of appropriate officers if available and within reasonable distance to respond with the level of needed speed.	By setting boundaries commensurate with neighborhood lines, the ability to match officer characteristics to those of the community is facilitated due to homogeneity of beat population.
LEVEL OF OFFICER KNOWLEDGE ABOUT THE COMMUNITY	AVM and status screening systems facilitate the assignment of the beat units to calls within the beat and further enable the maintenance of beat integrity which serves to enhance the level of knowledge.	By setting boundaries commensurate with neighborhood lines, the ability of the officer to learn the needs, problems, and characteristics of the beat is facilitated due to beat homogeneity.
LEVEL OF OFFICER MISCONDUCT OR CORRUPTION	AVM and status screening systems allow dispatchers to monitor the activities of officers, thereby minimizing the opportunity for misconduct or corruption.	By setting boundaries commensurate with neighborhood lines and then matching officer characteristics to those of a homogeneous beat, the opportunity for corruption increases.

GOVERNING DEPLOYMENT

continued

ESTABLISHING PATTERN OF TRAVEL	ASSIGNMENT OF EXTRA UNITS
(including such alternatives as: officer discretion; repetitive routing; and random travel.)	(including such considerations as: changes in anticipated workload and population density; and the utilization of civilian personnel.)
1. To the degree to which travel patterns effect a minimization of response time, the provision of emergency services is facilitated.	By varying the level of officers on the basis of workload projections, availability of officers for service provision is affected.
Patterns set on the basis of officer discretion allows an officer to apply his knowledge of the beat in patrol, yielding higher effectiveness. The lower the level of officer knowledge concerning the beat, the more efficacious the random pattern.	
Officer discretion in travel pattern creates a heightened opportunity to neglect patrol duty. Travel over assigned general routes can be more easily monitored.	By varying the number of units on the basis of workload considerations, officers perceive a heightened need for their presence, "best" use is made of their time, and a greater attention is paid to duty minimizing misconduct.

EXHIBIT V

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL SUPERVISION

Objectives	(including a consideration of alternative approaches to officer call-in; street deployment of supervisory personnel; officer/ supervisor ratios; and frequency of beat and partner rotation.)
LEVEL OF VISIBILITY	It is generally assumed that the greater the level of officer-supervisor contact and the greater the deployment of supervisory personnel, the more attention paid by officers to all aspects of duty and the more closely officer activity conforms to the desired quality and level. The primary, generally applicable, countervailing assumption is that by adjusting the level of officers deployed on the basis of projected need, the heightened level of activity and sense of importance increases patrol officer motivation and attention to duty. This in turn may substitute, to a degree, for intense supervision. Additional countervailing assumptions noted where appropriate.
LEVEL OF PREDICTABILITY OF MOVEMENT	
LEVEL OF RESPONSE TIME	
LEVEL OF PATROL ACTIVITY	
LEVEL OF SERVICE PROVISION	Frequent beat reassignment detracts from the officers level of knowledge about the beat and diminishes the quality of service provision.
LEVEL OF OFFICER COMPATABILITY WITH COMMUNITY	Ability to match officer and beat characteristics is undermined by the frequent reassignment of beats.
LEVEL OF OFFICER KNOWLEDGE ABOUT COMMUNITY	Level of officer knowledge about beat is limited in situations where frequent reassignment of beats is practiced.
LEVEL OF OFFICER MISCONDUCT AND CORRUPTION	Increased motivation and activity, resulting from varying the number of officers deployed in direct relation to the projected level of service demands, may substitute for a certain degree of supervision.

EXHIBIT VI

A UNIVERSE OF ASSUMPTIONS GOVERNING IN-SERVICE TASK ASSIGNMENTS

(including a consideration of dispatched crime and non-crime related responses, officer initiated activities, and routine preventive patrol responsibilites.)

OBJECTIVES	
LEVEL OF VISIBILITY	1. A clear differentiation between response and patrol responsibilities maintains the integrity of the preventive patrol function and as such the level of desired patrol visibility. 2. Individual initiatives, e.g., aggressive patrol, reinforce the perception of visibility. 3. Task specific patrol activities, as opposed to routine patrol, convey a level of visibility commensurate in impact to that of general patrol while making optimal use of officer time and placing officers in areas of highest need. 4. Routine preventive patrol communicates the highest level of visibility.
LEVEL OF PREDICTABILITY OF MOVEMENT	A clear differentiation between response and patrol responsibilities facilitates maintenance of desired level of predictability of movement throughout beats, because the activities of a predetermined number of units are not disrupted by calls for service.
LEVEL OF RESPONSE TIME	1. A clear differentiation between response and patrol responsibilities facilitates fastest response to calls for service. 2. Task specific patrol activities, selectively placing officers in areas being victimized by particular types of crimes, minimizes response time to calls for service from those areas. 3. Traditional undifferentiated patrol force facilitates fastest response.
LEVEL OF PATROL ACTIVITY	1. A clear differentiation between response and patrol responsibilities facilitates attention of the non-response units to preventive patrol and to aggressive patrol activity and guarantees maintenance of the desired level of patrol. 2. General patrol force can effectively engage in desired levels of preventive patrol activity as long as a sufficient number of units are in service.
LEVEL OF SERVICE PROVISION	1. A clear differentiation between response and patrol responsibilities facilitates specialization of response units and enhances the quality of all service responses while enabling a careful monitoring of service level. In addition, the non-response units engaged in patrol can act on the basis of individual initiatives to further enhance service provision. 2. Routine patrol force can effectively provide desired level of services both through response and through individual initiatives. 3. Task specific patrol activities planned on the basis of comprehensive knowledge of the community facilitates provision of the most appropriate quality and level of services.
LEVEL OF OFFICER COMPATABILITY WITH COMMUNITY	1. Task specific patrol orientation permits greatest compatibility of officer activity with community. 2. Task assignments can be effectively accomplished irrespective of officer compatibility
LEVEL OF OFFICER KNOWLEDGE ABOUT COMMUNITY	Individual initiatives which include officer attention to learning about the beat, enhance officer knowledge of the beat.
LEVEL OF OFFICER MISCONDUCT AND CORRUPTION	General patrol activity with no direction or emphasis on individual initiatives or aggressive activity provides greatest opportunity for misconduct and corruption. This may be mitigated if the number of officers deployed is determined on the basis of need by time of day.

EXHIBIT VII

A UNIVERSE OF ASSUMPTIONS RELATING OFFICER CHARACTERISTICS TO PATROL PERFORMANCE: RACE

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
Matching an officer's race to that of the community to be patrolled improves police/community relations, facilitates the development of a working rapport with the community stimulating cooperation, enhancing officer knowledge and thereby increasing the effectiveness of all aspects of patrol.	Racial characteristics have little impact upon the ability of officers to perform effectively in any neighborhood. As minority neighborhoods are ofttimes felt to be the "toughest" assignments, considerations of race adversely effect morale of minority officers. Consideration of race limits deployment flexibility, thereby detracting from overall effectiveness.
In some instances, a failure to match racial characteristics communicates to the community a sense of an occupying force and adversely impacts on effectiveness.	It is the activity and not the race of the officer that communicates a negative image to the community.
Increased assignment of minorities to patrol, regardless of the degree of community match achieved, improves the overall image of the department and thereby enhances the performance of all functions.	Increased recruitment, assignment and promotion of minorities without regard to performance or tenure adversely effect department morale.

EXHIBIT VII (cont.)

A UNIVERSE OF ASSUMPTIONS RELATING OFFICER CHARACTERISTICS TO PATROL PERFORMANCE: SEX

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
Women are capable of performing the entire range of patrol duties equally as well as men.	Women do not have sufficient physical strength or stamina to carry out many of the duties of a patrol officer. Women are not sufficiently respected by the community in the role of patrol officer to gain citizen compliance and cooperation. Women by temperament and disposition are not sufficiently aggressive to perform effectively as patrol officers.
The emotional and temperamental makeup of women serves to diffuse potentially dangerous situations.	The characteristics of women's emotional makeup, the lack of community respect for them as patrol officers, and their physical limitations create a high probability that otherwise benign events will escalate into serious confrontations.
Considerations of equal employment opportunity suggest that if any women are capable of performance equal to that of minimally satisfactory males, all women should have the opportunity to be considered for patrol assignments.	Officer selection criteria are not adequate to differentiate sufficiently between women and therefore the selection of any women would lead to an intolerably high probability of poor performance.
Women are capable of handling certain types of patrol activities better than men, e.g., domestic disputes and juvenile problems.	Domestic disputes and juvenile problems are a small subset of patrol activity. For these purposes, women should be assigned to special divisions and not to general patrol.

EXHIBIT VII (cont.)

A UNIVERSE OF ASSUMPTIONS RELATING OFFICER CHARACTERISTICS TO PATROL PERFORMANCE: CIVILIANS

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
Civilian personnel on patrol: Can effectively respond to non-crime related calls for service and can perform non-crime related support functions. Dispatchers are able to determine with a high degree of accuracy when a call can be safely and effectively responded to by a civilian officer.	Civilian personnel on patrol: Are in ever-present danger when responding to calls for service due to the possibility that any call has an associated probability of confrontation and conflict, and there is no assurance that dispatchers can differentiate between calls with a sufficient degree of accuracy to assure officer safety. (The inability of the dispatcher to so differentiate derives in part from the frequency with which needs are inaccurately described by callers.)
Are able to generate a positive rapport with the citizenry and gain increased knowledge regarding all aspects of the community due to the positive, non-adversary nature of <u>all</u> of their interactions with the public.	Generate no better rapport with the public than does a good patrol officer and detract from the public's confidence with the police due to the public's perception of an un-equipped cadre of police officers.
Enhance the morale and effectiveness of sworn officers who no longer are called upon to respond to "junk" calls or to perform "non-police" services. They are thus better able to concentrate on crime-related activity.	Detract from officer morale by placing upon them the added burden and responsibility of "keeping and getting the civilians" out of trouble.
Enhance the quality of non-crime related service provision due to a positive orientation towards the performance of such services by civilian personnel.	Detract from the overall quality of services due to the inability of the civilian to undertake and provide the full range of police responsibilities.
Facilitate the provision of non-crime related services to the public at a reduced cost to the department.	Result in only marginal cost reductions which are by no means sufficient to justify the loss of police capability which could have been attained had the number of sworn officers been increased in lieu of utilizing non-sworn personnel.
Increase the overall level of public satisfaction with the police due to the improved quality of non-crime related service provision, the more positive rapport developed with the civilian cadre, and the more positive attitude toward service provision demonstrated by the civilian officers.	Detract from the level of public satisfaction with the police due to the public's perception of an un-equipped, unqualified and un-sworn officer cadre.

EXHIBIT VII (cont.)

A UNIVERSE OF ASSUMPTIONS RELATING OFFICER CHARACTERISTICS TO PATROL PERFORMANCE: HIGHER EDUCATION

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
Higher education for patrol officers (beyond high school) improves every aspect of patrol performance which requires discretionary consideration of the officer.	Higher education has no impact on the ability of the officer to perform effectively on any aspect of patrol. Rewarding officers for higher education detracts from officer morale as officers believe that equal jobs and equal performance merit equal pay. Higher education serves to bias officer selection against inclusion of minorities in the force.

EXHIBIT VIII

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: MARKED PATROL CAR

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
The marked patrol car maximizes police visibility in the community, thereby enhancing the deterrent effect of patrol function.	The marked patrol vehicle places a barrier between the police officer and the citizen and has an adverse effect upon the level of police/citizen interaction, the level of officer rapport with the citizenry, the level of officer information about his beat, and the level of citizen satisfaction with the police. Other modes of patrol, particularly in high density commercial and residential areas, are significantly more productive. The level of patrol visibility has little impact upon the ability of the police to deter crime. High patrol visibility detracts from the potential for tactical surprise, thereby lessening the probability of intercepting crimes in progress. In high density commercial and residential areas, foot patrol or a scooter/bicycle variation provides greater visibility than does the marked patrol car. High patrol visibility in minority areas creates an image of a "hostile" or "occupying" force.
The marked patrol car provides the greatest amount of patrol officer mobility.	Motor scooters, motorbikes and bicycles provide greater maneuverability in congested areas.
The marked patrol car maximizes the amount of territory which an officer can effectively patrol.	Vehicular patrol over an extensive area reduces the level of an officer's familiarity with his beat. The larger the area patrolled in an automobile, the lower the intensity of coverage in an area. It is necessary to weigh the amount of territory covered against the quality of patrol. Particularly in high density residential and commercial areas, the automobile places a barrier between the police officer and the citizen, thereby inhibiting police/citizen interaction.
The marked patrol car maximizes the safety of the officer while on patrol.	The level of danger associated with officer patrol by foot, motor scooter and bicycle is grossly exaggerated particularly when officers are equipped with hand-held radios.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: MARKED PATROL CAR

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
The marked patrol car maximizes the officer's personal comfort and morale.	The personal comfort of the officer which is maximized by the patrol car is not a sufficient reason for sacrificing the effectiveness of patrol. By isolating the officer from the community, the automobile deprives the officer of a major source of job satisfaction.
The marked patrol car facilitates the carriage of equipment and passengers, allowing for great flexibility in officer response.	Particularly when backup capability is readily available due to the utilization of hand-held radios, the need for the routine carriage of heavy or extensive equipment is considerably exaggerated.
The station wagon is a variant of the patrol car which further facilitates multipurpose utilization of the vehicle without detracting from the above listed advantages. Additional capabilities would include: ambulance use, equipment transport, canine transport...	This is a consideration only for those jurisdictions with a limited number of vehicles and little vehicle specialization. Otherwise, there is no justification for the increased cost.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: FOOT PATROL

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
In high density commercial and residential areas, foot patrol: Provides maximum officer visibility, thereby increasing the deterrent effect of patrol, the level of citizen-felt security, and the level of citizen satisfaction with the police.	Officer visibility has limited if any effect upon the level of effective deterrence. Foot patrol provides less visibility and less sense of presence than vehicular patrol on a given beat, and the diversion of officers from vehicles detracts from the overall level of presence and visiblity throughout a jurisdiction. This diminishes the overall level of citizen-felt security and satisfaction with the police.
Maximizes officer/citizen contact and the level of police knowledge about the particular beat.	Increased officer/citizen contact on a foot beat increases the opportunity for officer corruption and thereby detracts from the overall effectiveness of the department. Officer/citizen contact is not important to the effective provision of police services.
Maximizes the order maintenance function of the police by facilitating reductions in loitering, disturbances, etc...	Has no greater impact on order maintenance than does vehicular patrol, but rather confines the cabability to the limited area of a foot beat and to the predictable presence of the officer.
Increases the level of citizen-felt security and satisfaction with the police.	Provides less visiblity and, therefore, less sense of presence than vehicular patrol on a given beat, and diminishes the overall level of felt citizen security and satisfaction throughout the jurisdiction.
When coordinated with vehicular patrol on a given beat, provides for the most comprehensive and effective coverage.	Detracts from the overall coverage which could be achieved by a total commitment to vehicles and increases the cost of patrol without improving its overall effectiveness.
Results in heightened officer morale and level of job satisfaction due to officers' continued contact with the citizenry and his increased sense of responsibility.	Detracts from officers' morale because they feel it is ineffective and outside the mainstream of police work. Officers prefer automobile patrol because it enhances their ability to respond to "hot" calls and is substantially more comfortable and less tiring.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: BICYCLE PATROL

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
In high density commercial and residential areas, bicycle patrol provides the level of visibility, presence and citizen-police interaction which are the advantages of foot patrol (see "A Universe of Assumptions Governing Patrol Modes: Foot Patrol") while compensating for the disadvantages of foot patrol upon officer mobility, response time, the amount of territory which can be patrolled, and officer fatigue. Bicycle patrol further facilitates the ability of the patrol officer to apprehend some fleeing suspects due to its increased speed (over foot) and the silence of its operation.	While compensating for some of the disadvantages of foot patrol, the realized improvement is only minimal, and the bicycle has the following additional disadvantages: Detracts from citizen satisfaction with the police and citizen sense of security due to the negative image which the public has of bicycles as an appropriate vehicle for patrol. Has an adverse impact on officer morale as officers do not regard the bicycle as an appropriate patrol vehicle.
In parks and on bicycle trails, provides the most effective means of transportation for the patrol officer.	In parks and on bicycle trails, a motor scooter would prove a more effective vehicle due to increased speed and a minimization of officer fatigue.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: MOTOR SCOOTER

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
In high density commercial and residential areas, motor scooters: Provide levels of visibility, presence, and citizen-police interaction similar to foot patrol (see "A Universe of Assumptions Governing Patrol Modes: Foot Patrol") without sacrificing officer mobility or response time, detracting from the amount of territory which can be covered by the patrol officer, and causing officer fatigue. In sum, the motor scooter combines all of the advantages of foot patrol without its disadvantages, and is the optimal vehicle for patrol in this type of area.	Motor scooters provide less officer/citizen contact than foot patrol; provide less visibility and less presence than do automobiles; are unsafe in traffic, at high speeds and in the rain or snow; have an adverse effect upon officer morale as the officers do not consider them to be appropriate vehicles for patrol.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: HELICOPTER

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
For use in urban and suburban areas, the helicopter is an effective vehicle for general patrol activities as it: Permits wide ranging and accurate surveillance of an urban area and is particularly valuable in detecting certains types of offenses. Facilitates rapid response to calls for service, and enables surveillance of suspects until such time as apprehension can be effected by ground units. It is also safer than automobiles as a vehicle for high speed chases. In general, the surveillance and detection capabilities of the helicopter is considered equivalent to that of two to six ground officers.	The helicopter should be used as a response vehicle and as a crime-specific vehicle, as its general patrol utility appears somewhat limited and its operation is extremely expensive. The helicopter's effectiveness may depend upon the ability to coordinate its activities with those of ground units, and this may be difficult to accomplish. The response time of the helicopter is extremely low only if it is already airborne. If it must respond from the ground, it is very slow. While perhaps effective in detecting types of misdemeanors, particularly vandalism, prosecution is jeopardized due to the arresting officer not being the same as the officer observing the violation. The noise level effected is extremely high, as is the intensity of surveillance lights. This leads to community dissatisfaction.

EXHIBIT VIII (cont.)

A UNIVERSE OF ASSUMPTIONS GOVERNING PATROL MODES: ONE-OFFICER CARS

SUPPORTING ASSUMPTIONS	OPPOSING ASSUMPTIONS
In all but the most dangerous and hostile neighborhoods, one-officer units are able to conduct patrol as effectively as two-officer units provided that sufficient and rapid back-up is available when needed.	In all neighborhoods the officer patrolling alone is hesitant to take individual initiative, fearing an inability to control situations without the support of a partner. As a result, the quality of patrol and the level of aggressive activity is less for the one-officer cars.
Dispatchers are able to discriminate among calls for service sufficiently well to provide a high degree of certainty so that, when necessary, more than one unit will be dispatched in response to calls to provide sufficient back-up.	Many situations have a certain associated probability of escalating into confrontations demanding the attention of more than one officer. Any risk that adequate support would not be available is intolerable.
Officers assigned to one-officer units are more attentive to duty, not being distracted by conversation.	Officers in two-officer units are more attentive to duty, as they monitor each other's performance.
One-officer units can observe activity and "crime opportunities" as well as two-officer units. In addition, two one-officer units will outperform one two-officer unit with only a marginal increase in costs.	The driver of a one-officer unit must pay close attention to driving and can not adequately observe the area of patrol.
One-officer cars are a more economical and efficient use of manpower. The increased cost necessitated by the purchase and maintenance of additional cars is inconsequential in light of the derived labor savings.	One-officer cars result in a decrease in officer productivity and safety.