

REPORT



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THE CITY OF SAN DIEGO
FINANCIAL MANAGEMENT DEPARTMENT



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PROGRAM EVALUATION

PRODUCTIVITY IMPROVEMENT PROJECT:
POLICE PATROL BUREAU

78-542

PROGRAM EVALUATION

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POLICE PATROL BUREAU

FINAL REPORT

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I. THE STUDY IN PERSPECTIVE

GENERAL

San Diego is a city of 790,000 inhabitants in the southwest corner of the United States. The area of the City is 392 square miles.

San Diego's Police Department employs 1,343 workers and has an annual budget of \$36,493,737. The Department is divided into five bureaus: Administration, Support Services, Patrol, Traffic, and Investigations.

Currently, the Department works out of three stations, one in northern San Diego, one in central San Diego, and one in southern San Diego, an area which is not contiguous with the rest of the City.

The City of San Diego, like many other local governmental entities in this country, found itself facing financial problems in the mid-1970's. San Diego had, until 1973, made its financial plans through its annual budget. Although the capital budget was prepared for a six year period, the operating budget was strictly an annual document.

In 1972 the City began a Comprehensive Management Planning Program (CMP). This was a HUD sponsored program to assess citizen needs, institute long-range planning capabilities, develop a program budget, establish program evaluation capabilities, and improve the City's management information system. The result of the long-range planning effort was a Six Year Financial Plan. The Six Year Financial Plan revealed that the City's expenditures were increasing at a faster rate than revenues and that in the near future the City would

be facing a financial deficit. City policy makers were faced with three alternatives to meet this impending situation:

1. Raise taxes
2. Reduce service levels
3. Increase productivity

Raising taxes and reducing services were the least popular alternatives. Therefore, in recognition of City needs and impending financial problems, the City of San Diego began a Productivity Improvement Project in July 1974, under the direction of the Financial Management Department. The goals of the Productivity Project were to:

1. Increase the efficiency and effectiveness of City operations through the development and application of engineered methods and work standards.
2. Develop an on-going, in-house ability to identify and take advantage of means by which costs could be reduced or service levels increased using existing resources.
3. Systematically determining staffing requirements and develop work standards for 70% of the City's work force.

In order to meet these goals six administrative analysts and one supervisor were selected to undergo training in Industrial Engineering methods and techniques. These individuals formed the nucleus of the project, and served as field study personnel during the course of the study. A management consultant with extensive experience in Industrial Engineering was employed to train the City staff and guide the first year's work. The first year's activity resulted in identified savings of \$1,147,000 by reduction of staff through attrition without any reduction in service level.

As a result of the success of the first year, the City Council directed that the Productivity staff be increased from six to ten analysts and the consultant's

contract be doubled. The second year study resulted in the identification of \$952,000 in annual, recurring savings and an increased ability of in-house staff to apply the principles of Industrial Engineering to other City functions. In Fiscal 1977 the staff was enlarged to 11 analysts. The in-house productivity expertise had been developed and consultant assistance was used very sparingly in the identification of \$880,000 of annual, recurring savings.

PRELIMINARY POLICE STUDIES

In Fiscal 1976 the Productivity Improvement staff developed a 10-year work program which would meet the project goal of studying 70% of the City's work force. Included in that work plan was a study of the San Diego Police Department beginning in Fiscal 1976 and concluding in Fiscal 1980. In 1976 the Police Garage was to be scheduled. Police Records and Communications were scheduled for Fiscal 1977. The first police area containing predominately sworn personnel to be studied was to be the Patrol Bureau in Fiscal 1978, followed by a study of Investigations in Fiscal 1979 and the Traffic Bureau in Fiscal 1980.

The Police Garage, Communications and Records Sections consisting of predominately non-sworn personnel, were studied first to acquaint the Productivity staff with police operations while dealing with the less sensitive non-sworn areas. The Police Garage study resulted in the reduction of several Motive Service Technicians without a reduction in the level of service. The study of Police Communications resulted in the supervisory reduction of five civilian Senior Dispatch Operators. In contrast, the study of Police Records resulted in the addition of one clerical position to meet that Section's work load.

CITY COUNCIL REACTION

The City Council expressed a great deal of interest in the concept of a productivity study of the Police Department. The question of police staffing

had traditionally been a highly emotional and political subject. A productivity study, especially of those areas which are made up of predominately sworn personnel could be of great benefit to the City Council in dealing with the difficult question of police staffing. It would provide the City Council and the Police Department a more rational way to make staffing decisions.

POLICE PATROL STUDY

By the beginning of Fiscal 1978 the City's Productivity staff was ready to study the Police Department's largest bureau--Patrol. Although the in-house capability had been developed to perform productivity studies, a consultant with a great deal of background in the field of police was retained. Very little had been done in the field of police work measurement and an expert in the field was needed. The firm chosen was Hughes, Heiss and Associates who have studied the work of a number of police departments.

POLICE PATROL STUDY TEAM

From the beginning the productivity study of the Patrol Bureau was a joint effort of the Police Department, the management consultant, and the Financial Management Department's Productivity staff. The Police Department assigned Sergeant Fred Hoyle as a full-time "Productivity Improvement Project Coordinator." The consultant assistance was provided by Richard Hughes, one of the principals of Hughes, Heiss and Associates and Charles Crabtree, a former commander with the Sunnyvale Police Department. Seven Financial Management Productivity analysts were originally assigned to the study for the initial data gathering. After the initial efforts, the Financial Management staff was reduced to four administrative analysts.

PURPOSE OF THE STUDY

The Productivity Improvement Project study of the Police Patrol Bureau had the following objectives:

1. Document how the Patrol Bureau functions in terms of organization, staffing, personnel utilization, management, and operating practices.
2. Where appropriate, identify approaches for simplifying work, streamlining operations, and improving personnel utilization.
3. Develop and apply a methodology for determining and validating staffing needs for the Patrol Bureau.
4. Improve, where appropriate, the information available to management at all levels for planning and monitoring Police Patrol performance and productivity and install associated reporting systems.

II. EVALUATION METHODOLOGIES EMPLOYED

GENERAL

The plan of action for evaluating the Police Patrol Bureau was divided into several phases. The first three phases (orientation, preparing a Profile of Patrol Bureau, and developing work load statistics) took up approximately half of the study time.

ORIENTATION PHASE

The orientation phase of the study included acquainting all Patrol Bureau personnel with the objectives, scope and aims of the study as well as familiarizing the analyst team with Police Patrol operations.

It was considered absolutely essential from its inception that all Patrol Bureau personnel understand the goals of the study. Four methods were used to accomplish this.

- . Briefings - In the initial stages of the study, the Productivity Supervisor, the Project Leader and the consultant met with the Chief of Patrol and the Patrol Inspectors to discuss general aspects of the study. This was followed by a meeting with the President of the Police Officers Association to get his views and enlist his cooperation. Later, the analyst team as a whole was given the opportunity to make a short presentation at the monthly Command Officers meeting chaired by the Chief of Police. The team then met with the Patrol Bureau Chief and his command staff.
- . Video Tape - As an initial effort to acquaint field personnel with the study, the Police Department video tape facilities were made

available. A short tape was prepared with the Chief of Patrol, the Productivity Supervisor and the analyst team participating. This presentation stressed the purposes of the study and introduced the analyst team. The tape was subsequently shown to all officers at start of shift briefing.

- . "Copper Wire" Report - An article was prepared for publication in the "Copper Wire," an in-house publication produced by the Police Department. The article stressed the objectives of the study, named the analysts involved, and invited questions about the project.
- . Liaison - A sergeant with in-depth knowledge of the Police Patrol Bureau was assigned full-time to the project to provide liaison. He was invited to attend all meetings relating to the study and became an integral part of the analyst team. The relationship was completely open and objective. The contribution of this officer was invaluable and related directly to the success of the project.

To acquaint the analyst team with the nature of police patrol operations, the following methods were utilized:

- . Briefings - Several informal meetings were held during which the consultant shared his experience and knowledge of police work derived from previous work with other police departments. As the analyst team became more familiar with the subject, these meetings developed into "brainstorming" sessions during which many ideas for improving the patrol function were explored. In addition, the consultant provided a bibliography of material relating to police productivity as well as a list of methods improvements that had been proven in other departments.
- . "Ride-Alongs" - Each analyst went on three orientation "ride-alongs" one each with an area sergeant, a beat unit, and an ambulance unit. In addition, each ride-along was scheduled for a different station and shift. Since the analysts were permitted to attend start of shift briefings there was the opportunity to see and be seen by a large number

of field officers, give informal briefings of the study as well as respond to queries. A point stressed at these line-ups was that the purpose of the study was to improve patrol operations, not to evaluate individual performance.

- . Tours - All team analysts received tours of the Central, Northern, and Southern Police Stations and spent a day with the Communications Section, observed court procedures involving police officer testimony, and a tour of the Records Section.

PATROL BUREAU PROFILE

To determine a baseline on which to lay a foundation for the study, it was necessary to prepare a profile that documented Patrol Bureau's current operations in terms of:

- . Staffing and Organization
- . Work Load
- . Operating Procedures
- . Management Information Systems (MIS) Available
- . MIS Improvement Efforts

The profile was based on data gathered by the analyst team and represented Patrol Bureau's operations at the inception of the study. When completed, it was forwarded to the Police Department for review and verification to ensure that both the analyst team and the Bureau would proceed on the same footing. With this baseline information, the study could be expanded in such areas as service levels, work loads, staffing requirements, and utilization of personnel.

To generate the data for the profile, each analyst was given a task list defining the specific information desired. Not surprisingly, all the information requested was not available, but as a result of the research required to prepare the profile, additional data and information was developed. Appendix A is a list of the tasks assigned to the analyst team. Appendix B is a representative listing of the data developed for the profile with selected examples of material produced.

DEVELOPING WORK LOAD STATISTICS

Several methodologies were utilized to develop work load statistics, but the bulk of the effort was expended on "ride-alongs" and Command Officer time logs.

"Ride-Alongs" - Work load and crime data in the San Diego Police Department is collected through the Patrol Management System (PMS), an off-shoot of the Department's Computer Automated Dispatch System (CAD). The PMS produces reports summarizing activity of patrol units by calls-for-service, units dispatched by hour/day/week/beat, ambulances dispatched, etc. However, the system has inherent limitations and inaccuracies that limited the value of its output for definitive work load analysis. For example, calls-for-service are categorized only by priority. Therefore, to determine the time expended handling particular types of calls requires a prohibitive amount of manual effort. In some instances, the PMS data was too general to be useful. One requirement of the study was to determine how much time an officer spent writing reports both in and out of service. The PMS could not satisfy this type of requirement. Therefore, it was necessary for the analysts to go on a series of "ride-alongs" to not only verify the accuracy of existing information, but also to develop new data.

To satisfy this requirement, the analyst team participated in a total of 47 full shift "ride-alongs" picked by random sample from all stations, shifts, days of weeks, beat cars and ambulances. To standardize the collection of information and to facilitate the summarization of data collected, particular attention was paid to designing a log sheet and a code/definition sheet that would satisfy all foreseeable requirements. Examples of these sheets and their summarizing tally sheets are in Appendix C. Exhibit 1 is a summary of some of the statistics developed from the "ride-alongs."

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SAN DIEGO POLICE PATROL BUREAU
SELECTED CITY WIDE STATISTICS FOR 47 RANDOM RIDE ALONGS

<u>ACTIVITY</u>	<u>MINUTES</u>	<u>%</u>	<u>REMARKS</u>
Shift Time	503.22	100.00	8.387 Hours
In Service	244.54	44.62	
Out Of Service	278.68	55.38	
Patrol	107.51	21.36	17.7144 M.P.H.
Write Reports	69.92	13.89	32.85% In Service
Line Up	14.27	2.83	
Morning Start Up	13.05	2.59	
End Of Day Wrap Up	16.92	3.36	
Lunch	19.62	3.89	
Break	17.62	3.50	
Drive	32.38	6.43	

CALL FOR SERVICE

CFS Per Shift	= 6.2973
Service Time Per CFS	= 25.6395 Min.-Includes time from 10-7 (Out of Service) to 10-8 (In Service)
CFS Response Time/MPH	= 6.2414 Min./24.14 MPH
Priority I	= 4.50 Min./32.00 MPH
Priority II	= 5.51 Min./30.37 MPH
Priority III-IV	= 6.61 Min./22.52 MPH
Units Responding Per CFS	= 1.6867
Priority I	= 3.44
Priority II	= 1.89
Priority III-IV	= 1.40
CFS By	
Priority I	= 6.96%
Priority II	= 20.43%
Priority II-IV	= 72.61%

SAN DIEGO POLICE PATROL BUREAU
PERCENT OF TIME AND MINUTES PER ACTIVITY
OBSERVED ON 47 RIDE ALONGS CITY WIDE

<u>ELEMENT</u>	<u>% OF TIME</u>	<u>MINUTES PER SHIFT</u>
Arrest	1.76	8.89
Break	3.50	17.62
Booking	0.35	1.81
Court	0.24	1.22
Citizen Contact	1.58	8.00
CFS	12.30	61.92
CFS (Cover)	3.78	19.05
CFS (Response Time)	7.89	39.73
Drive	6.43	32.38
Wrap Up (EWU) (End Of Shift)	3.36	16.92
Field Interrogation	0.45	2.30
Investigate	0.55	2.78
Lunch	3.89	19.62
Line Up (Start Of Shift Briefing)	2.83	14.27
Misdemeanor	0.07	0.38
Start Up (MSU)	2.59	13.05
Patrol	21.36	107.51
Self Initiated Activity	3.05	15.35
Traffic	5.02	25.30
Write Report	13.89	69.92
Miscellaneous	4.97	25.05
		<u>503.07</u>

III. FORMULA DESIGNED TO DOCUMENT PATROL OFFICER STAFFING NEEDS

GENERAL

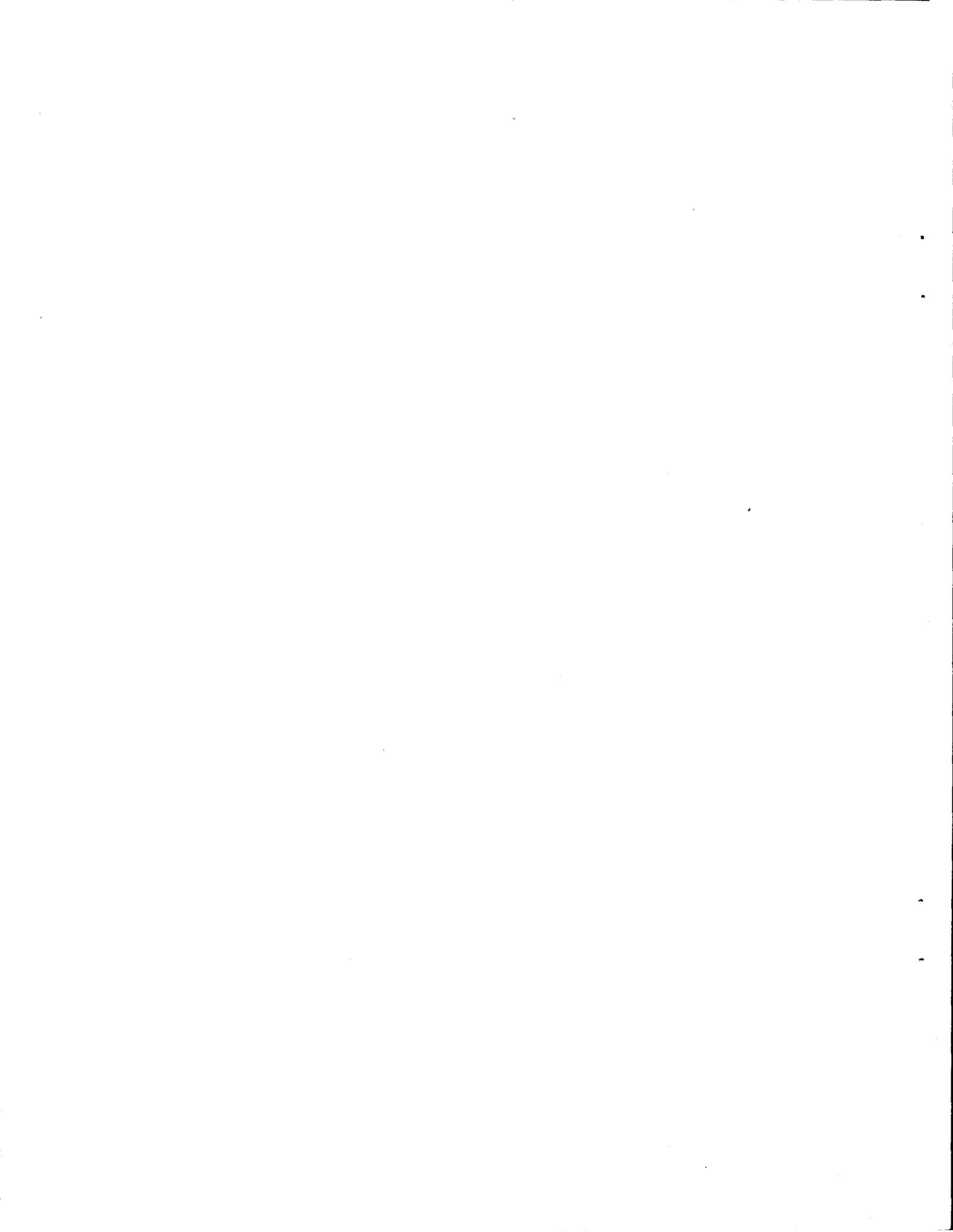
The problems associated with police staffing have traditionally been a highly emotional and political subject. Many approaches have been used to justify staffing levels. Historically, the two classic methods have been: (1) comparison of police per population ratios, and (2) comparison of crime rates. While these approaches have been widely used by administrators, the news media, and the public, they do have weaknesses. The basic fallacy in the police per population ratio approach is that it ignores community differences such as social and economic conditions, and culture and customs of the people. The comparison of crime rate method of staffing is delusive in that, depending on the type of reporting procedures used, crime statistics can be manipulated thereby providing an erroneous comparative base.

FIELD PATROL OFFICERS REQUIRED FORMULA DEVELOPMENT

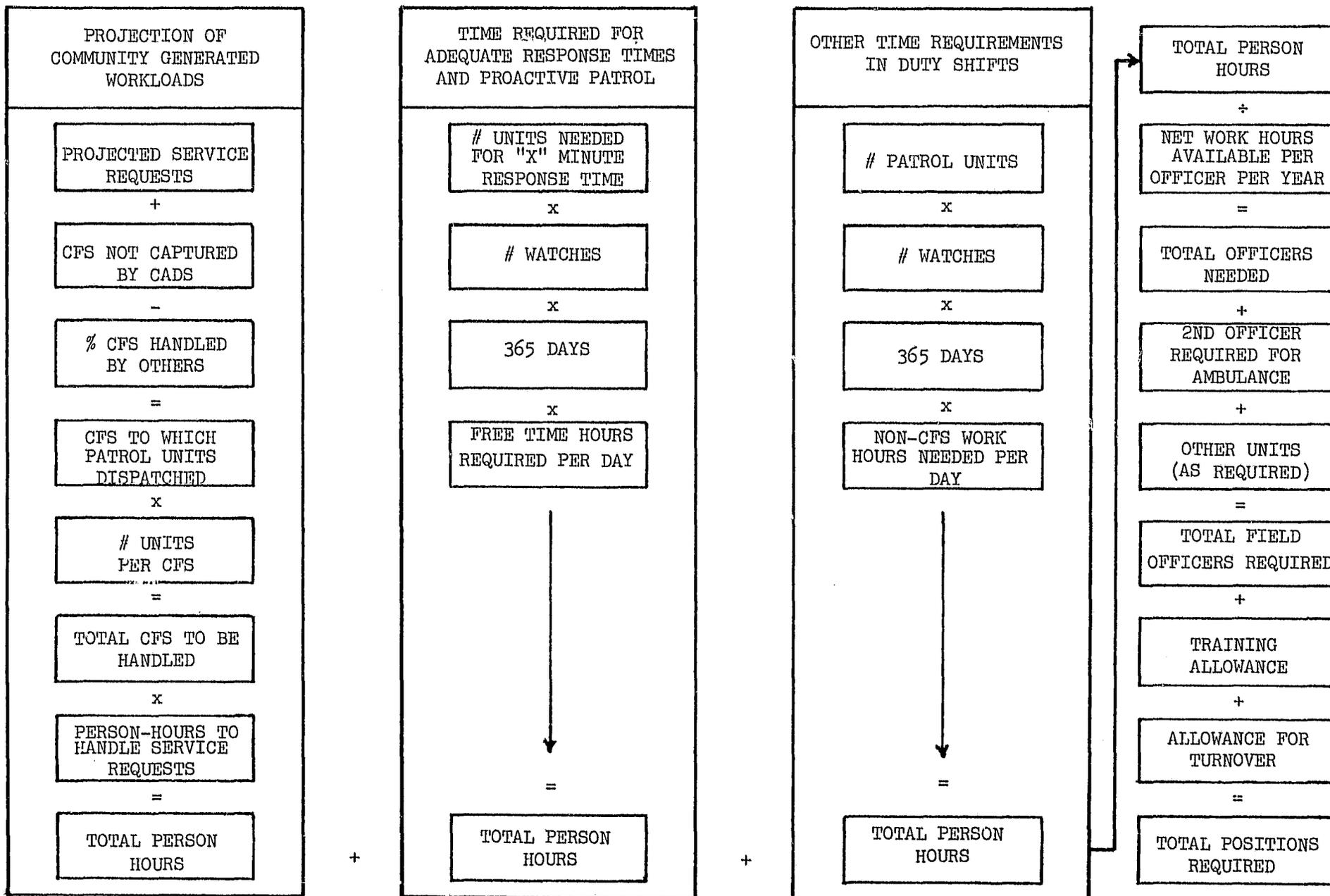
For this study the approach used to project field patrol officer staffing needs was the development of a formula based on three major factors:

- . Projection of community generated work loads
- . Time required for adequate response times and proactive patrol
- . Other time requirements in duty shifts

An overview of the formula developed is shown as Exhibit 2, following this page.



OVERVIEW OF SYSTEM FOR DOCUMENTING
PATROL OFFICER STAFFING LEVELS



Projection Of Community Generated Work Loads - This is the first of the major "blocks" in the formula. An important source of data required here came from the San Diego Police Department's Patrol Management System which produces, upon request, a series of reports designed to aid in allocating personnel and summarizing activities of patrol units in the field. The system is updated on a daily basis with police dispatch activity recorded by the Computer Aided Dispatch (CAD) system. This gives the Patrol Management System the ability to report current dispatch activity as well as historical dispatch activity. One of the reports produced by the System is the Calls-For-Service by Beat Report ("E" Report).

This first "block" of the formula contains the following "boxes":

- 1) Projected Service Requests - From the "E" Report, Calls-For-Service (CFS) data were obtained for the third and fourth quarters of FY 76, four quarters of FY 77, and the first two quarters of FY 78. From these data Projected Service Requests for FY 79 were obtained using linear regression projection techniques. The overall projected increase was determined to be 9.4%, for a total of 357,064 calls-for-service.
- 2) Calls-For-Service (CFS) Not Captured by CAD - A discrepancy was found to exist between calls-for-service reported by CAD and the "E" Report. A certain portion of this must be added to Projected Service Requests to present a true picture of work load.

There are two major reasons for the CFS difference. They are errors in formatting and CFS's without dispatches. Errors in formatting and CFS's without dispatches (meaning no units assigned) both require the case to be resubmitted, thereby inflating the CFS count.

In addition, from a sampling analysis of the Daily Transaction/ Incident list produced by CAD it was determined that some of the non-assigned CFS's were department generated (i.e. 10-21's, Call your station, etc.) and cannot be considered part of community generated work load.

Considering all of the above, there remains a certain portion of this CFS discrepancy between CAD and the "E" Report that should be added to the Projected Service Request figure to present a true picture of work load. Our analysis showed this to be a 5% add-on.

- 3) Percent CFS Handled by Others - Calls-for-service are dispatched according to call priority and unit availability to various police units. Therefore, other units than Patrol are occasionally assigned calls-for-service. To determine what impact these non-Patrol units had upon calls-for-service a sampling of the "A" Reports (Calls-for-Service by Unit) was made for the period April 1 to June 30, 1977. This sampling showed that approximately 7% of the CFS work load was handled by others (Traffic Units, Supervisors, Reserves, Juvenile Task Force, and Detectives).

In addition, Community Service Officers (CSO's) can be projected to handle a certain number of non-hazardous priority 4 and 5 calls-for-service.¹ Based on the Department's projected use of CSO's they will be available 50% of their 8 hour shift to respond to these calls. Based on Productivity Improvement Project "ride-along" data, it takes on the average 0.5973 hours to handle a priority 4 or 5 call.

Assuming a minimum of 30 CSO's would be fully operational in FY 79:

30 CSO's = 18 units (30 CSO's ÷ 1.67 staffing formula = 17.96 units, rounded to 18)

18 units x 0.5 day = 9 effective units x 8 hours = 72 effective unit hours per day

72 effective unit hours ÷ 0.5973 hours per call = 120.5 calls per day for CSO units

120.5 calls per day x 365 days/year = 43,983 calls per year

43,983 calls handled by CSO's ÷ 357,064 total FY 79 projected calls = 12.3% of total calls to be handled by CSO's

While the above indicates that 30 CSO's can potentially handle 12.3% of total projected calls-for-service, the newness of the program, and other related factors, suggested some downgrading of this potential. Accordingly, 8% was used as a more conservative figure of potential.

Therefore, combining the 7% of calls handled by other sworn personnel than Patrol, and the 8% by CSO's gives 15% as the percent of CFS Handled by Others.

- 4) CFS Which Patrol Units Dispatched - The figure for this box is simply calculated by adding Projected Service Requests and CFS Not Captured by CAD, and subtracting % CFS Handled by Others.
- 5) Number of Units Per CFS - The Productivity Improvement Project's analyst team noted from monitoring Police Communications dispatch operators and from the series of "ride-alongs" that the

¹See Exhibit 3, Priority Codes

PRIORITY CODES

Description

1. Officer needs assistance (11-99).
All lifesaving calls (11-40's, 11-83).
2. All crimes in progress or just occurred where a possibility of apprehension of suspects exists.

Alarms.
Incomplete calls for help.
Lost children of 'tender' years.
Bomb threats and 415's involving weapons.
3. Disturbance.

Non-injury accidents blocking traffic.
Meet with Shore Patrol for UA/AWOL check.
Prowler call.
Child abuse (not in progress.)
In custody persons from private agencies (i.e., shoplifters).
Drunks.
Lost children not of 'tender' years.
Parking violations with traffic blockage.
Kites in flight pattern (Balboa Park).
4. Take a report of a cold crime (suspects not known or at least not in vicinity).
Provide transportation (could change based on location or agency).
In custody persons from other enforcement agencies.
Checks for 'suspicious persons'.
Blocked driveways (people not trying to leave).
Disturbances, loud party/music.
5. Abandoned vehicles.
Recovered property.
All remain in service assignments.
All parking violations not covered above.
Motorcycle disturbance calls (that would normally be referred to Trail Safe).

average number of units/officers dispatched to handle a call-for service appeared high. While considering the requirements of officer safety in providing backup for certain types of hazardous calls, and the necessity to provide backup on all ambulance potential life saving calls, an analysis was made to determine the average number of units that should be dispatched on a call-for-service.

Exhibit 4 provides a summary of this analysis. All data were extracted from the "E" Report, ("Calls-For-Service by Beat"), and the "K" Report, ("Ambulances Dispatched, by Ambulance Unit vs. Patrol Beat"). Columns A, B, and D of Exhibit 4 are cumulative totals relating to number of incidents, units dispatched, and officers dispatched during the data base period October 1, 1976, through September 30, 1977. Columns C, E, and F indicate the average number of units dispatched per incident, average number of officers dispatched, including ambulance officers, per incident, and the percent of two-officer units dispatched per incident. The mathematical formulas of how these averages were computed are shown for each column. Column G indicates the percent of two-officer units dispatched, excluding ambulance units.

Column H is a very significant one with respect to this analysis. These variations indicate the average additional officer personnel that were dispatched in two-officer units, other than ambulance units, to respond to each call-for-service incident. When these variations are added to the average number of units dispatched per incident (Column C) the sum indicates the average number of officers dispatched per incident, exclusive of the second officer in ambulance units (Column H).

Column I shows the number of units that should be dispatched and are the figures used in the Police Officers Required formula.

- 6) Total CFS to be Handled - The figure for this box is simply calculated by multiplying CFS to which Patrol Units Dispatched by the Number of Units Per CFS.
- 7) Person-Hours to Handle Service Requests - The time to handle service requests includes actual "out-of-service" time (10-7, Out of Service to 10-8, In Service) plus "in service" report writing time. The "out-of-service" time was taken directly from CAD data. All dispatches with both 10-7 and 10-8 times were summarized by computer, to give mean times by watch and by division. These times were for the four quarters of calendar year 1977, and verified by "ride-alongs."

An additional 3 minutes was added to the "out-of-service" time for report writing associated with a call-for-service done while "in-service." From direct observation by the Productivity Improvement Project analyst team on 47 "ride-alongs" it was determined this is the average time associated with a call-for-service.

AVERAGE NUMBER OF UNITS AND OFFICERS THAT SHOULD
BE DISPATCHED TO HANDLE CALL-FOR-SERVICE INCIDENTS

Data Base Period - October 1, 1976 Through September 30, 1977

	A	B	C	D	E	F	G	H	I
	Number of Incidents	Units Dispatched	Average Number of Units Dispatched	Officers Dispatched	Average Number of Officers Dispatched	Percent of Two-Officer Units Dispatched	Percent of Two-Officer Units Dispatched With Reserve Officers the 2nd Officer	Variance	Average Number of Units That Should Be Dispatched
			(B+A)		(D+A)	(D-B+B)	(.27x F)	(CxG)	(C-H)
CENTRAL DIVISION	195689	348564	1.78	439595	2.25	.26	.07	.12	1.66
SOUTHERN DIVISION	14895	27630	1.85	34164	2.29	.24	.07	.13	1.72
NORTHERN DIVISION	91159	150603	1.65	189398	2.08	.26	.07	.12	1.53
PATROL BUREAU	301743	526797	1.75	663157	2.20	.26	.07	.12	1.63

- 8) Total Person Hours - This final box in the Projection of Community Generated Work Loads "block" is calculated by multiplying Total CFS to be Handled by the Person-Hours to Handle Service Requests.

Time Required For Adequate Response Times and Proactive Patrol - This is the second of the major blocks in the formula. A highly important and innovative tool used in this "block" of the formula was the application of the Patrol Car Allocation Model (PCAM). PCAM is a computer program designed to determine the number of patrol cars to have on duty in a specified geographic area. A more detailed explanation of how PCAM was used is contained in a subsequent section of this Chapter.

This second "block" of the formula contains the following "boxes":

- 1) Number Of Units Needed For "X" Minute Response Time - The number of units required was calculated by PCAM based on existing response times for each division. The response time (PCAM's "travel time") for calendar year 1977 was used as the basis of comparison with PCAM calculations. Travel time is contingent upon the call-for-service rate and the number of units in the field. If one or both of these vary, travel time will also change.

The projected call rate for FY 79 was included in the PCAM calculations. Because the current and projected call rates differed the travel times calculated by PCAM varied from the base year. The number of units allocated was adjusted to match these travel times.

- 2) Number of Watches - Three watches per 24-hour day.
- 3) 365 Days
- 4) Free Time Hours Required Per Day - Free time (Proactive Patrol Time) is also a function of PCAM calculations. A patrol unit's free time occurs when it is not engaged in a call-for-service or non-call-for-service work. Free time is calculated by dividing the average number of units available for assignment by the average number of units fielded during a watch.
- 5) Total Person Hours - This final box in the Time Required for Adequate Response Times and Proactive Patrol "block" is calculated by multiplying the values of each of the four preceding boxes.

Other Time Requirements In Duty Shifts - This is the third of the major "blocks" in the formula. This third "block" contains the following "boxes":

- 1) Number of Patrol Units - This is the same number used in box one of the second "block" as calculated by PCAM.
- 2) Number of Watches - Three watches per 24-hour day.
- 3) 365 Days
- 4) Non-CFS Work Hours Needed Per Day (Shift) - Twenty-five percent (2.0 hours) of an eight hour shift is required to provide for necessary non-CFS work hours needed. Included in the 2.0 hours are on-duty court time, lunch/breaks, start/end of shift activities, and "Change of Status" out-of-service time (OST).

Calculations are as follows:

On-Duty Court Time (data from Job Order Accounts)

$$\frac{1931.1 \text{ hours charged}}{503 \text{ ave. \# officers}} = 4 \text{ hrs./yr.}$$

$$\frac{4 \text{ hrs./yr.}}{233 \text{ ave. days worked}} = 0.02 \text{ hrs/day}$$

Lunch/Breaks

$$2 - 15 \text{ minute breaks and } 30 \text{ minute lunch} = 1.00 \text{ hrs/day}$$

Start/End Shift (data from "ride-alongs")

$$\frac{176 \text{ hrs/yr}}{233 \text{ ave. days worked}} = 0.75 \text{ hrs/day}$$

$$\frac{\text{"Change of Status" OST (not self-initiated)}}{2.00 \text{ hrs/day}} = 0.23 \text{ hrs/day}$$

- 5) Total Person Hours - This final box in the Other Time Requirements In Duty Shifts "block" is calculated by multiplying the values of each of the four preceding boxes.

Fourth "Block" Calculations - The fourth and final "block" of the formula contains the following "boxes":

- 1) Total Person Hours - This box represents the sum of the Total Person Hours boxes in each of the three "blocks" previously described.

- 2) Net Work Hours Available Per Officer Per Year - The City Auditor's Job Order Report for FY 77 was used as the basis for determining net hour availability.

Calculations are as follows:

Days In Year		365.0
Less: Weekend Days	104.0	
Sick Leave	7.3	
Vacation	9.8	
Injury/Industrial Leave	1.9	
Military Leave	0.5	
Compensatory Time and Holidays	8.5	<u>132.0</u>
Average Days Per Year Worked		233.0
Hours Per Day		x 8.0
Net Work Hours Available Per Officer Per Year		<u>1864.0</u>

- 3) Total Officers Needed - The figure for this box is obtained by dividing Total Person Hours by Net Work Hours Available Per Officer Per Year.
- 4) Second Officer Required for Ambulance - The calculations to provide for the second officer required for ambulances are as follows:

Northern Station

Fields 18 ambulances per 24 hour day
18 x 1.67 (staffing formula) = 30.0 positions

Central Station

Fields 21 ambulances per 24 hour day
21 x 1.67 (staffing formula) = 35.1 positions

Southern Station

Fields 6 ambulances per 24 hour day
6 x 1.67 (staffing formula) = 10.0 positions

- 5) Other Units (As Required) - This box provides for special units as authorized (e.g. Special Task Forces, etc.).
- 6) Total Field Officers Required - This figure is the sum of Total Officers Needed, Second Officer Required For Ambulance, and Other Units (As Required).
- 7) Training Allowance - Training allowance values were obtained from Job Order Accounts, the SDPD Training Section, the Field Training Officer Program Coordinator, and the SDPD Personnel Section.

Training Breakdown

Receive Training (Days per officer)

Off-Duty (This category consists primarily of weapons qualification and other training given on an officer's scheduled day(s)/shift(s) off) 1.3 Days

On-Duty	
SWAT	0.8
FTO (Field Training Officer)	1.4
Other (EMT (Emergency Medical Technician), AOT (Advanced Officer Training), etc.)	1.0
Give Training (days per officer)	
FTO Daily Evaluations	1.8
FTO Bi-Weekly Evaluation	0.7
FTO Bi-Weekly Meetings	<u>0.9</u>
Total Days Per Year Spent In Training Activities	7.9

Allowance for Training Calculations

The position years required for allowance for training are calculated as follows:

$$\frac{8 \text{ days per year per officer} \times 8 \text{ hours per day} \times \text{Total Field Officers Required}}{\text{Net Work Hours Available Per Officer Per Year}}$$

- 8) Allowance for Turnover - Determining the turnover ratio of Patrol Bureau's Police Officers was more involved than merely dividing the number of officers who depart by the number assigned. Therefore, a turnover formula was devised to reflect variations in staffing levels, transfers in and out of Patrol Bureau, promotions out of the Police Officer classification, retirements and terminations directly out of Patrol, any new hires of fully trained, POST certified officers, and the on-going academy training effort.

A schematic of the formula is as follows:

$$\frac{\boxed{\text{Transfers Out}} - \boxed{\text{Transfers In - Academy Grads + New Hires}} + \boxed{\text{Terminations}} + \boxed{\text{Promotions to Sergeant}}}{\boxed{\text{Mean Assigned Staffing Level of Police Officers}}} = \boxed{\% \text{ Turnover}}$$

Details of the methodology employed is contained in Appendix D.

- 9) Total Positions Required - This final box in the Police Officers Required formula is the sum of Total Field Officers Required, Training Allowance, and Allowance for Turnover. This figure represents total number of officers required for the work load projected for FY 79.

SUMMARY OF THE POLICE OFFICERS REQUIRED FORMULA COMPONENTS

The formula developed during this study for the staffing requirements of the SDPD Patrol Bureau contain the following components as summarized below:

Projection of Community Generated Work Loads

Projected Service Requests (modified by CFS not captured by CAD,
and CFS handled by others)

Number of Units that Should be Dispatched per CFS

Person-Hours to Handle Service Requests

Time Required for Adequate Response Times and Proactive Patrol

Number of Units Needed for "X" Minute Response Time

(Computed by Patrol Car Allocation Model - PCAM)

(see the next section for detailed description of PCAM)

Free Time Hours Required per Day (from PCAM)

Other Time Requirements in Duty Shifts

Number of Patrol Units (from PCAM)

Non-CFS Work Hours Needed per Day

"Block" Four Components

Total Person Hours (totals of "blocks" 1, 2, and 3)

Second Officer Required for Ambulance

Other Units (As Required)

Training Allowance

Allowance for Turnover

Total Positions Required

USE OF THE PATROL CAR ALLOCATION MODEL (PCAM) IN THE FORMULA

The Patrol Car Allocation Model (PCAM) is a computer program designed to determine the number of patrol cars to have on duty in a specified geographic area. It has both descriptive and prescriptive capabilities. The descriptive capabilities permit displaying quantitative information about any allocation of patrol cars by time of day and geographic area. This information may refer to the current allocation, any proposed allocation or the particular allocations that are suggested by PCAM when operated in the prescriptive mode. The prescriptive capabilities specify particular allocations that best meet the standards of performance established by the users.

PCAM is controlled with a series of commands entered into the computer on cards for operation in batch mode (where the program's output is produced on a line printer), or they can be entered for operation in interactive

mode (where the program's output is displayed immediately at the terminal).

The commands can provide the following:

- 1) Allocation of patrol cars to meet constraints of performance measures.
- 2) Allocation of patrol cars to best achieve specified objectives.
- 3) Display measures describing expected patrol car performance under particular allocations.

A data base must be established before operating the model. The data required are:

- 1) The square miles and street miles of the area patrolled.
- 2) The time of day of each watch. This includes the "C" squad, a special augmenting Squad which overlaps the second and third watch.
- 3) For each hour of a twenty-four hour day: the number of patrol cars starting the watch; the average response time speed (miles per hour); the average preventive patrol speed (miles per hour); the average number of calls-for-service; the average handling time for each call; a percent breakdown of call priorities.
- 4) The average percent of time each patrol car will not be available to respond to a call or to patrol.

Using this data base, PCAM, when operated in the descriptive mode, will calculate the following:

- 1) The number of patrol cars assigned to each division by time of day.
- 2) Information about the amount of proactive patrol engaged in by the patrol cars.
- 3) The average travel time.
- 4) The average total response time (unit locate time plus travel time).

Also, among the prescriptive capabilities, PCAM will calculate the optimum number of cars that must be on duty to meet standards of performance. These

standards may include minimizing total response time or the number of calls-for-service placed in a queue.

Once the data base is established, response time, percent proactive patrol time, and the number of units required can be varied independently. If one is changed, PCAM will calculate the value of the other two. For example, if response time is lowered in the model, the number of units required to meet that level of performance or the percent proactive patrol time will go up.

In this use of the model, the number of units required is calculated by PCAM based on existing response times. The response time for calendar 1977 was used as a basis of comparison with PCAM calculations. Travel time is contingent upon the call-for-service rate and the number of units in the field. If one or both of these are varied in PCAM, travel time will also change.

The projected call rate was included in the PCAM calculations. Because the current and projected call rates differed, the travel times calculated by PCAM varied from the base year. Using the prescriptive mode, the number of units required was adjusted in order to match travel times. Thus, the level of performance, as defined by travel time (response time), was maintained by changing the number of units required.

A patrol unit's proactive patrol time occurs when it is available for a call-for-service, but not engaged in call-for-service work. It is calculated by PCAM by dividing the units available by the total units in the field. The average units available is the quotient of dividing the number of car hours available by the number of work hours. The number of car hours available is derived from queuing analysis by PCAM.

PCAM estimates the fraction of calls that will have to be queued to await an available patrol car and the average length of time that calls, in three priority levels, will have to wait in queue. Hence, an analysis of total response time, queue time plus travel time, can be made for three priorities of calls.

The number of patrol units required to match certain levels of performance is calculated by PCAM for different geographic areas. Separate calculations were made for all three stations matching PCAM's response time to the known response time for each. Projected work load increases meant an increase in the patrol units required to meet this level of performance. However, by shifting the number of patrol units between divisions and watches, it was found response times could be dramatically reduced in some watches at certain divisions without significantly affecting the response time of others. Therefore, by experimenting with PCAM the optimum scheduling of units between watches and divisions was established. For example of how it is used see Appendix E.

APPLICATION OF THE FORMULA TO FY 79 FINDINGS UNDER ALTERNATIVE SERVICE LEVEL ASSUMPTIONS

The Police Officers Required formula as developed during this study has the facility of providing required numbers of field patrol officers under alternative service level assumptions. Service levels, defined as response times and proactive patrol times, can be altered to any level desired by the decision makers. By applying any service level criteria to the formula, the required number of police officers will be generated. Numbers of officers required can easily be converted to dollars and therefore the budgetary amount required to fund the desired service level.

An example of these alternative service levels and positions needed is shown in Exhibit 5. To maintain the current service level of 6.4 minute response

POLICE OFFICERS NEEDED IN PATROL UNDER ALTERNATIVE SERVICE LEVELS

TOTAL DEPARTMENT

	CURRENT SERVICE LEVEL WITH REDISTRIBUTION AND OPTIMUM SCHEDULING	CURRENT BUDGETED STAFF WITH REDISTRIBUTION AND OPTIMUM SCHEDULING	50% PRO-ACTIVE TIME WITH OPTIMUM SCHEDULING
TRAVEL TIME (PLUS UNIT LOCATE TIME)	$\frac{6.0}{(0.4)}$ 6.4	$\frac{6.4}{(0.5)}$ 6.9	$\frac{5.2}{(0.1)}$ 5.3
PRO-ACTIVE PATROL TIME	44%	38%	50%
POSITIONS NEEDED	576	548	672
POSITIONS PROPOSED FY 79	548	548	548

times and 44% proactive patrol time the Patrol Bureau would need 576 officers for FY 79 with the projected increase of CFS work load. On the other hand, if the current budgeted staff was maintained, the response time would go up to 6.9 minutes and the proactive patrol time down to 38%. Further, if 50% proactive patrol time is desired, the response time would drop to 5.3 minutes, but it would take 672 officers to do the job. As can be seen, any combination of alternatives can be applied with the product being required number of officers.

IV. MANAGEMENT ORGANIZATION AND STAFFING

GENERAL

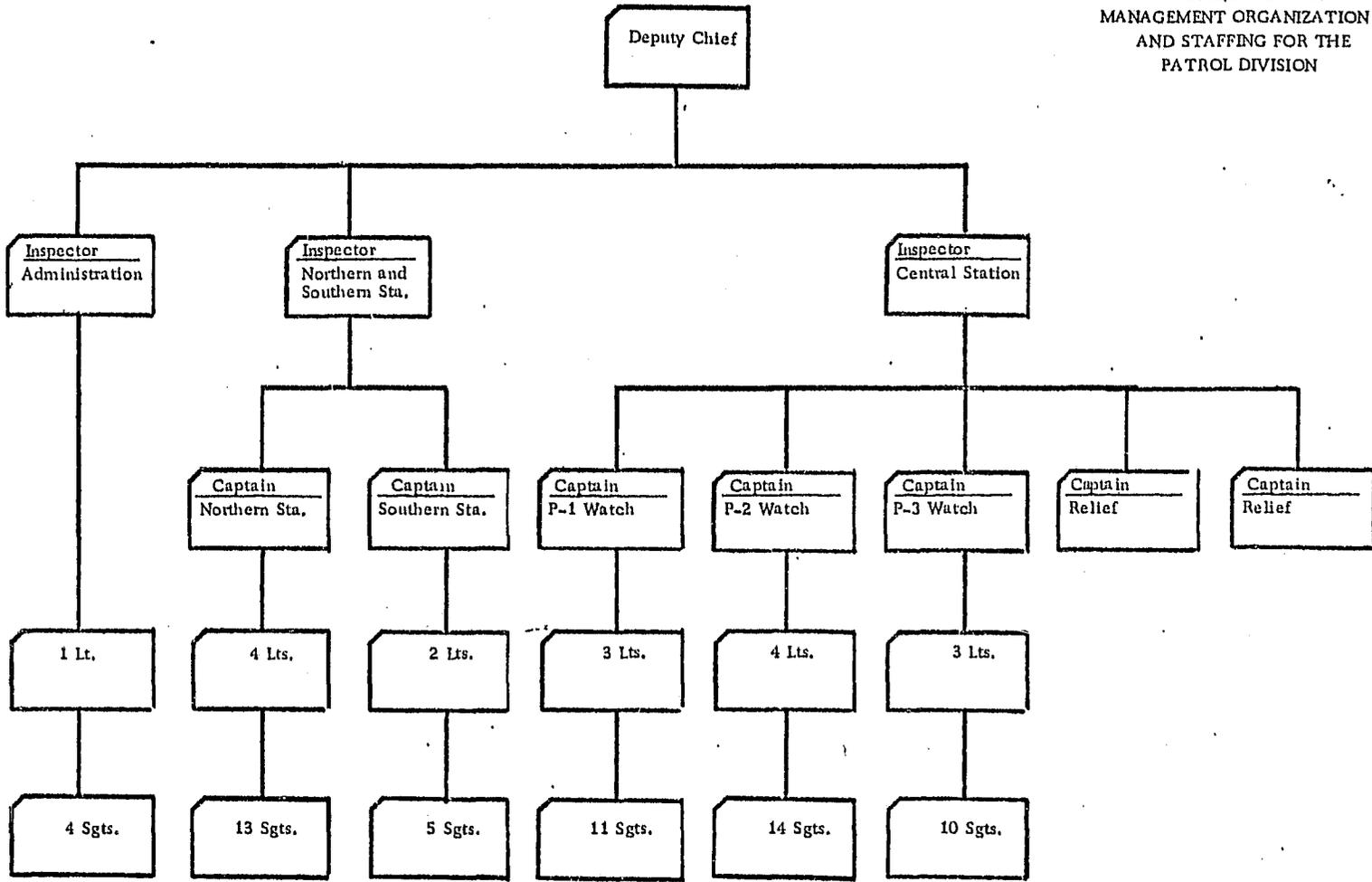
This chapter of the report presents findings and conclusions on how the Patrol Bureau formerly was organized and staffed from a managerial/supervisory standpoint; criteria used by the study team to assess the adequacy of this organizational structure and staffing level; the organization plan proposed; and the cost implications and benefits of these changes.

THE PLAN OF MANAGEMENT ORGANIZATION USED IN FISCAL YEAR 1978 HAD SEVERAL KEY FEATURES

The plan of managerial/supervisory organization and staffing employed by the Patrol Bureau in Fiscal Year 1978 is presented in Exhibit 6, following this page. The major features of this plan are summarized below:

- . Three (3) positions of Inspector existed: one to handle administrative tasks (e.g., budgeting, information systems, reserve program and so on); another to oversee the operations of the Northern and Central stations; and the other to direct patrol activities at the Central Station.
- . Seven (7) Captain positions were used in the following ways: five (5) assumed operational responsibility for either a sub-station or one of the three watches at the Central Station; while two others were classified as relief positions but, in actual practice, spent much of their time performing special projects and other administrative tasks.
- . Sixteen (16) Lieutenant positions were employed to handle various management and other tasks (e.g., complaint handling) on the different watches; with another position working in Patrol Administration.

EXHIBIT 6
 PREVIOUS PLAN OF
 MANAGEMENT ORGANIZATION
 AND STAFFING FOR THE
 PATROL DIVISION



- . Fifty-seven (57) positions of Sergeant were utilized, 49 in field supervision, 4 in Patrol Administration and 4 as "aides" to the Captains. Overall, the 49 Sergeants in the field had an average of 11 Police Officer positions reporting to them (553 officer positions were authorized in Fiscal Year 78).

VARIOUS APPROACHES AND CRITERIA WERE USED TO EVALUATE THE ADEQUACY OF MANAGEMENT STAFFING AND ORGANIZATION

The study team employed various approaches to assess the adequacy of Patrol organization and supervisory staffing levels. These included:

- . Selected interviews with command personnel at all organizational levels.
- . Development and implementation of time logs to quantify how management personnel were spending their time.
- . Analysis of current organizational planning trends and newer practices occurring in police departments as well as other public agencies.

In addition, various criteria were established to aid in the analysis of organization structure and numbers of supervisory/management staff needed including:

- . The degree to which existing supervisory personnel were effectively utilizing their time. The actual time spent by various supervisory levels on work tasks, as computed from time logs, is presented in Appendix F to this report.
- . Spans of supervisory control existing, desired and needed.
- . Specific areas of managerial accountability/responsibility needed.
- . The skill, rank and pay levels used and appropriate for various work tasks.
- . Managerial/supervisory work loads, where they could be determined.
- . The types of administrative tasks being accomplished and possible un-needed work or gaps which might exist.

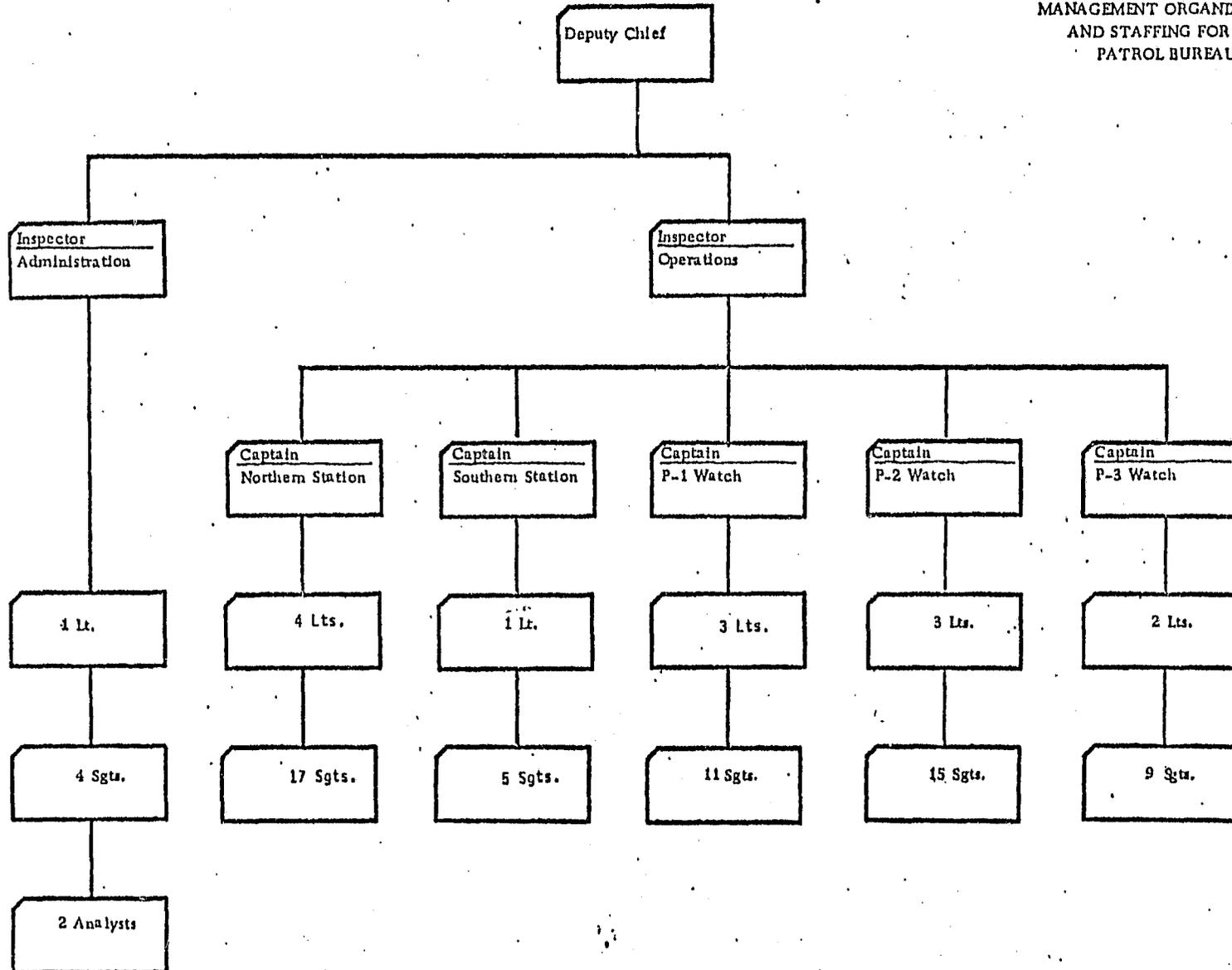
It should be underscored that no "best way" exists to structure and staff the patrol function in a police department. Effective organizational planning is both an "art" and "science."

AN ALTERNATIVE PLAN OF ORGANIZATION AND MANAGERIAL STAFFING WAS DEVELOPED AND PROPOSED

The plan of managerial organization and staffing proposed (and eventually adopted) for the Patrol Bureau is presented in Exhibit 7, following this page. The key features of this proposed organization and their rationale are summarized below.

- 1) Inspector Staffing Would Be Reduced - The Deputy Chief would be aided by two Inspectors, one to handle administrative/staff support matters (e.g., planning, management information, reserve and CSO program coordination), and the other "quality control" over field operations and performance. The Productivity Improvement Project team could not justify the third Inspector position based on management work load, span of control, command and control or any other organizational consideration. The Inspector responsible for operations should be able to handle and oversee the five Captains, particularly since under the concept of area or watch management, Captains would have increased responsibility and authority over field performance and operating practices.
- 2) The Number Of Captains Would Be Decreased - Operationally, five Captains would assume management responsibility for the northern area, southern area and P-1, P-2, and P-3 watches in the central area. Under the area/watch concept of management, Captains will be responsible for what goes on in their area/watch at all times (and not just the days they work). The two positions of relief Captain were deemed to be incompatible with this management responsibility/accountability concept. Moreover, in actual practice, the relief Captains have been performing special projects and other administrative tasks. Therefore, it was proposed that the two positions of relief Captain be abolished. Lieutenants should be able to handle management/command decision-making when a Captain is not present.
- 3) Two Analysts Would Be Added - Administratively, it was proposed that two Associate Administrative Analyst positions be added to the unit headed by the Administrative Inspector. These two positions would provide the additional support he needs in long-range planning, improving management information, developing and documenting budgets and staffing plans, work method analysis and conduct of other necessary research. These positions would also absorb the various special projects which, periodically, have been handled or overseen by the two relief Captains.

EXHIBIT 7
 PROPOSED PLAN OF
 MANAGEMENT ORGANIZATION
 AND STAFFING FOR THE
 PATROL BUREAU



CHANGES OVER PREVIOUS PLAN OF STAFFING +2 Analysts

+4 Sgts.

- 1 Lt.

- 1 Lt.
+ 1 Sgt.

- 1 Lt. - 1 Inspector
- 1 Sgt. - 2 Captains

4) It was proposed that the number of Lieutenants be reduced for several different reasons depending on the station and/or watch involved. These changes proposed were as follows:

- . Given the smaller size of the Southern Station, its staffing and work load, the Captain should assume responsibility for the day shift and a Lieutenant for the evening shift. Sergeants should be able to handle the third watch, eliminating the need for a second Lieutenant.
- . At Central for the P-3 shift, a Captain and two Lieutenants generally would provide an average of two command personnel available and on duty at all times for field management and staff support work tasks.
- . On the P-2 shift at Central, a third Lieutenant seems justified to oversee the "C" or "Power" squad. However, a fourth Lieutenant does not appear to be warranted.

5) Sergeant Staffing Would Be Increased And Reallocated Among The Three Stations And Watches - Additional Sergeants were recommended for Northern (4), and the P-2 (1) watch. The existing Sergeant staffing for the P-1 watch of 11 should be adequate and one less Sergeant was proposed for the P-3 time period. These increases or changes should maintain a ratio of one Sergeant to approximately nine officers. This was considered by the Productivity Improvement Project team to be a reasonable span of control. However, this also placed a premium on the Patrol Bureau to assist and train their Sergeants to be effective supervisors, since this level provides the real and most meaningful control over the efficiency, quality and effectiveness of police services.

The San Diego Police Department had proposed that four (4) of the Sergeant positions be formally considered as "aides." The study team did not concur with this proposal which would have necessitated the addition of four (4) more positions.

THE PROPOSED REORGANIZATION WOULD REALLOCATE MANAGERIAL POSITIONS AND SAVE OVER \$42,000

The reorganization that was proposed was geared to bolster or emphasize first-line supervision at the Sergeant level; use management/supervisory positions in a different way; increase the accountability of various command positions; strengthen administrative support functions; and accomplish these objectives

within the existing dollars appropriated for managerial/supervisory staffing levels. A potential savings of \$42,094 also was generated, as presented below:

<u>Positions Deleted</u>	<u>Increase/(Decrease) In Costs</u>
1 Inspector @ \$36,774	\$(36,774)
2 Captains @ \$33,476	(66,952)
3 Lieutenants @ \$28,972	<u>(86,916)</u>
	\$(190,642)
4 Sergeants @ \$25,020	\$ 100,080
2 Analysts @ \$24,234	<u>48,468</u>
	\$ 148,548
Potential Savings	\$(42,094)

V. ASSESSMENT OF PATROL OPERATING AND WORK PRACTICES

GENERAL

As stated earlier in this report, one of the major objectives of the Productivity Improvement Project of the Police Patrol Bureau was to, where appropriate, identify approaches for simplifying work, streamlining operations, and improving personnel utilization. With this objective in mind, many methods studies were conducted, resulting for the most part in either direct dollar savings, cost avoidances, and increased level of service without increasing staffing.

It should be pointed out that many of these methods improvements were not the original ideas of the Productivity staff, but were spawned by members of the Police Department. The Productivity analyst team in most cases did, however, expand on these ideas, provide the research effort, analyze them, and assess their cost effectiveness and potential benefit. One of the major assets of the Productivity Project is that it provides analytical expertise to City departments for these purposes that is not normally available in-house.

METHODS STUDIES CONDUCTED

The following is a list of the methods studies conducted:

- . 4-10 Hour Shift "Ten Plan"
- . Use Of A Police Trainee Classification In An Unsworn Status During Academy Training
- . Elimination Of Non-Injury Traffic Accident Investigations
- . Training
- . The Cost Effectiveness Of Staffing Police Ambulances With Community Service Officers

- . Patrol Unit Dispatching Policy
- . Number Of Units Dispatched On Calls-For-Service
- . Field Training Officer Program Revision
- . Emergency Medical Training
- . The Community Service Officer
- . Proposal To Reduce Cost Of False Alarms
- . Proposed Revision Of Shoplift Procedures
- . The Signing Of The Booking Slip By The Watch Commander
- . Report Dictating/Word Processing Systems
- . San Diego Police Reserve Utilization
- . Transporting And Booking Harbor Police Arrestees

While a detailed report was prepared for each of the above methods studies, for the purposes of brevity, a summary of each with purpose and scope, conclusion, recommendation, and benefits is presented here. In addition, the status of each methods improvement is noted, where applicable.

4-10 HOUR SHIFT "TEN PLAN"

Purpose And Scope - The purpose of this study was to determine if improved personnel utilization and effectiveness of the San Diego Police Department Patrol Bureau could result from restructuring the traditional 40-hour work week into four 10-hour days (Ten Plan) rather than five 8-hour days.

Conclusions -

1. Patrol officers and their field supervisors clearly favor the Ten Plan over the traditional 40-hour work week.
2. Police administrators' primary criticism of the Ten Plan is the difficulty in maintaining effective communication.
3. Considerably more patrol officers would be required to implement the Ten Plan in the San Diego Police Department Patrol Bureau.
4. The Ten Plan is financially more expensive.

Recommendation -

1. It is recommended that the Ten Plan not be implemented in the San Diego Police Department Patrol Bureau. The implementation of the Ten Plan would not be cost effective.

USE OF A POLICE TRAINEE CLASSIFICATION IN AN UNSWORN STATUS DURING ACADEMY TRAINING

Purpose and Scope - To reduce the cost of pre-service (Academy) training and the City's investment in this program since: (1) the academy functions as an important screening process for persons who want to become police officers; and (2) the City loses its investment in salaries and cash fringe benefits for trainees who fail to graduate. Emphasis was placed upon the potential cost savings of implementing a nonsworn recruit training program.

Conclusion - That to implement a Public Service Career Trainee/Police Officer I class would provide significant salary and fringe benefit savings along with other related benefits to the City.

Recommendation - That the City implement the use of a nonsworn Public Service Career Trainee/Police Officer I classification, excluding incumbents from the retirement system during training and that the recruits be promoted to Police Officer I and sworn in upon successful completion of the Police Academy.

Benefits -

1. Reduces the salaries and benefits paid by the City for Police Officer recruits during the academy training period by approximately 27%, producing significant savings to the City of approximately \$190,600 or 8.79 position years in FY 79, and \$359,101 or 16.56 position years in FY 80.
2. Reduces the City's potential disability retirement liability by restricting incumbents to Public Service Career Trainee/Police Officer I class from membership in retirement system.
3. Reduces potential disciplinary and managerial problems in that recruits would not meet the Penal Code Sections 830 (1) & (2) definitions of a peace officer. The recruits also would not be covered by the provisions of the "Police Officers Bill of Rights," (AB-301).
4. Extends the two year probationary period for sworn police officers to include two years from the completion of the academy.

5. Eliminates the requirement that recruits purchase expensive uniforms and leather gear immediately upon hiring. This is mainly an advantage to the employee as it allows the recruit to determine if he/she will actually complete the academy.
6. Provides achievement related goal to police officer recruits as the swearing in as a police officer is directly related to successful performance in the academy.

Status - Fully approved in concept and in the process of implementation.

ELIMINATION OF NON-INJURY TRAFFIC ACCIDENT INVESTIGATIONS

Purpose and Scope - To determine what benefit the City could realize by eliminating non-injury traffic accident investigations by the Police Department.

Conclusions -

1. There is no legal requirement that an investigation and report be made of non-injury traffic accidents.
2. The City would realize a cost savings if non-injury traffic accident investigations by the Police Department were eliminated.
3. It costs the City \$20.18 in labor and material to investigate and process each non-injury traffic accident. The current fee for the sale of each non-injury traffic accident report is \$3.00, therefore, the actual cost is \$17.18, assuming only one copy is sold.
4. The cost savings that could be realized may be deceptive considering the loss of vital statistical information and service to the public.
5. The most critical aspect in eliminating non-injury traffic accident investigations could be the inability of the City to properly defend itself in future traffic accident liability suits.

Recommendations -

1. The Police Department continue investigating and taking reports of non-injury traffic accidents.
2. Increase the current fee for the sale of each non-injury traffic accident report to \$10.00. This would partially offset the expenditure incurred for providing this service to the public.

Benefits - Using the data for calendar year 1977, there were 6,825 non-injury traffic accident reports taken and processed. If the fee for copies of these reports was raised to \$10.00, an additional \$47,775 would be potentially available for deposit in the general fund.

Status - Fully approved in concept. The City Manager has approved an increase in the current fee for the sale of each non-injury traffic accident report to \$5.00, instead of \$10.00 as originally recommended.

TRAINING

Purpose and Scope - This report investigates the amount and type of training given to new recruits. The relationship between academy and field training is explored and the costs associated with training are identified.

Conclusions - This report concludes that the San Diego Police Department provides more training to its recruits than any other California peace officer training facility.

Recommendations - This report recommends:

1. The creation of a program element in the Patrol budget that displays Field Training Officer Program costs.
2. That academy training time be reduced by 61 hours.
3. That academy classes be scheduled such that Patrol Bureau budgeted strength can be maintained.

Benefits -

1. Costs associated with recruit training will more clearly be identified.
2. Savings of \$98,518 or 4.54 position years in FY 79. Additional annual savings with each academy.
3. A mechanism which will predict the needs of the Department in terms of scheduling academy classes to maintain budgeted strength.

THE COST EFFECTIVENESS OF STAFFING POLICE AMBULANCES WITH COMMUNITY SERVICE OFFICERS

Purpose and Scope - The purpose of this method improvement is to propose replacing sworn officers in police ambulances with Community Service Officers (CSO's) in order to effect major savings while maintaining Patrol Bureau's current level of service. The approach taken is to show the benefits to be derived as CSO's, either CETA or General Funded, are phased into ambulances in 20% increments.

Recommendation - That police officers in ambulances be replaced by CSO's in 20% increments.

Benefits -

1. Benefits will accrue in both annual and one time savings realized as the number of CSO's in ambulances increase in 20% increments. Depending on whether the CSO's are CETA or General Funded, the savings will range as follows:

	<u>CETA CSO'S</u>	<u>GENERAL FUND CSO'S</u>
Annual Savings	\$320,568 to \$1,812,563	\$20,568 to \$312,563
One Time Savings	\$264,600 to \$1,322,700	\$168,030 to \$840,150

2. The current level of service will be raised because for every CSO ambulance scheduled, an additional beat unit will be fielded for full time patrol duties. In addition, CSO ambulances will be able to respond to selected calls for service (estimated at 15% of the total CFS work load). This will provide time for beat units to perform other duties.

Status - Approved in concept by the City Manager and Chief of Police. The City Council gave at least interim approval by not increasing the Patrol force by 26 police officers which represents the work load that the 59 CSO's currently authorized could perform when trained and fielded for ambulance duty. However, the City Council's Public Services and Safety Committee upon learning that the first class of CSO's was having difficulties with passing the Emergency Medical Technician (EMT) training, voted to put the 26 police officers back

in the budget. In so doing, the Committee allowed those CSO's who could be trained to be fielded in ambulances. It is estimated that 30 CSO's can be successfully trained in EMT and be fielded in ambulances in FY 79. This will result in the release of 13.00 Police Officer II's from ambulance duty. These P.O.II's will be used to augment fielded beat strength thereby raising the level of service. This amounts to a cost avoidance savings of \$281,970 for FY 79.

PATROL UNIT DISPATCHING POLICY

Purpose and Scope - The purpose of this methods improvement is to optimize the use of available patrol unit assets by promulgating a formal Department policy regarding their proper dispatching. To date, there has been a tendency to indiscriminately dispatch units regardless of the number of officers per unit and type of call, resulting in excessive numbers of officers on scene out-of-service and unavailable to respond to concurrent calls-for-service.

Recommendation - That a formal Department policy for dispatching patrol units be promulgated, recognizing the inherent capability of two-officer units for mutual cover, and formalize the number of units that should be dispatched by type of call-for-service.

Benefits - Increasing the level of service to citizens without jeopardizing officer safety.

Status - Being implemented.

NUMBER OF UNITS DISPATCHED ON CALLS-FOR-SERVICE

Purpose and Scope - This method improvement will increase patrol unit availability to handle additional calls-for-service and other assigned or self-initiated work load without increasing staff or equipment. Presently two-

officer units staffed with a regular Police Officer II and a graduate reserve academy trained reserve officer are not considered as two-officer units by police dispatchers when assigning units to calls-for-service.

Conclusions - Police Department (Patrol) Instruction 6.14, specifies reserves assigned as a second officer in a car should be given responsibilities comparable to their training and experience.

Recommendation - Alter dispatch assignment policy to require dispatch operators to consider any unit staffed with two-officers as a two-officer unit in their assignment of beat patrol units to calls-for-service.

Benefits - 14.99 position years and associated vehicle cost avoidance savings would become available through increased availability of units that previously would have been dispatched. Total annual savings would be \$325,086.

Status - Being implemented and included in Police Officers Required formula.

FIELD TRAINING OFFICER REVISION

Purpose and Scope - To summarize the changes in the Field Training Officer Program which allow the trainee to complete the program at his/her own pace.

Recommendation - That efforts in this area continue to be monitored and that, if needed, assistance from the Productivity team be provided.

Benefits - The benefit of this program change is a reduction in officer training costs. For example, in FY 79 if all 258 trainees of the FTO Program finished six weeks early the cost reduction realized would be \$841,894 or 38.81 position years.

Status - Proposal under study by Police Department. It is probable that no savings will be achieved in Fiscal 79 as the Police Department feels it needs more experience with the FTO Program and its results over time.

EMERGENCY MEDICAL TRAINING

Purpose and Scope - This report examines why the Police Department presently trains all police recruits as Emergency Medical Technician I (EMT I) and suggests that it is no longer necessary to do so.

Conclusions - The primary reason recruits have been EMT trained is that they will probably, at some time, receive an ambulance duty assignment. State law requires ambulance attendants to be EMT qualified. With the advent of the Paramedic and/or Community Service Officer in Ambulances Program it will no longer be necessary to utilize sworn police personnel as ambulance attendants.

Recommendations - It is recommended that the present Academy Medical Training Course be revised downward from 96 hours (EMT I) to 48 hours (Advanced First Aide).

Benefits -

1. A cost savings of \$419 per recruit (computed on FY 78 salaries). In FY 79 this will yield a projected savings of \$77,500 or 4.2 position years.

Status - Fully approved. Effective with the 91st Police Academy convening about September 25, 1978 the recruits will not be trained as EMT's.

THE COMMUNITY SERVICE OFFICER

Purpose and Scope - This methods study explores the cost savings that can be attained if Community Service Officers (CSO's) are utilized to handle a percentage of the non-hazardous priority 4 and 5 calls-for-service.

Conclusion - It has been concluded that if the CSO's were deployed in ambulance units (as discussed in the report Cost Effectiveness of Staffing Police Ambulances with CSO's) that the current budgeted strength of 59 CSO's could also handle

8% of the non-hazardous CFS work load. If the entire ambulance fleet was to be staffed with CSO's (150 people) approximately 15% of the non-hazardous work load could be handled.

Recommendations - It is recommended that CSO's staff ambulance units and respond to non-hazardous calls-for-service when time permits.

Benefits - Annual dollar savings accruing from having nonsworn personnel handle some non-hazardous calls range from \$324,000 or 14.94 position years (8% handle) to \$607,000 or 27.99 positions years (15% handle).

Status - To be assessed in Fiscal 79 when experience with CSO's increases.

PROPOSAL TO REDUCE COST OF FALSE ALARMS

Purpose and Scope - The purpose of this methods improvement is to propose a three pronged attack against lost officer time in responding to false alarms. Currently, 95% of all the activated alarms are considered by the Department to be false. The approach taken by the recommended programs in this proposal is conservative. The idea is to develop a good understanding of the problem, maintain rapport with the alarm industry and alarm subscriber, and begin to reduce this drain of police resources through simple but effective means.

Recommendations - A coordinated attack, using three programs is recommended as follows:

1. Establishment of the position of Alarm Monitor. It will be the duty of this person to determine how, when, where, and why false alarms occur.
2. Implementation of a consumer education program. Education on the installation of the proper alarm system and more strict adherence to proper operating procedures are the two areas where this program can reduce false alarms.
3. Consideration of the adoption of an alarm ordinance.

Benefits - First year annual savings of \$76,912 or 3.55 position years can be achieved. Subsequent year annual savings should increase. There will be considerable reduction of officer out-of-service time. Increased officer safety will occur. The current 95% false alarm rate can create an inherent lack of proper precaution by officers responding to alarms as they know that 95% of the time there will be no criminal activity involved.

Status - Being implemented.

PROPOSED REVISION OF SHOPLIFT PROCEDURES

Purpose and Scope - The purpose of this methods improvement is to modify current shoplift paperwork procedures by requiring store security personnel to complete the paperwork prior to the arrival of the police on scene. Current procedure requires the police officer to complete the reports involving 30 to 45 minutes per average case. Multiplying this time by several thousand arrests emphasizes the need to consider a better use of police officer time.

Recommendation - The present procedure should be modified to have the store security personnel complete both the Arrest/Juvenile Contact Report and the Crime Incident Report.

Benefits - There will be potential annual savings of \$20,550 or 0.95 position years by the saving of 30-45 minutes of officer time per shoplift. There will be a reduction of out-of-service time thereby enabling the officer to concentrate on more technical police duties.

Status - Being implemented.

THE SIGNING OF THE BOOKING SLIP BY THE WATCH COMMANDER

Purpose and Scope - The purpose of this methods improvement is to save officer time and vehicle costs by instituting a procedure whereby a telephone call

by the arresting officer to the Watch Commander would substitute for a trip to Central Station for booking approval in most arrest cases.

Conclusion - The practice of requiring patrol officers to drive to Central Station for Watch Commander approval, in the majority of arrests, is counter productive. Telephoning for approval will maintain the integrity of the review process in most cases.

Recommendation - That the arresting officer, whenever practical, telephone the Watch Commander and discuss the arrest over the phone. The officer, upon approval, would then take the prisoner directly to jail.

Benefits - A potential annual savings of \$33,849 or 1.56 position years, reduced out-of-service time, and reduced vehicle costs.

Status - Being implemented.

REPORT DICTATING/WORD PROCESSING SYSTEMS

Purpose and Scope - Determine if the word processing system proposed by the San Diego Police Department is the best solution to reduce patrol officer time spent on handwriting Arrest Reports, Crime/Incident Reports, and Officer Reports.

Conclusions - A word processing system may be a suitable solution to relieving patrol officers of the tedious task of handwriting all their reports.

Recommendations -

1. That a 90-day word processing system pilot test be conducted during Fiscal 1979 using the Planning Department's existing dictation system, a loaned or leased selectric typewriter, and a leased text editor.
2. That prior to the pilot test starting, formalized dictation training be arranged and attendance be required of all personnel to be involved in the pilot test.

3. That the discrete media cassette dictating system of the Planning Department be closely evaluated and compared against the non-discrete endless loop system recommended by the Police Department during the Fiscal 1979 proposed budget cycle.
4. That, if the pilot test results are positive, authorization be granted to implement a word processing center in the Police Department during Fiscal 1980.

Benefits - No immediate benefits; in fact, it will cost approximately \$10,183 to conduct this test. This expenditure could be reduced to approximately \$2,233 if the required supervisor and transcriptionist positions could be filled from existing resources of the Police Department.

If the figures provided by the Police Department in their word processing proposal prove correct during the pilot test, significant future potential savings should result. First year estimated potential savings would be \$187,391 or 8.64 position years. The estimated second and subsequent years potential savings would be \$232,927 or 10.74 position years.

Status - New system being set up for testing.

SAN DIEGO POLICE RESERVE UTILIZATION

Purpose and Scope - To summarize the major duties assigned Reserve Officers, determine the cost to administer the Police Reserve, and provide an understanding of the residual benefits the community derives from this program.

Recommendation - That strong efforts be made to increase the enrollment of the Police Reserve.

Benefits -

1. The Reserve Program provides an excellent "farm system" for regular Police Officer recruitment.
2. In calendar year 1977 provided 112,194 hours of field and special duty for the citizens of the community. This represents a \$1,110,792 dollar benefit to San Diego taxpayers and is equivalent to an additional 51.2 Police Officer II's.

3. Many of these services provided by Reserve Officers represent a higher level of service than the Police Department could provide without them.

TRANSPORTING AND BOOKING HARBOR POLICE ARRESTEES

Purpose and Scope - The purpose of this methods improvement is to further optimize the use of available patrol units by stopping the practice wherein San Diego Patrol Bureau officers were transporting and booking adult and juvenile offenders apprehended by the Harbor Police.

Conclusion - This practice was beyond the scope and responsibility of the Department; in essence, providing a gratis service for the Harbor Police.

Recommendation - That the practice be stopped. (In January 1978 this practice was stopped).

Benefit - Annual savings of \$1,405 or 0.06 position years should accrue as a result of this new policy.

Status - Completely implemented.

OTHER METHODS IMPROVEMENTS UNDER STUDY

There are three additional methods studies currently underway. They are:

- . Vehicle Assignment and Use
- . Officer Activity Information
- . The San Diego Police Reserve: A Career Path To Professional Law Enforcement

Vehicle Assignment and Use - Initially, a study was made to vehicle assignment and use for the Patrol Bureau. At the request of the Department, this study has been expanded to include all vehicles used by the San Diego Police Department. It is hoped that the finds of this study will determine the optimum assignment and usage for all Department vehicles.

Officer Activity Information - This study is aimed at evaluating methods of capturing the information necessary, in the most efficient manner, to produce an Officer's Activity Report for the purpose of providing management information.

The San Diego Police Reserve: A Career Path To Professional Law Enforcement - This study is evaluating the possibility of providing Police Reserve Officer candidates with identical training as regular recruits in order that, upon successful completion, they may have lateral entry as regular officers.

EFFICIENT PRACTICES CURRENTLY EMPLOYED BY THE PATROL BUREAU

The Productivity Improvement Project analyst team found many progressive and positive features in current Patrol management and operations. It is felt that the following, among others, should be mentioned:

- . The "one write" report writing system is efficient
- . The Patrol Bureau basically relies on the use of one-person cars
- . Ambulance services and emergency medical care are provided in an economical fashion
- . A significant effort has been made to implement the concept of "Community Oriented Policing"
- . The time spent by patrol officers in handling calls is reasonable and not excessive
- . The Reserve Program provides additional volunteered services and special tactical capabilities worth about \$1.1 million annually
- . About 40% of the service requests are "screened"
- . A Community Service Officer (CSO) Program is being implemented
- . Patrol officers are provided extensive pre-service training
- . Command staff generally exhibit an interest in changes to improve operations.

VI. MEASURING AND MONITORING PATROL PERFORMANCE

GENERAL

In this chapter, steps currently being taken to improve the way patrol performance is measured and monitored are outlined.

SUPERVISORS WERE QUERIED TO DETERMINE WHAT INFORMATION THEY FELT WAS NEEDED TO MANAGE THE PATROL BUREAU

The study team developed a list of information that could possibly be useful to patrol supervisors in managing their operations. This information was classified into three categories: data needed to monitor work loads; data necessary for assessing operational efficiency; and data desired to evaluate work quality. This tentative information list is presented in Exhibit 8. The data with an asterisk in this exhibit represents the information in which patrol supervisors expressed the greatest interest.

AN INTERIM PERFORMANCE REPORTING PROCESS HAS BEEN DESIGNED FOR IMPLEMENTATION

To date, an interim performance reporting system has been designed for implementation in the Patrol Bureau. Initially, this system focuses on key information desired monthly for each sergeant's area by watch. Ideally, this same information should be available for each police officer working in that geographic area. The key features of this performance monitoring system are as follows:

- Reported crimes by type (primarily those that patrol officers can have impact on) would be reported and compared to the past month, same month last year and a "target" established by command personnel.

POSSIBLE INFORMATION NEEDED
TO MANAGE THE PATROL BUREAU

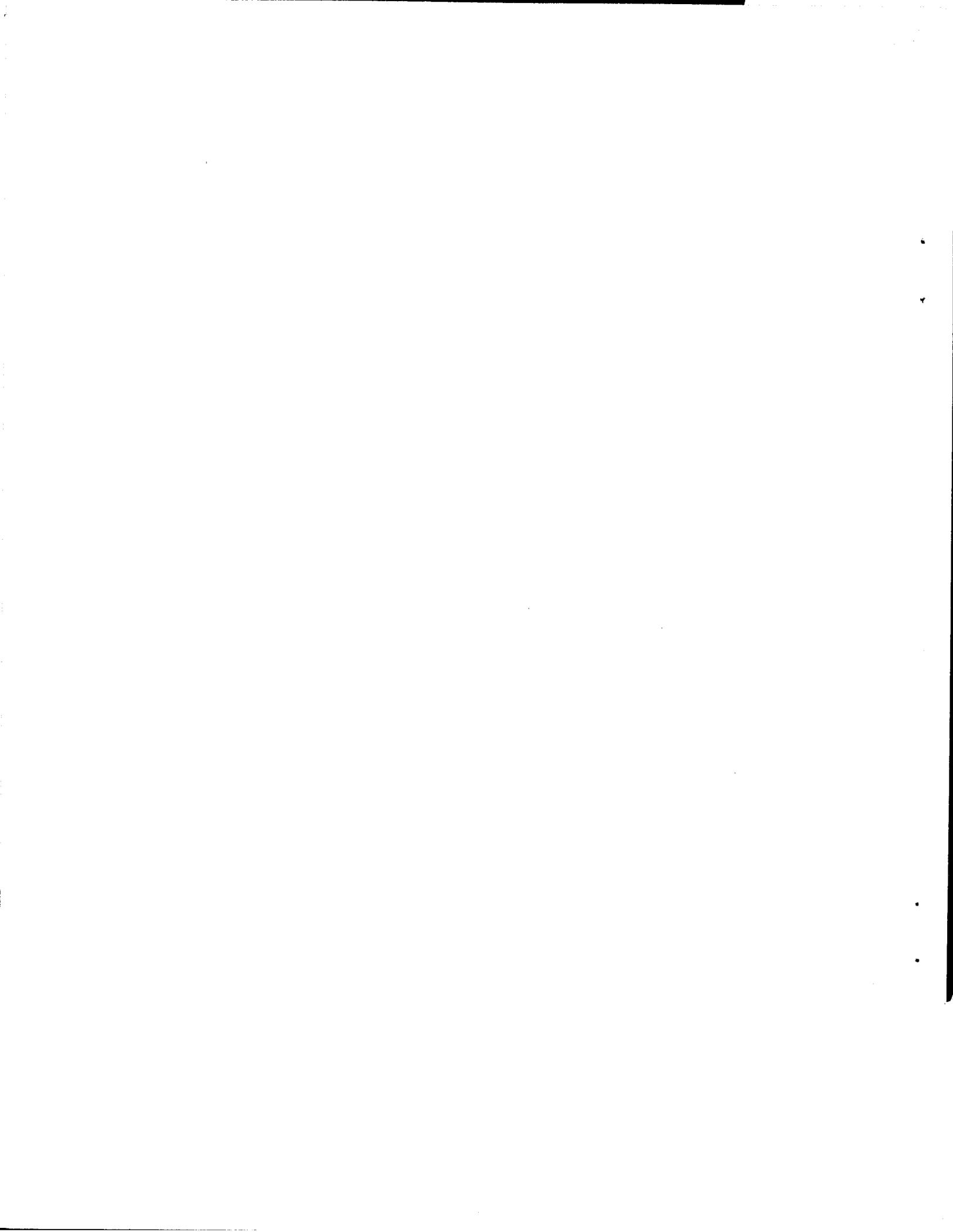
Workload	Efficiency	Work Quality
CFS received, "screened" and dispatched by type of call/incident *	% time officer "out of service" * Average time spent for CFS *	Average time needed to respond to a CFS *
	% of CFS by type resulting in a report, arrest, citation CFS per officer *	Satisfaction levels of callers with regard to how call handled Citizen complaints and average time to resolve *
Hours spent by officers in court, sick leave, vacation, lunch, breaks, training, injury leave, military leave and light duty *	% of CFS "screened"	
# hours spent by officers in report writing	% of CFS for which a report written % of time spent by officers in report writing	Quality of reports *
# of overtime hours *	% overtime costs of personnel costs	
# of traffic stops made, warnings given and citations issued *	% of officer time spent in various types of traffic enforcement functions.	% of traffic citations issued resulting in a judicial penalty *
# of field interrogations and citizen contacts made *	% of officer time spent in FI and CC	% of arrests resulting from FI and CC
# warrants successfully served	Warrants served per officer	
# of alarms responded to and amount of officer time expended	% of officer time spent in responding to false/legitimate alarms	% of alarms responded to resulting in arrest/convictions
Amount of "free time" available per officer		
# house/security checks made	% of officer time spent in security checks	
# crimes reported by type		% of reported crime by type cleared by officers

Note: Generally this information would be needed by watch and sergeant's area.

Workload	Efficiency	Work Quality
<p># of arrests by type made by officers *</p> <p>\$ value of stolen property recovered</p> <p># of follow-up investigations made</p> <p># of traffic accidents by cause *</p> <p># of community related activities performed (e.g., ride-along, community meeting attendance) *</p> <p>Amount of time spent performing research or staff work for a superior officer</p>	<p>% of "free time" or "out-of-service" time spent in follow-up investigations</p> <p>% of traffic citations related to the major causes of accidents *</p> <p>% of time officer spends in COP related work *</p>	<p>% of arrests resulting in a conviction *</p> <p>\$ value of property recovered return to owners</p> <p>% of crimes were follow-up made resulting in arrest/citation</p> <p># of traffic accidents compared to trends *</p> <p>% cases solved or arrests/citations made due to COP related work</p>

- . Traffic accident levels would be reported, with the number at accident-prone locations being monitored as well. In addition, the number of accidents by major cause would be tracked.
- . Response and handling times would be monitored as well as "out of service" time and report writing time.
- . Self initiated activity would be reported, as well as other work load indicators, including arrests made, traffic citations issued (including those for various accident causes), crime detection and investigative activity and types of community involvement.

An illustrative format of how this Sergeant's report might look is set forth in Exhibit 9. Currently, the Productivity Improvement Project and team members are analyzing how the information needed for this report might be collected (through existing or new data sources) and testing the adequacy of the report format recently designed.



SERGEANTS' AREA REPORT - PATROL BUREAU

Area # _____ Watch _____ Reporting Period _____ to _____

I. Area Crime Data

Subject	Current Mo.	Current Mo. Target	Variation From Target	Past Mo.	Variation From Past Month	Same Mo. Last Year	Variation From Mo. Last Year	Target Next Mo.
Burglary	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Robberies	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Assaults	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Thefts	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Disturances	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

II. Traffic Related Data

Accidents

Subject	Current Mo.	Current Mo. Target	Variation From Target	Past Mo.	Variation From Past Month	Same Mo. Last Year	Variation From Mo. Last Year	Target Next Mo.
Injury/Death	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
See Prop. Dam	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total Accid.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Accidents By Cause

Speed	XXX							
Right-of-Way	XXX							
Run Light/Sign	XXX							
Follow too Close	XXX							
DNI/Drunk	XXX							
Others								

Subject	Current Mo.	Current Mo. Target	Variation From Target	Past Mo.	Variation From Past Month	Same Mo. Last Year	Variation From Mo. Last Year	Target Next Mo.
<u>Accidents By Location (3+ accidents per location)</u>								
Ave.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ave.								
Ave.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ave.								
Ave.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ave.								

III. Calls For Service
Response Time (10-4 to 10-97)

	This Reporting Period						Last Month				Yearly Target	
	Aver/Resp. Priority		Target Priority		# Calls Priority		Aver. Last Mo. Priority		# Calls Last Mo. Priority		Yearly Target	
	(1 & 2)	(Others)	(1 & 2)	(Others)	(1 & 2)	(Others)	(1 & 2)	(Others)	(1 & 2)	(Others)	(1 & 2)	(Others)
	XXXXXXXXXX	XX	XXX	XX	XXX	XX	XXX	XX	XX	XX	XXX	XXX
XXXXXXXXXX	XX	XXX	XX	XXX	XX	XXX	XX	XX	XX	XXX	XXX	XXX
XXXXXXXXXX	XX	XXX	XX	XXX	XX	XXX	XX	XX	XX	XXX	XXX	XXX
XXXXXXXXXX	XX	XXX	XX	XXX	XX	XXX	XX	XX	XX	XXX	XXX	XXX
Total/Area by watch	XX	XXX	XX	XXX	XX	XXX	XX	XX	XX	XXX	XXX	XXX

Handling Time (10-97 to 10-8)

Name	This Reporting Period			Last Month		Month Last Year		Yearly Target
	Aver/Call	Target	# Calls	Aver/Call	# Calls	Aver/Call	# Calls	
XXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total/Area by watch	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Out-of-Service-Time (other than handling time)

Name	Present Month			Last Month		Month Last Year		Yearly Target
	Aver/Call	Target	# Calls	Aver/Call	# Calls	Aver/Call	# Calls	
XXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total Area/Watch	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

<u>Report Time</u> Name	<u>Present Month</u>			<u>Last Month</u>		<u>Month Last Year</u>		<u>Yearly Target</u>
	<u>Aver Report.</u>	<u>Target</u>	<u># Reports</u>	<u>Aver Report</u>	<u># Reports</u>	<u>Aver. Report</u>	<u># Reports</u>	
XXXXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXXXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total Area/Watch	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Other

IV. Self Initiated Activity/Workload Activities

Arrest Activity

Part I Crimes

<u>Name</u>	<u>Pres. Mo.</u>	<u>Target</u>	<u>Var. from Target</u>	<u>Past Mo.</u>	<u>Var.</u>	<u>Mo. Last Year</u>	<u>Var.</u>	<u>Target Next Mo.</u>
XXXXXXXXXXXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total/Area	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Part II Crimes

XXXXXXXXXXXX	XXX							
Total/Area	XXX							

Total Arrest Activity (Felony & Misd.)
(same as above)

Traffic Activity

Hazardous Citations

XXXXXXXXXXXX	XXX							
Total/Area	XXX							

Non-Hazardous Citations
(same as above)

Motor Traffic Citations

<u>Name</u>	<u>Speed Vio.</u>		<u>Right-of-Way</u>		<u>Run Light/Sign</u>		<u>Follow/Close</u>		<u>DWI</u>		<u>Others</u>	
	<u>Mo.</u>	<u>Prev. Mo.</u>	<u>Mo.</u>	<u>Prev. Mo.</u>	<u>Mo.</u>	<u>Prev. Mo.</u>	<u>Mo.</u>	<u>Prev. Mo.</u>	<u>Mo.</u>	<u>Prev. Mo.</u>	<u>Mo.</u>	<u>Prev. Mo.</u>
XXXXXXXXXXXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Aver for area by watch	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Crime Detection and Investigative Activity

Name	FLD Int.		Sec. Ck		Detention		Imp/Recover		Criminal Inv.		Traffic/Accid. Inv.	
	MO	Prev. MO	MO	Prev. MO	MO	Prev. MO	MO	Prev. MO	MO	Prev. MO	MO	Prev. MO
XXXXXXXXXXXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Aver. for Area by watch	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

Community Involvement Activity

Name	Amb. Runs		Ride-a-Along		(11-86)	(11-48)	(11-88)	Community Meetings	
	MO	Prev. MO	MO	Prev. MO	Sp. Details	Transport/Asst. Motorist	Community Meetings	MO	Prev. MO
XXXXXXXXXXXX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Aver. for area by watch	XX	XX	XX	XX	XX	XX	XX	XX	XX

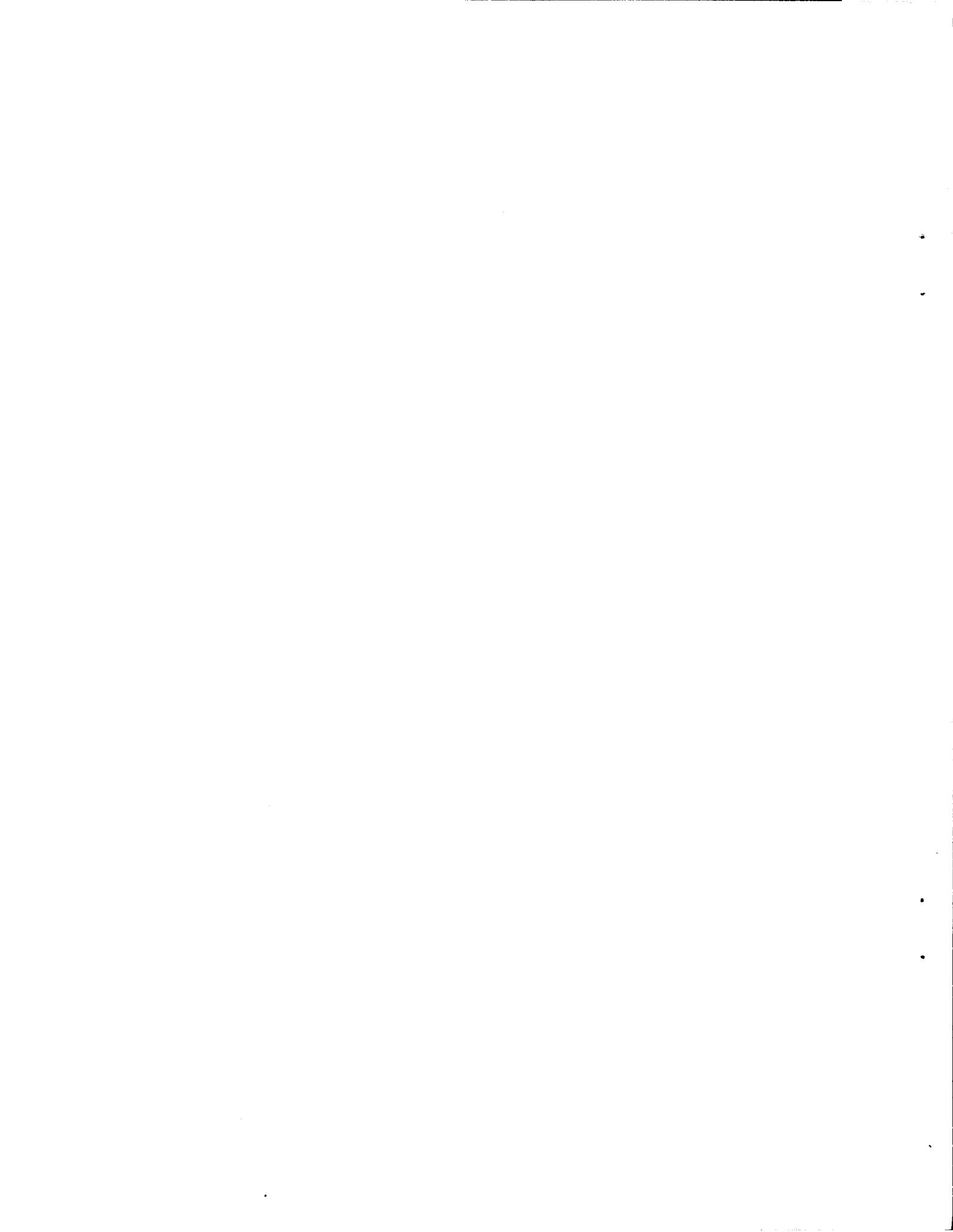
VII. SUMMARY OF PROJECT BENEFITS

GENERAL

Numerous benefits were realized by the completion of the Productivity Improvement Project study of the Police Patrol Bureau. These include savings or cost reduction/avoidance opportunities for patrol operations of \$948,455 for Fiscal 79 and \$1,785,307 for Fiscal 80 based on methods improvements. In addition, an annual savings of \$42,094 was realized by revised management and supervisory staffing. All of these savings resulted in no lessening of service level, and increased it substantially in several areas. Further, the City's in-house capabilities in conducting future productivity studies were significantly enhanced.

Exhibit 10 summarizes the savings identified for patrol operations through methods improvements for Fiscal 79 and Fiscal 80 plus cost avoidances for the same fiscal years which translate into increases in service level.

Exhibit 11 summarizes the annual savings accrued through revised supervisory and management staffing.



SAVINGS IDENTIFIED FOR PATROL OPERATIONS

METHODS IMPROVEMENT		COST REDUCTION		COST AVOIDANCE	
		FY 79	FY 80	FY 79	FY 80
1. 4-10 Hour Shift, "Ten Plan"	\$ Pos.				
2. Unsworn Academy Trainees	\$ Pos.	\$190,600 8.79	\$359,101 16.56		
3. Non-Injury Traffic Accident Investigations	\$ Pos.	\$ 13,650 0.63	\$ 13,650+ 0.63+		
4. Reducing Pre-Service Training	\$ Pos.	\$ 98,518 4.54	\$ 98,518+ 4.54+		
5. CSO's In Ambulances	\$ Pos.	\$555,264 25.60			
6. Patrol Unit Dispatching Policy	\$ Pos.				
7. Number Of Units Dispatched On CFS	\$ Pos.			\$325,086 14.99	\$325,086+ 14.99+
8. FTO Program Revision	\$ Pos.		\$280,631 12.94		
9. Deletion Of EMT For Officer Recruits	\$ Pos.	\$ 41,900 1.93	\$ 77,515 3.57		
10. Expansion Of CSO Program	\$ Pos.		\$289,000 13.32		
11. Reduction Of False Alarm Cost	\$ Pos.	+\$ 21,690 + 1.00	\$ 98,602 4.55		
12. Revision Of Shoplift Procedures	\$ Pos.	\$ 10,275 0.47	\$ 20,550 0.95		
13. Revised Prisoner Booking Procedure	\$ Pos.	\$ 16,924 0.78	\$ 33,849 1.56		
14. Report Dictating/Word Processing	\$ Pos.	+\$ 10,183 N.A.	\$187,400 8.64		
15. Police Reserve Utilization	\$ Pos.			\$1,110,792 51.21	\$1,110,792+ 51.21+
16. Harbor Police Arrestees	\$ Pos.	\$ 1,405 0.06	\$ 1,405+ 0.06+		
Totals	\$ Pos.	\$896,663 41.80	\$1,460,221 67.32	\$1,435,878 66.20	\$1,435,878 66.20

REVISED MANAGEMENT AND SUPERVISORY STAFFING

<u>POSITION</u>	<u>CURRENT FY 78</u>	<u>REVISED FY 79</u>	<u>NET CHANGE</u>	<u>ANNUAL \$ SAVINGS</u>	
Deputy Chief	1	1	0	0	
Inspector	3	2	(-)1	\$ 36,774	
Captain	7	5	(-)2	66,952	
Lieutenant	17	14	(-)3	86,916	
Sergeant	57	61	(+)4	(-) 100,080	
Assoc. Admin. Analyst	0	2	(+)2	(-) <u>48,468</u>	
				\$ 42,094	Total Annual Savings

APPENDIX A

TASK LISTS

1. Literature search on trends and experiments in patrol operations, tactics and management information systems. Possible sources:
 - . LEAA - National CJ Reference Service
 - . ICMA - Target Publication
 - . Police Foundation, Washington, D. C.
 - . LEAA - National Commission on CJ Standards and Goals
 - . IACP
 - . NCOQWL
 - . Library for graduate school on CJ Administration
 - . Urban Institute
 - . ICMA - MIS publications
 - . John Jay College (NY)
 - . Other?
2. Inventory and document selected management and information systems, including:
 - . How AJI "effectiveness" measures will be used/trends or levels currently attained
 - . Manpower allocation/beat alignment (now and plans for future)
 - . Work load, crime data, time usage data maintained/how accessed
 - . Crime/work load forecasting systems employed
 - . Information/Studies of Research and Analysis unit (present and future)
3. Develop five year (or as far back as practicable) trend charts on such factors as:
 - . Authorized and actual positions by class
 - . Total and dispatched CFS by type/priority
 - . Field interrogations by type
 - . CFS by time of day, day of week, month, quarter
 - . CFS by station
 - . Arrests and citations attributable to patrol
 - . Court time (on duty/paid overtime/comp. time)
 - . Turnover (separations, retirement, transfers in/out of patrol)
 - . Vehicles by type/assignment
 - . Budgeted and actual expenditures by category
 - . Square miles of area served/population
 - . Develop and track various input/output indices
4. Inventory and document current plan of Patrol organization and staffing.
 - . Organizational units
 - . Staff assigned by position class/station/patrol zone/shift/time of day/day of week/patrol approach (e.g. one/two person cars/specialized assignment)
 - . Account for all personnel (rosters, schedules, "bootlegs," etc.)

5. Inventory and document 1976-77 Patrol work loads by station, shift, and beat including:
 - . Total and dispatched CFS by priority/type
 - . CFS - time of day, day of week, month, station
 - . Number and percent CFS where two or more units respond
 - . Field stops made
 - . Arrests (where booked/misdemeanor citations)
 - . Number/type of reports written
 - . Logs/journals kept (number and type)

6. Inventory and document current operating practices including:
 - . How CFS "screened"/dispatched/assigned
 - . Arrest/booking procedure, including citations
 - . Crime/accident prevention tactics utilized
 - . Policy for backup
 - . Traffic enforcement

7. Inventory and document selected management aid information systems including:
 - . Existing performance measures for patrol and reporting systems
 - . Plans for improving MIS (reporting systems)

8. Document current manpower availability, including:
 - . Vacation days by position class
 - . Holidays taken (if not paid)
 - . Sick leave
 - . Disability leave
 - . Other leave
 - . Academy training
 - . Post academy training (FTO Program)
 - . Off-duty training
 - . On-duty training by type (e.g. briefing sessions/shooting)
 - . Recruitment/selection time
 - . Reserves (how many/how utilized)

9. Inventory and document current operating practices including:
 - . Vehicles
 - A. By station, what is minimum/maximum number of units that can be fielded
 - B. By station, how many units are available after shift is fielded
 - C. Graphically represent for busiest case the number of actual positions in field (personnel and cars)
 - D. Number of vehicles (by type) that are out when most people are out
 - E. Comparative data with other agencies
 - F. Take home cars (who/why)
 - G. Vehicle cost by type
 - H. Operating cost by type
 - I. Replacement policy

10. Inventory and document current operating practice including:
 - . Reports (what/how/types/instructions/samples)
 - . Training schedule
 - . Use of light duty officers
 - . Use of clerical personnel (work distribution charts)
 - . How officer performance monitored/evaluated
 - . Officer assignments/utilization
 - . Alarm handling
 - . CSO program/plans for use

11. Inventory and document selected management and information systems including:
 - . Information/studies of Research and Analysis unit on past MIS
 - . Suggestion Awards
 - . Data available to command personnel/output reports

12. Inventory and document current operating practices including:
 - . How briefings conducted
 - . Shifts - when changed by station
 - . Court time assignment/scheduling
 - . Vacation scheduling
 - . How uncommitted time utilized

APPENDIX B

INFORMATION DEVELOPED FOR PATROL BUREAU PROFILE

1. Patrol Bureau Organization Chart
2. Current authorized functions and staffing
3. Current authorized functions and staffing plus additional assumed functions
4. Map of geographical area of responsibility
5. Station watch procedures, by Station
6. Position and salary schedule for Patrol - FY 78
7. Police Department Personnel Distribution Report
8. Adjusted Police Department Personnel Distribution Report
9. Shift/time of day scheduled for Central, Northern, Southern Stations
10. Functional organization analysis
11. Police Department personnel actually assigned to Patrol Bureau
12. Comparison between Patrol Bureau personnel status board and analysis of personnel assigned
13. Patrol-units/patrol officers per time of day, by Station
14. Patrol watch list, by Station
15. Patrol approach, by Station
16. By Station - first watch, units per beat/per day/per time of day
17. By Station - second watch, units per beat/per day/ per time of day
18. By Station - third watch, units per beat/per day/per time of day
19. Beat staffing, by Station
20. Beat areas, by Station
21. Patrol - budgeted, assigned and available officers
22. Patrol - hours of court time/court time by watch/court time expenditures
23. Patrol - budgeted vs. actual expenditures

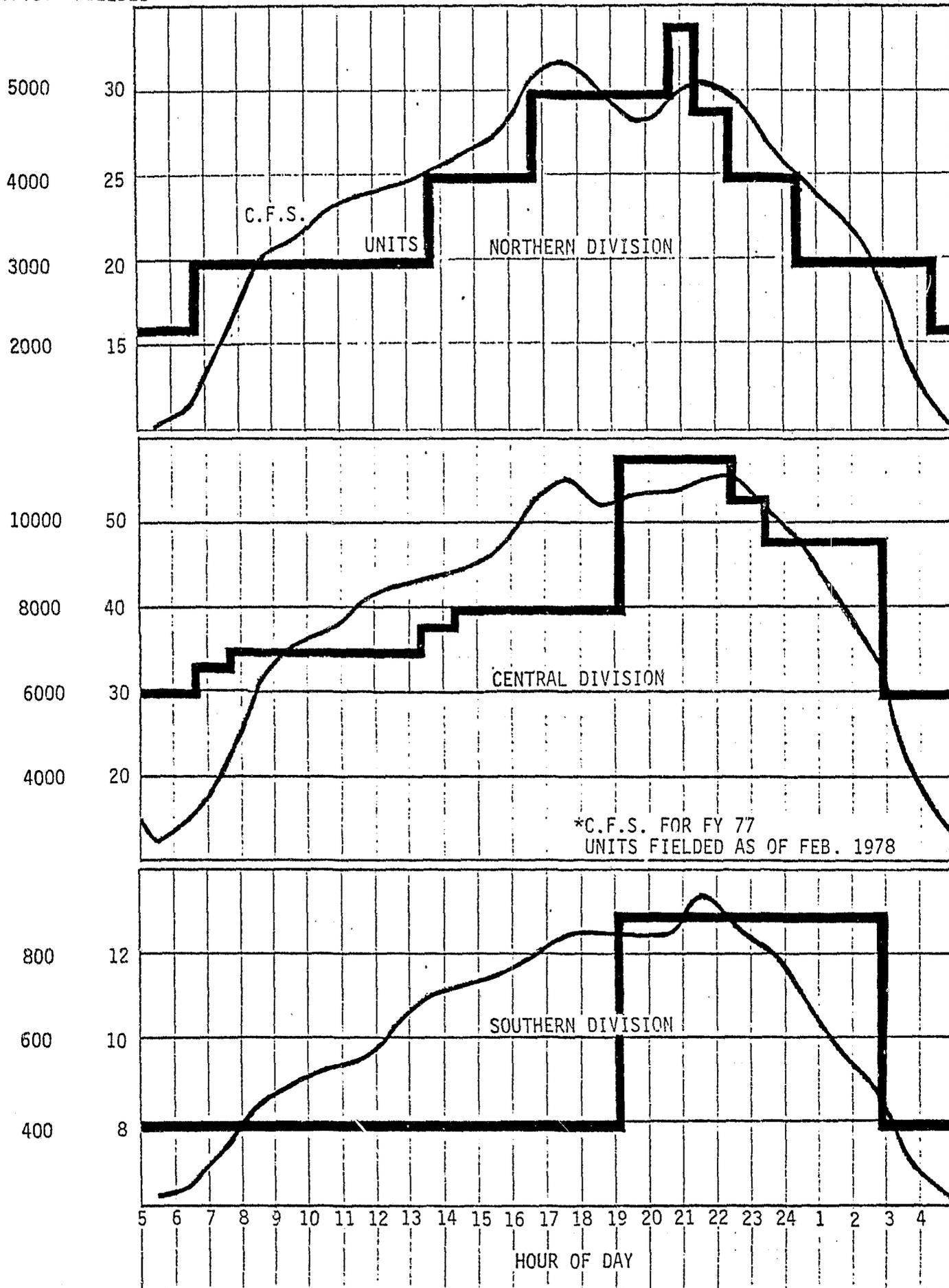
24. Patrol - total calls-for-service
25. Patrol - total calls-for-service by priority
26. Patrol - total calls-for-service by priority by division
27. Patrol - calls-for-service by hour of day
28. Patrol - calls-for-service by day of week for years 1972-76
29. Patrol - calls-for-service by day of week for Jan 76 thru June 77
30. Patrol - calls-for-service by quarter 1972 thru 1977
31. Patrol - calls-for-service by quarter by division Jan 76 thru June 77
32. Patrol - calls-for-service by watch Jan 76 thru June 77
33. Patrol - calls-for-service per square miles served
34. Patrol - calls-for-service thousand population
35. Patrol - average arrests, traffic citations, calls-for-service per assigned officer per watch
36. Patrol - multiple unit responses, all divisions
37. Patrol - arrests vs. traffic citations
38. Patrol - arrests by division
39. Patrol - arrests per thousand population by division
40. Patrol - arrests per square miles served
41. Patrol - beat arrests vs. juvenile arrests
42. Patrol - total traffic citations vs. traffic warnings
43. Patrol - total traffic citations and warnings by division
44. Patrol - total arrests and traffic citations
45. Patrol - beat arrests vs. juvenile arrests vs. traffic citations
46. Patrol - traffic citations per thousand population
47. Patrol - traffic citations per square miles served
48. Selected activities by month and year (arrests, cites, etc.)
49. Samples of all reports, logs, journals, etc.
50. Number of calls-for-service vs. those dispatched by number and percent for FY 77

51. Number of calls-for-service dispatched by watch and month FY 77
52. Traffic accident locations by beat with two or more accidents
53. An extract of incident types and number of units assigned
54. Multiple unit responses, all divisions
55. Vehicle inventory and summary FY 78
56. Assigned beat and supervisor vehicles in lot, by Station
57. Ambulance vehicles in lot, by Station
58. Pool patrol vehicles in lot, by Station
59. Central Station assigned and pool Traffic vehicles in lot
60. Pastel vehicles in lot, by Station

SDPD PATROL BUREAU

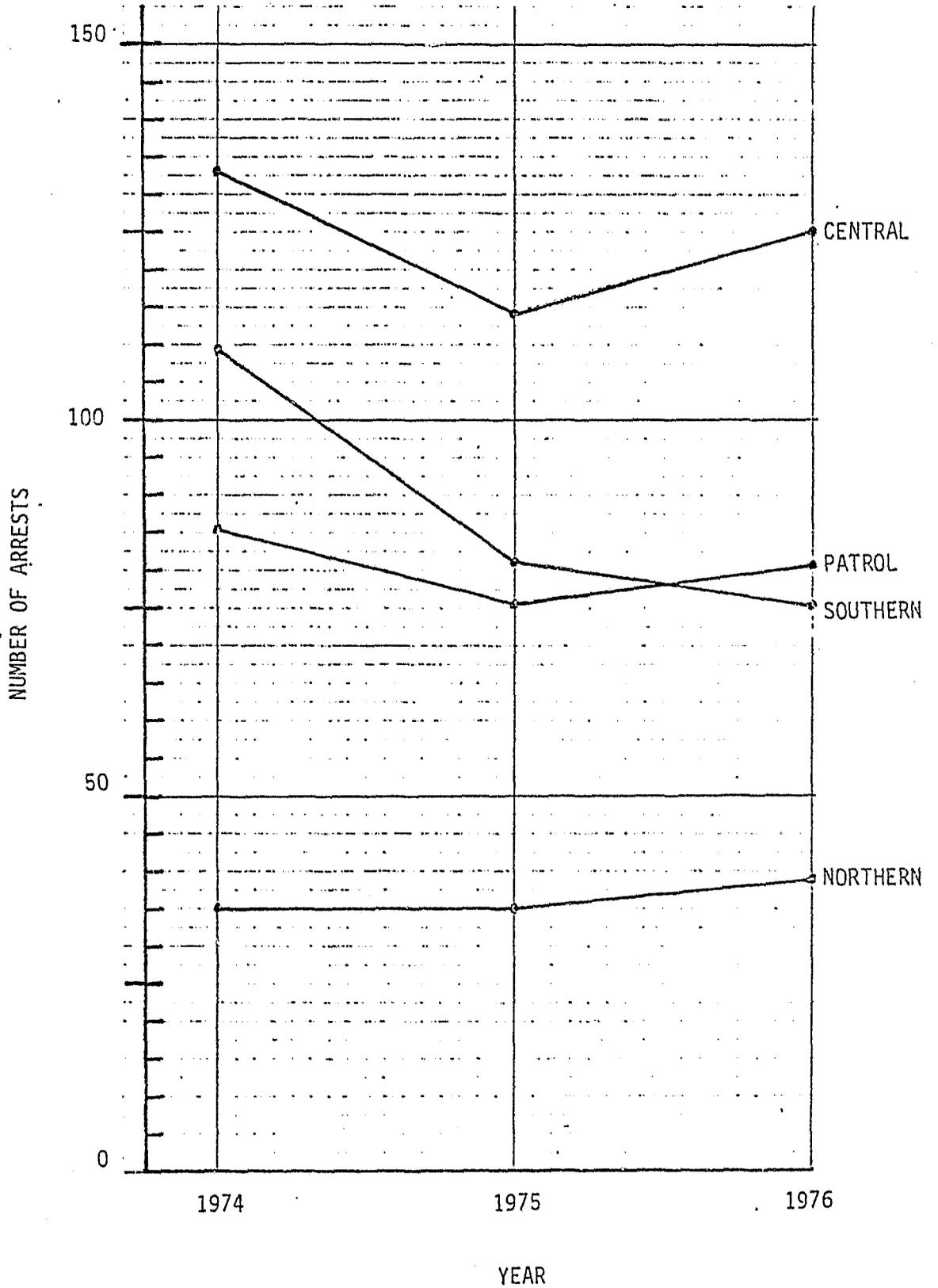
UNITS
C.F.S. FIELDIED

CALLS FOR SERVICE vs. NUMBER OF UNITS FIELDIED BY HOUR OF DAY*

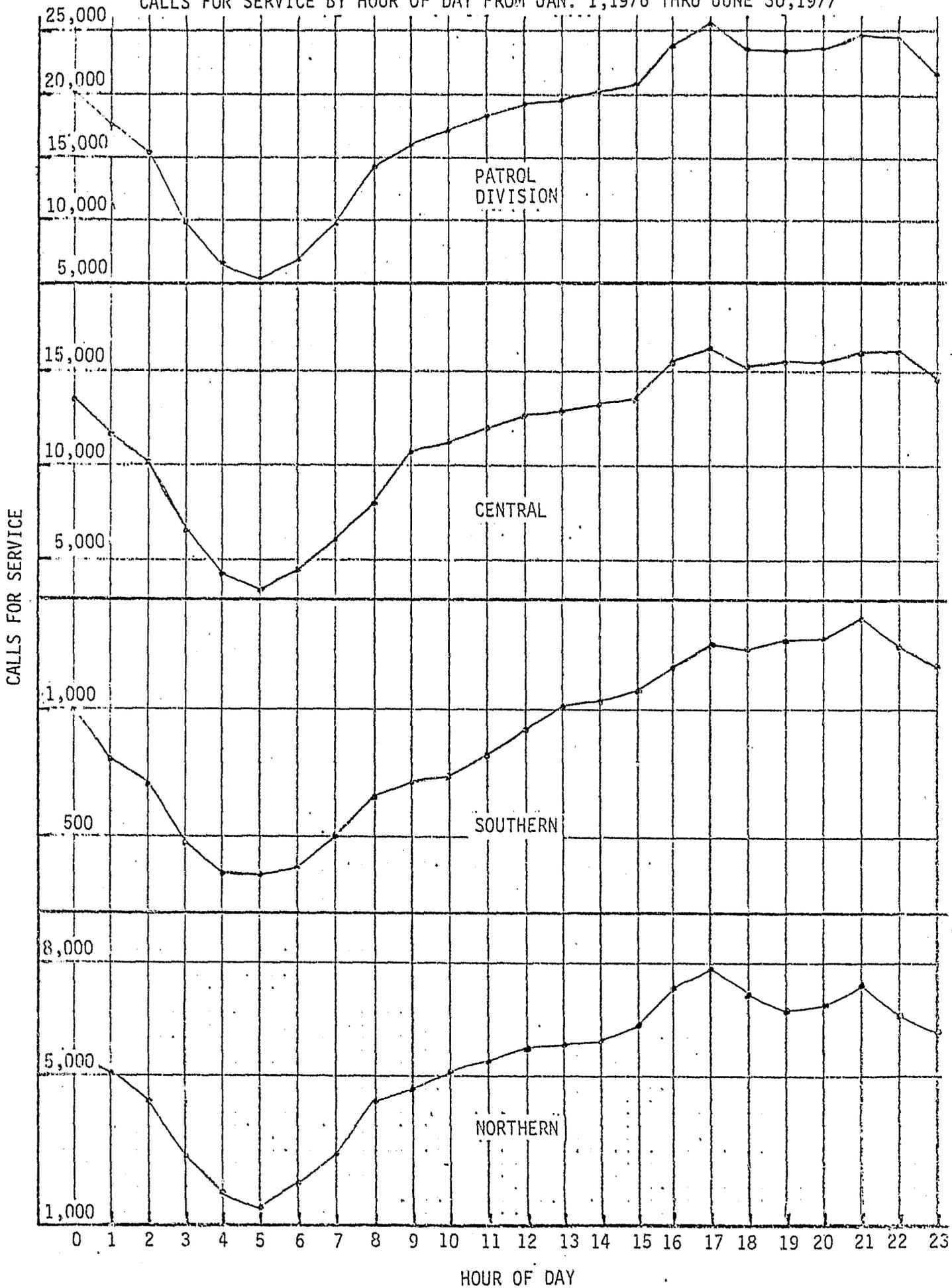


POLICE PATROL

ARRESTS PER THOUSAND POPULATION BY DIVISION

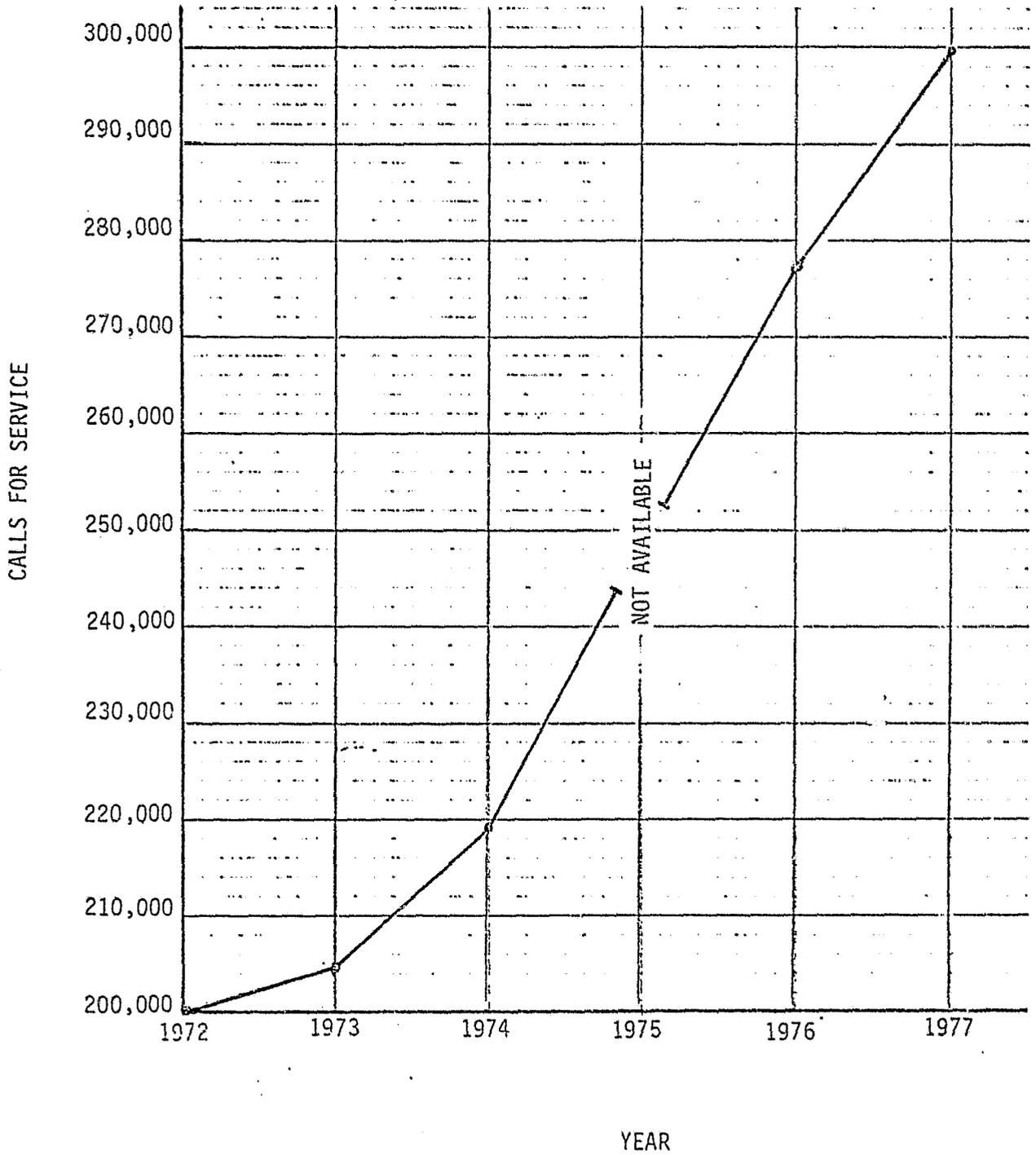


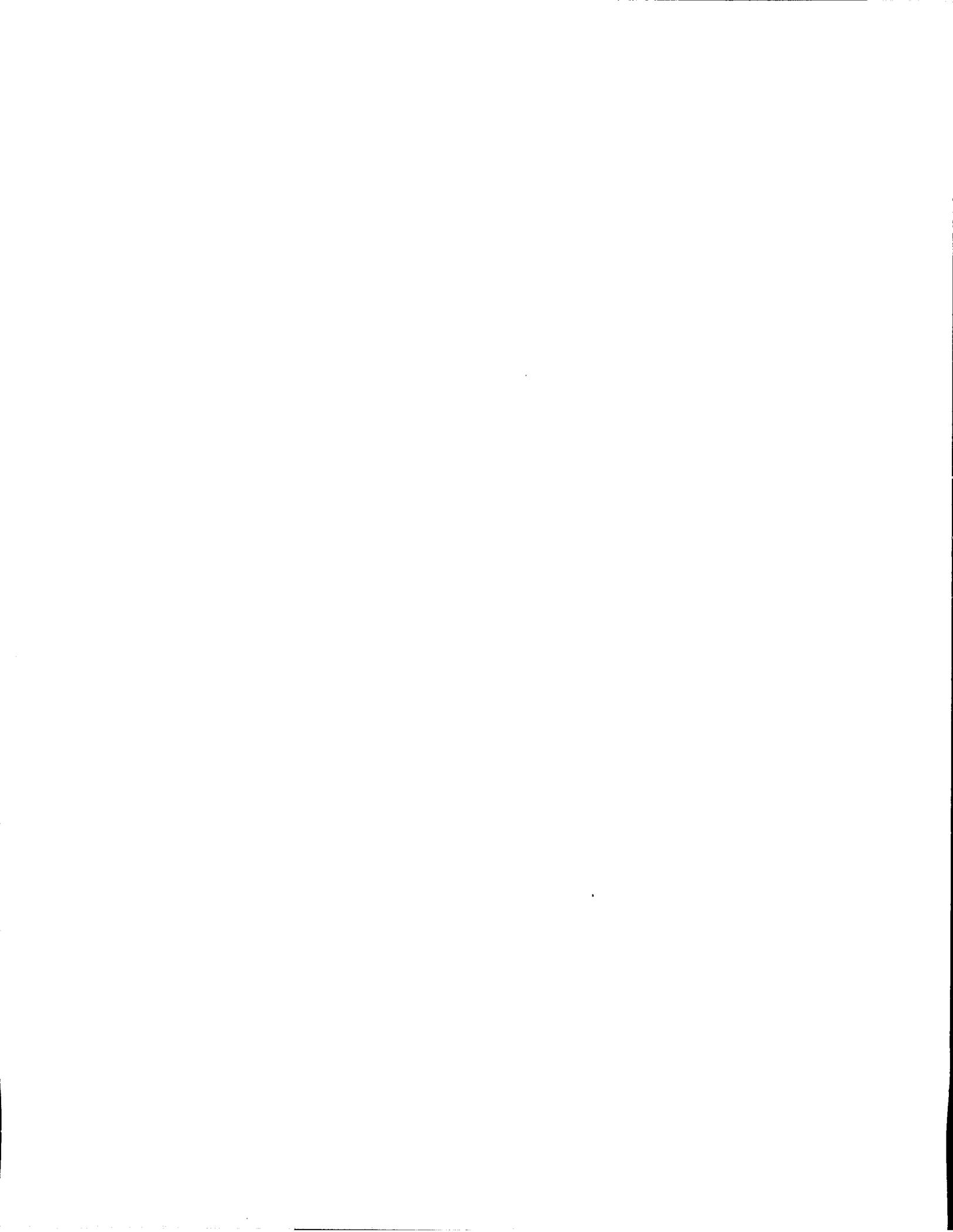
CALLS FOR SERVICE BY HOUR OF DAY FROM JAN. 1, 1976 THRU JUNE 30, 1977



POLICE PATROL

TOTAL CALLS FOR SERVICE

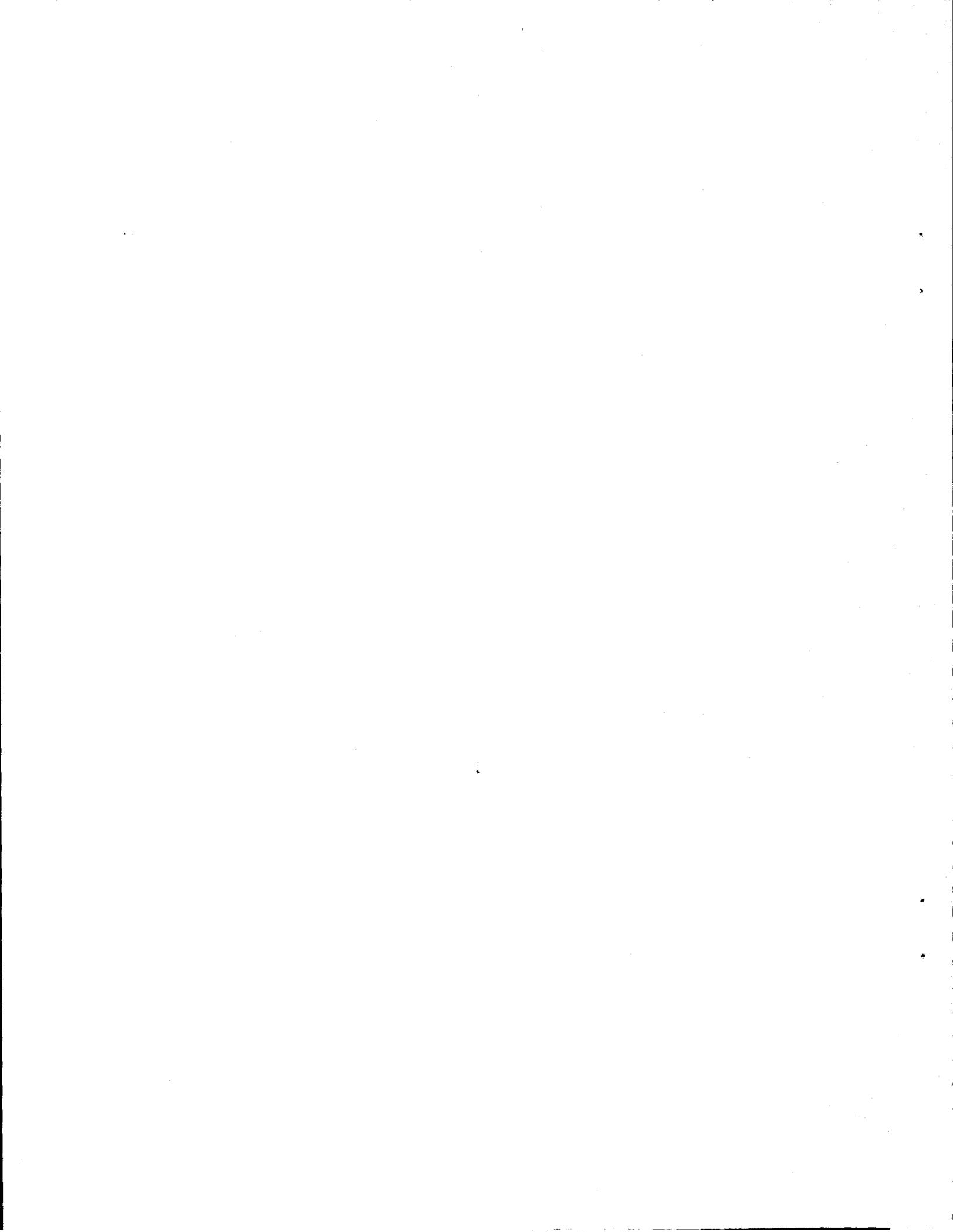




CONTINUED

1 OF 2

APPENDIX C



POLICE PATROL STUDIES

PAGE 1 OF 3

DATE 11-11-77

DAY OF WEEK FRIDAY

HOLIDAY (YES) NO

ANALYST RILEY

DIV./WATCH P-2

SQUAD A

BEAT 33A

STUDY START 1510 STOP

ELAPSED:

1510 START	△	CODE	If CFS, Or Patrol: ODOMETER		△	Check If:		# UNITS ON SCENE	REMARKS
			START	STOP		In Ser.	Out Ser.		
35	25	LU					✓		
43	8	MSU					✓		
54	11	D	23949.1	54.7	5.6	✓			TO BEAT
1606	12	CFS(RT)	54.7	61.2	6.5		✓	1	POSSIBLE 211 (STRONG ARM) SKATE BOARD TAKEN
18	12	W					✓		QUESTION VICTIM OF ABOVE, CRIME REPORT
22	4	P	61.2	62.5	1.3	✓			10-8 WITH G
35	13	CFS(RT)	62.5	66.2	3.7		✓		459
42	7	CFS					✓		
1702	20	W					✓		CRIME REPORT
22	20	CFS					✓		TALK TO NEIGHBORS
40	18	P	66.2	69.7	3.5	✓			
53	13	M					✓		PHONE STATION
58	5	P	69.7	70.6	.9	✓			
1805	7	T					✓		LIGHT OUT
09	4	P	70.6	71.4	.8	✓			
10	1	T					✓		LIGHT OUT
12	2	P	71.4	71.6	.2	✓			
13	1	T					✓		WARNING

CODE	DEFINITION	REMARKS
A - Arrest	Time begins when arrestee in car-- Includes captains' OK and paperwork.	
B - Break	Breaks/Personal	
BK - Booking	Time begins upon arrival at jail.	
C - Court	Testifying and preparation to testify time.	
CC - Citizen Contact	Any contact not resulting in FI or not follow up to CFS.	Describe i.e. meetings
CFS - Call for Service	From 10-7 to 10-8	Indicate Type and priority i.e. 415F/indicate if arrest or misd. cite resulted.
CFS(C) - Call for Service (Cover)	Serving as cover or backup.	
CFS(RT)	Response time - 10-4 to 10-97	
D - Drive	To and from specific destination-- not patrol.	
Ewu - Evening Wrap Up	End of shift wrap up.	
FI - Field Interr.	Used when F.I. slip is completed.	
I - Investigate	Follow up on CFS - after 10-8, or any other follow up on	
L - Lunch		
LU - Line Up		
M - Miscellaneous		Describe - Ex. Include Stakeout, walking on beat, talk with other officer
MC - Misd. Cite	Self-initiated	
MSU - Morning Start Up	Start of shift.	
P - Patrol	Exclude driving to specific destination	
R - Records Center	Obtaining records.	
SIA - Self Initiated Ac- tivity	Any self initiated activity	Describe--give results i.e. arrest
T - Traffic Warning Or Cite	Self-Initiated	
W. - Write Report	All Reports	Indicate Number and Type

REPORT WRITING SUMMARY SHEET

DATE: 11-11-77

DAY OF WEEK: FRI HOLIDAY: YES DIV/WATCH: P-2 BEAT: 33A ANALYST: RILEY

TYPE	PURPOSE	STAT	TIME						TOTAL	NO.
			IN	OUT						
CRIME	STRONG ARM	IN	37					37	49	211
		OUT	12					12		
CRIME	BURGLARY	IN							50	459
		OUT	20	30				50		
TRAFFIC	COLLISION, HIT-RUN, IMPOUND	IN	37					37	119	502
		OUT	52	30				82		
CRIME	BURGLARY	IN							73	459
		OUT	43	30				73		
TRAFFIC	IMPOUND	IN							50	503
		OUT	20	30				50		
TRAFFIC	LIGHT OUT	IN	7					7	7	
		OUT								
TRAFFIC	WARNING	IN	1					1	1	
		OUT								
TRAFFIC	WARNING	IN	1					1	1	
		OUT								
		IN								
		OUT								
		IN								
		OUT								
		IN								
		OUT								
		IN							350	
		OUT								

PATROL DRIVE SUMMARY SHEET

TOTAL TIME	TOTAL MILES	M.P.H.
72	15.8	13.17

CALL FOR SERVICE SUMMARY SHEET

DATE: 11-11-77

DAY OF WEEK: FRI HOLIDAY: YES DIV/WATCH: P-2 BEAT: 33A ANALYST: RILEY

#	C	TOTAL SERVICE TIME	RESPONSE TIME	MILES	M.P.H.	PRIORITY				# UNITS RESPOND	CODE
						1	2	3	4-5		
1		24	12	6.5	32.50		✓			1	211
2		60	13	3.7	17.08			✓		2	459
3		74	6	1.4	14.00			✓		3	502
4	✓	23	4	1.7	25.50		✓			2	415
5		10	4	2.4	36.00		✓			1	502
6		59	7	1.7	14.57			✓		1	459
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
TOTAL			46	17.4	22.70	3	3			10	

POLICE RIDE-ALONG SUMMARY SHEET

DAY OF WEEK: FRIDAY HOLIDAY: Yes DIV/WATCH: P-2 BEAT: 33A ANALYST: RILEY DATE: 11-11-77

ELEMENT	STATUS	ELEMENT TIME IN MINUTES										SUB TOT.	TOTAL	ELEMENT PERCENT			
A-ARREST	IN																
	OUT																
B-BREAK	IN	13										13	13	2.0	2.00		
	OUT																
BK-BOOKING	IN																
	OUT																
C-COURT	IN																
	OUT																
CC-CIT. CONT.	IN																
	OUT																
CFS	IN																
	OUT	7	20	13	6	7						55	55	8.46	8.46		
CFS(C)	IN																
	OUT	19										19	19	2.92	2.92		
CFS(RT)	IN																
	OUT	12	13	6	4	4	7					46	46	7.07	7.07		
D-DRIVE	IN	11										11	20	1.69	3.07		
	OUT	3	5	1								9		1.38			
EWU-WRAP UP	IN																
	OUT	9										9	9	1.38	1.38		
FI-FLD INTERRO	IN																
	OUT																
I-INVESTIGATE	IN																
	OUT																
L-LUNCH	IN																
	OUT																
LU-LINE UP	IN																
	OUT	25										25	25	3.84	3.84		
MC-MISDEM.	IN																
	OUT																
MSU-START UP.	IN																
	OUT	8										8	8	1.23	1.23		
P-PATROL	IN	4	18	5	4	2	18	4				55	72	8.46	11.07		
	OUT							17				17		2.61			
R-RECORDS CENT	IN																
	OUT																
SIA-SELF INIT ACTIVITY	IN																
	OUT	20										20		3.07	3.07		
T-TRAFFIC	IN	7	1	1								9	9	1.38	1.38		
	OUT																
W-WRITE REPORT	IN	74										74	341	11.38	52.46		
	OUT	12	20	52	43	20	120					267		41.07			
M-MISC.	IN																
	OUT	13										13		2.0	2.00		
	IN																
	OUT																
	IN																
	OUT																
TOTAL											162	650	27.98	99.95			
											488		71.96				

APPENDIX D

ALLOWANCE FOR TURNOVER

Determining the turnover ratio of Patrol Bureau's police officers was more involved than merely dividing the number of officers who depart by the number assigned. There was a need to determine the number of replacement officers that had to be trained each year to replace those lost through promotions, terminations, or transfers. Therefore, a turnover formula was devised to reflect variations in staffing levels, transfers in and out of Patrol Bureau, promotions out of the Police Officer classes, retirements and terminations directly out of Patrol, any new hires of fully trained and POST certified officers, and the on-going academy training effort.

METHODOLOGY

The following formula was utilized to determine the percentage of trained officers required to replace losses to the Patrol Bureau.

The total weighted value of transfers of police officers out of Patrol, minus (-) the total annualized value of transfers of police officers into Patrol after the weighted value of academy graduates is subtracted, plus (+) the weighted value of lateral transfer new hires or reinstatements by the Civil Service Commission of POST qualified police officers, plus (+) the weighted value of resignations, retirements or terminations directly from Patrol, plus (+) the annualized value of promotions to sergeant of officers assigned to Patrol Division who remain within Patrol after promotion, divided (\div) by the mean assigned staffing level of police officers assigned to the Patrol Bureau

To implement this formula, data was gathered from numerous sources. The most useful was the "Turnover Report" maintained by the City Personnel Department. This report is a bi-weekly printout of all new hires, transfers between

job order accounts, terminations, and name changes during the preceding two week pay period. A usable data sample was available for the period between December 29, 1977 and July 1, 1976. Prior to July 1976 the "Turnover Report" did not extract transfers of personnel between job order accounts and therefore did not report if an officer transferred from Patrol to Investigations or visa versa. Therefore, the information was of no value for this purpose.

It was also found that during the one and a half year sample period, only one academy (FTO) class has graduated. To equalize the effect upon the Patrol Bureau of the graduation of 63 trained police officers the sample period was lengthened to include the entire 18 month period. However, to bring the turnover ratio back into a yearly perspective data was adjusted to represent a one year (statistical) period.

Additionally, the data obtained from the "Turnover Report" concerning graduates of the 87th academy was verified by information available in the Police Training Section. Further, data concerning new hires and terminations from Patrol extracted from the same "Turnover Report" was also checked against the records in the Police Department's Personnel Section. However, it was impossible to verify transfers in and out of Patrol for no other such records are maintained. However, the City Personnel Department uses that report as a source document for numerous in-house reports.

The data concerning the number of officers promoted to sergeant is based upon the Department's actual experience over the four years from May 1973 to June 1977. During that period two Police Sergeant promotional lists were established, each for a two-year duration, from which 57 promotions were made. However, only 26 of the officers were assigned to Patrol and all were assigned to sergeants' positions within the Bureau. Based upon this four-year sample, an average number of officers promoted per year was established.

DEFINITIONS

Transfers Out - Refers to the number of Police Officer I's and II's who transfer from Patrol Bureau to another bureau. This factor includes all officers who transfer to Investigations, Traffic or other areas of the Police Department, those who transfer to Police Administration on a limited, light duty or injury leave assignment, and those who are promoted to Sergeant and are assigned/transferred to another Division. Also covered are officers from a division other than Patrol who are promoted to Sergeant. This is because a vacant P.O. position is left in that Division. Unless the Patrol Bureau is at absolute minimum staffing levels, P.O.'s are transferred to other divisions from Patrol almost immediately after a vacancy in another division develops. If staffing is at a minimum, then the other division/bureau must wait until an academy class graduates from the Field Training Program before the police officer vacancy can be filled from the ranks of Patrol.

An 18 month sample of police officer transfers was extracted from the City Personnel Department's Turnover Report. This sample was then factored to reflect a 12 month representative period.

Transfers In - Refers to the number of Police Officer I and II's who transfer into Patrol, either from an operational division such as Investigations and Traffic, from a light duty/injury leave or otherwise limited assignment in another division, or from the Academy/Field Training Program. This sample included a period prior to the establishment of the 16 week FTO Program. Police officers who transfer from another division just prior to being promoted from the Sergeants' list are also included. However, in every case reported, there was an off-setting transfer of a police officer to replace the newcoming officers.

Periodically, officers who are about to be promoted to Sergeant and have been assigned outside of Patrol for a while are transferred back into Patrol. This is to reorient them to the Bureau prior to the assumption of a Patrol Sergeant's position. Officers who demote from a higher classification back to a Police Officer classification are also considered as transfers into the Patrol police officer work force. Again, an 18 month sample of police officer transfers was extracted and factored to reflect a 12 month sample period.

Academy - Reflects the number of officers who are already within the system and who graduate from the police academy during the sample period. This reporting period, being prior to the FTO Program, does not reflect the additional 16 weeks now required for in the field training. In the future, officers will only be considered as academy (FTO) graduates when they are fully trained and ready to staff a unit on their own. This figure was also factored to represent a 12 month period, and was subtracted from "Transfers In" so that sample would not be prejudiced by police officers within the training system.

New Hires - Reflects any officers hired "off the streets" who are POST certified--this includes reinstatements, rehires of previous San Diego officers, or the employment of what is referred to as lateral transfers of POST qualified officers from California law enforcement agencies. This category is designed to reflect replacements in the Patrol police officer population who do not enter Patrol through the "transfer in" category and also do not require training prior to assignment in the field. The figure from this category was added into the formula for these officers are replacing others who otherwise would have had to be trained in the Academy (FTO) Program.

Terminations - Refer to all resignations, retirements, terminations for cause, and deaths of police officers where assigned to the Patrol Bureau during the

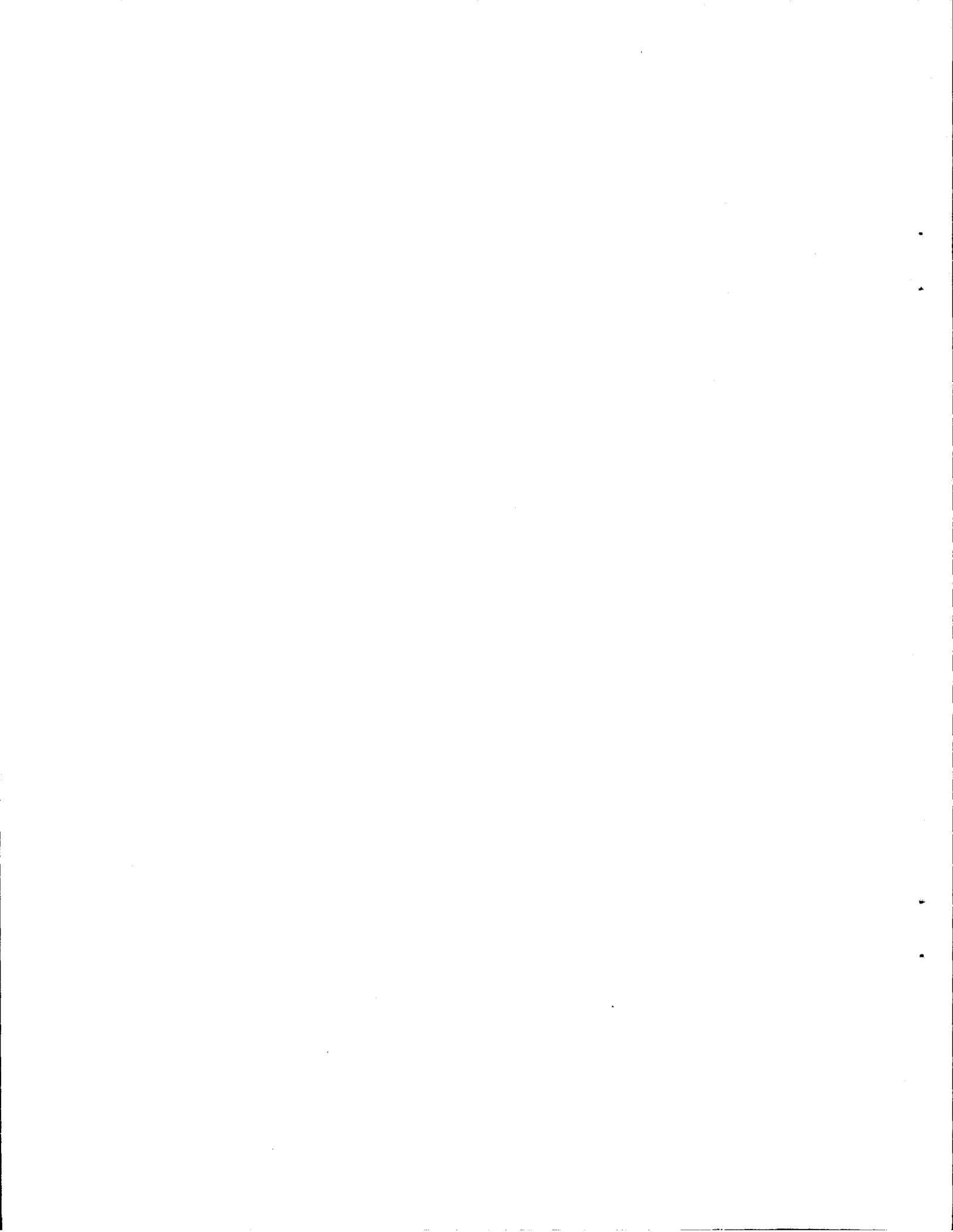
sample period. This figure includes only officers who "terminate" directly from Patrol and not those who transfer to Police Administration on a long-term injury leave or light duty assignment prior to being retired or discharged. Those officers are reflected in the transfers out category, as previously mentioned. Again, the figure from this category was added to the equation for it represents personnel losses to Patrol which require the training of additional beat officers.

Promotions To Sergeant - Is the number of officers who, while assigned to the Patrol Bureau, are promoted to the rank of sergeant and were assigned to Patrol. This factor is included because an officer promoted, while assigned to Patrol, and who remains in Patrol also creates a need for a trained Police Officer replacement. However, such reductions are not caught by the transfers out section.

Officers promoted to sergeant while assigned to another division bureau are picked up in "transfers out" because the police officer vacancy created is filled by an officer who transferred out of Patrol. Those who stay within the Bureau do not change payroll object accounts and, therefore, the promotion doesn't become a transaction in the "Turnover Report." As before, the figure from this category was added to the equation, for again these promotions represent additional personnel who must be trained during the fiscal year as police officers.

Mean Assigned Staffing Level - This refers to the number of Police Officer I's and II's who are assigned by the Police Department to the Patrol Bureau. However, this figure is not a constant because as police officer vacancies occur in other bureaus or divisions, officers are transferred from Patrol to fill the vacancy. Therefore, the number of assigned officers is reduced accordingly.

To obtain a statistically valid staffing figure, the average number of police officers assigned to Patrol during the 12 month period from February 1977 to January 1978 was used. This figure reflects officers available for full duties and not officers who have been transferred to a light-duty status prior to receiving a disability retirement; nor does this figure reflect the mythical "budgeted staffing level" which has not been reached for some time. In this case, the representative sample was a 12 month period, so it was not necessary to weight it like the previous data samples.



TURNOVER
POLICE PATROL DIVISION

Methodology

$$\frac{\boxed{\text{Transfers Out}} - \boxed{\text{Transfers In-Academy}} + \boxed{\text{New Hires}} + \boxed{\text{Terminations}} + \boxed{\text{Promotions To Sergeant}}}{\boxed{\text{Mean Assigned Staffing Level Of Police Officers}}} = \boxed{\% \text{ Of Turnover}}$$

<u>Element</u>	<u>Annualized Value*</u>
Transfers Out	= 122.67
Transfers In	= 109.33
Academy Grads	= 42.00
New Hires	= 9.33
Terminations	= 24.00
Promotions to Sergeants Within Patrol	= 6.50
Mean Staffing	= 505.75
*See Pages 2 & 3	

CALCULATION

$$\frac{122.67 - (109.33 - 42 + 9.33) + 24 + 6.5}{505.75} = \underline{\underline{15.13\%}} \text{ Turnover}$$

Or 76.51 Officers/Year To Train To Replace Losses

PERSONNEL TURNOVER REPORT
(TRANSFERS, NEW HIRES, TERMINATIONS)*
July 1, 1976 to December 29, 1977

<u>ELEMENT</u>	<u>TOTAL ENTRIES</u>	<u>ADJUSTED TO REPRESENT 1 YEAR</u>
Transfers Out	184	122.67
Transfers In	164	109.33
Academy Grads	63	42.00
New Hires	14	9.33
Terminations	36	24.00

Transfers = Only police officers transferring in or out

New Hires = Lateral transfers or reinstatements of post qualified sworn officers

Terminations = Resignations, retirements, or terminations directly from Patrol

*Data Source - Printout maintained in City Personnel Department entitled "Turnover Report." Data compiled each pay period.

MEAN ASSIGNED STAFFING LEVEL

Source - Patrol Administration - Monthly Patrol Staffing Report

<u>Date</u>	<u># Assigned To Patrol</u>	$\frac{6069}{12 \text{ Months}}$	= 505.75 Police Officer II
Jan 78	501		
Dec 77	526		
Nov 77	528		
Oct 77	478		
Sept 77	487		
Aug 77	500		
Jul 77	505		
Jun 77	505		
May 77	505		
Apr 77	505		
Mar 77	510		
Feb 77	519		
	<u>6069</u>		

PROMOTION TO SERGEANT FROM ELIGIBILITY LISTS

<u>List Dates</u>	<u># Promoted</u>	<u># Patrol</u>	<u># Non-Patrol</u>
5-23-73 - 5-23-75	29	11	18
6-8-75 - 6-8-77	28	15	13
6-9-77 - Present	<u>0</u>	—	—
Total	57	26	31

26 officers promoted to Sergeant from within Patrol during past four years of existing lists 5-73 to 6-77.

$$26 \div 4 = 6.5 \text{ promotions/year}$$

ACADEMY CLASSES SCHEDULED
Lt. Enerson - Police Academy

<u>#</u>	<u>Academy Graduation Date</u>	<u>Complete FTO Program</u>	<u># Applicants Starting Academy</u>	<u># Applicants Completing FTO</u>
87th	July 1977	Nov 1977	65	58
88th	March 1978	June 1978	48	43*
89th	June 1978	Sept 1978	85	76*
90th	Sept 1978	Jan 1979	85	76*
91st	UNK		UNK	

*Estimated attrition based on 10.8% "washout" experience with 87th Academy. No previous FTO turnover data available.

APPENDIX E

PATROL CAR ALLOCATION MODEL (PCAM)
EXAMPLE OF HOW IT IS USED

When the data base to be used in the PCAM model has been developed, the READ command is used. This command causes PCAM to read all the data either to be applied or to be printed out. The next command is the LIST command, which causes PCAM to print out all the data located in the prepared base. The LIST command does not alter the data in any manner, it merely allows the user of PCAM to double check the data in the data base to ensure its accuracy (see example in Table A).

If it is determined that the data base contains accurate information the DISPLAY command will instruct PCAM to calculate and print out the various output measures of the PCAM model. There are two tables provided by the DISPLAY command, Table 1 produces (see example in Table B):

- Average utilization of an effective car
- Average utilization of an actual car
- Average travel time to calls-for-service
- Patrol hours per suppressible crime
- Average patrol frequency
- Average patrol frequency time suppressible crimes per hour
- Average number of cars available for dispatch

Table 2 produces (see example in Table C):

- The number of actual cars assigned to start the shift
- The number of car-hours in the shift
- Call rates and service times, averaged over the hour of the shift
- The probability that a call will be placed in queue
- The expected delays for priority 2 and 3 calls
- The expected total delay for any call

The average travel time and percent of proactive patrol time is then available from these tables. The average travel time is printed in Table 1.

The percent of proactive patrol time is calculated by dividing average number of cars available by the average actual cars fielded. In the example provided, the average travel time is 4.9 minutes and the percent of proactive patrol time is $17.7 \div 34.7 = 51\%$.

PCAM also provides the means to alter the data located in the data base and determine the impact the change would have on the service level. The ALOC and ADD command allocate a specified number of car hours among the shifts in such a way as to minimize output measures such as total response time, average portion of calls delayed.

The MEET command causes PCAM to assign enough cars in each shift until specific output measures are met. The SET command changes certain data values in response speed, service time patrol speed and the like. After receiving one or all of these four commands, PCAM will then recalculate the original output measures.

In the example provided the ADD command was used to add 400 car-hours to the data used to calculate the output measures above. As can be seen, the average travel time was reduced from 4.9 to 4.5 minutes and the percent of proactive patrol time increased from 51% to 53% (see examples in Tables D & E).

SET 2(2) (4,25)								
DISP (1,2)								
CENTRAL : CENTRAL : DAY: SUN-MON								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.554	.415	6.5	99.10	0.00	0.000	12.39	
*SECOND	.614	.461	5.2	54.51	0.00	0.000	13.63	
*THIRD	.477	.358	3.7	66.82	0.00	0.000	16.71	
*CSQUAD	.596	.447	4.4	60.89	0.00	0.000	15.22	
AVERAGE	.550	.413	5.2	66.35	0.00	0.000	14.24	
CENTRAL : CENTRAL : DAY: MON-TUE								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.592	.444	5.3	****	0.00	0.000	12.68	
*SECOND	.569	.427	4.6	66.04	0.00	0.000	17.01	
*THIRD	.320	.240	3.2	98.96	0.00	0.000	22.24	
*CSQUAD	.495	.371	3.9	83.62	0.00	0.000	20.90	
AVERAGE	.497	.373	4.9	83.09	0.00	0.000	17.31	
CENTRAL : CENTRAL : DAY: TUE-WED								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.600	.450	6.2	****	0.00	0.000	12.82	
*SECOND	.503	.391	4.5	81.19	0.00	0.000	20.30	
*THIRD	.278	.209	2.9	****	0.00	0.000	25.32	
*CSQUAD	.407	.305	3.4	****	0.00	0.000	27.09	
AVERAGE	.460	.345	4.8	93.50	0.00	0.000	19.48	
CENTRAL : CENTRAL : DAY: WED-THUR								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.536	.402	5.7	****	0.00	0.000	15.77	
*SECOND	.550	.413	4.5	77.98	0.00	0.000	19.50	
*THIRD	.278	.209	3.3	****	0.00	0.000	26.25	
*CSQUAD	.419	.314	3.5	****	0.00	0.000	27.37	
AVERAGE	.459	.344	4.6	98.41	0.00	0.000	20.50	
CENTRAL : CENTRAL : DAY: THUR-FRI								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.631	.473	7.0	87.40	0.00	0.000	10.93	
*SECOND	.584	.433	5.2	63.80	0.00	0.000	15.95	
*THIRD	.297	.225	3.1	92.15	0.00	0.000	23.04	
*CSQUAD	.453	.340	3.7	91.37	0.00	0.000	22.84	
AVERAGE	.505	.379	5.4	79.85	0.00	0.000	16.64	
CENTRAL : CENTRAL : DAY: FRI-SAT								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.580	.432	6.4	****	0.00	0.000	12.57	
*SECOND	.603	.452	5.0	64.75	0.00	0.000	16.19	
*THIRD	.296	.222	3.0	93.53	0.00	0.000	23.38	
*CSQUAD	.473	.355	3.7	74.41	0.00	0.000	23.60	
AVERAGE	.498	.374	5.0	83.42	0.00	0.000	17.38	
CENTRAL : CENTRAL : DAY: SAT-SUN								
	AVG. UTIL.	AVG. UTIL.	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.	
WATCH FIRST	.455	.371	6.0	****	0.00	0.000	14.20	
*SECOND	.521	.391	4.3	80.34	0.00	0.000	20.08	
*THIRD	.372	.279	3.2	85.66	0.00	0.000	21.41	
*CSQUAD	.488	.366	3.6	93.63	0.00	0.000	23.41	
AVERAGE	.465	.349	4.5	87.11	0.00	0.000	18.57	
CENTRAL : CENTRAL								
AVERAGE	.449	.367	4.9	85.11	0.00	0.000	17.73	

CENTRAL : CENTRAL : DAY: SUN-MON

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	37.0	296.0	31.7	29.1	-.013	0.02	0.06	6.30
*SECOND	40.7	325.6	41.4	31.4	-.018	0.03	0.10	5.25
*THIRD	38.8	310.4	29.9	30.7	-.002	0.00	0.01	3.74
*CSQUAD	10.2	91.6	45.0	29.9	-.004	0.01	0.01	4.42
AVERAGE	31.7	251.4	34.3	30.5	-.012	0.02	0.06	5.20
TOTAL	126.7	1013.6						

CENTRAL : CENTRAL : DAY: MON-TUE

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	41.5	332.0	33.4	33.1	-.009	0.02	0.04	6.31
*SECOND	44.6	356.8	44.3	30.4	-.005	0.01	0.02	4.62
*THIRD	38.8	310.4	21.1	29.4	-.003	0.00	0.00	3.17
*CSQUAD	12.8	102.4	40.6	30.3	-.000	0.00	0.00	3.92
AVERAGE	34.4	275.4	32.9	31.2	-.005	0.01	0.02	4.88
TOTAL	137.7	1101.6						

CENTRAL : CENTRAL : DAY: TUE-WED

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	42.7	341.6	35.3	32.7	-.003	0.01	0.03	6.24
*SECOND	42.9	343.2	32.5	31.8	-.013	0.02	0.07	4.56
*THIRD	39.5	316.0	20.7	23.3	-.000	0.00	0.00	2.92
*CSQUAD	19.3	154.4	35.8	31.2	-.000	0.00	0.00	3.40
AVERAGE	36.1	285.8	31.8	31.4	-.008	0.01	0.04	4.83
TOTAL	144.4	1155.2						

CENTRAL : CENTRAL : DAY: WED-THUR

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	45.3	362.4	32.5	33.5	-.005	0.01	0.02	5.73
*SECOND	46.5	372.0	45.0	31.8	-.011	0.02	0.03	4.91
*THIRD	41.7	333.6	22.0	27.5	-.012	0.02	0.06	3.31
*CSQUAD	18.1	144.8	38.3	30.9	-.000	0.00	0.00	3.47
AVERAGE	37.9	303.2	33.2	31.5	-.009	0.01	0.04	4.64
TOTAL	151.6	1212.8						

CENTRAL : CENTRAL : DAY: THUR-FRI

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	39.5	316.0	34.1	32.9	-.043	0.09	0.34	7.22
*SECOND	41.4	331.2	44.3	30.4	-.054	0.10	0.54	5.58
*THIRD	38.0	304.0	21.3	27.7	-.000	0.00	0.00	3.08
*CSQUAD	15.6	124.8	39.4	28.9	-.000	0.00	0.00	3.73
AVERAGE	31.6	269.0	33.2	30.7	-.039	0.07	0.36	5.61
TOTAL	134.5	1076.0						

CENTRAL : CENTRAL : DAY: FRI-SAT

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	39.9	319.2	32.9	31.7	-.017	0.03	0.10	6.47
*SECOND	42.2	337.6	42.7	29.7	-.034	0.05	0.20	5.18
*THIRD	37.0	296.0	23.0	25.7	-.000	0.00	0.00	3.02
*CSQUAD	19.5	156.0	44.3	28.7	-.001	0.00	0.00	3.74
AVERAGE	34.6	277.2	35.2	29.4	-.022	0.04	0.12	5.11
TOTAL	138.6	1108.8						

CENTRAL : CENTRAL : DAY: SAT-SUN

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	37.5	300.0	30.6	27.3	-.005	0.01	0.03	5.99
*SECOND	44.0	352.0	46.0	28.5	-.002	0.00	0.01	4.26
*THIRD	33.3	306.4	28.4	25.3	-.000	0.00	0.00	3.20
*CSQUAD	19.7	152.8	48.2	27.8	-.000	0.00	0.00	3.58
AVERAGE	34.7	277.8	35.0	27.7	-.002	0.00	0.01	4.48
TOTAL	134.2	1111.2						

CENTRAL : CENTRAL

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	37.5	300.0	30.6	27.3	-.005	0.01	0.03	5.99
*SECOND	44.0	352.0	46.0	28.5	-.002	0.00	0.01	4.26
*THIRD	33.3	306.4	28.4	25.3	-.000	0.00	0.00	3.20
*CSQUAD	19.7	152.8	48.2	27.8	-.000	0.00	0.00	3.58
AVERAGE	34.7	277.8	35.0	27.7	-.002	0.00	0.01	4.48
TOTAL	134.2	1111.2						

CENTRAL : CENTRAL

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	37.5	300.0	30.6	27.3	-.005	0.01	0.03	5.99
*SECOND	44.0	352.0	46.0	28.5	-.002	0.00	0.01	4.26
*THIRD	33.3	306.4	28.4	25.3	-.000	0.00	0.00	3.20
*CSQUAD	19.7	152.8	48.2	27.8	-.000	0.00	0.00	3.58
AVERAGE	34.7	277.8	35.0	27.7	-.002	0.00	0.01	4.48
TOTAL	134.2	1111.2						

CENTRAL : CENTRAL

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	37.5	300.0	30.6	27.3	-.005	0.01	0.03	5.99
*SECOND	44.0	352.0	46.0	28.5	-.002	0.00	0.01	4.26
*THIRD	33.3	306.4	28.4	25.3	-.000	0.00	0.00	3.20
*CSQUAD	19.7	152.8	48.2	27.8	-.000	0.00	0.00	3.58
AVERAGE	34.7	277.8	35.0	27.7	-.002	0.00	0.01	4.48
TOTAL	134.2	1111.2						

SET *(21)-(25)
ADD 400 CAR HOURS BY F(3)
DISP T(1,2)

CENTRAL : CENTRAL : DAY: SUN-MON

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.500	.375	5.7	*****	0.00	0.000	15.39
*SECOND	.555	.416	4.5	69.51	0.00	0.000	17.38
*THIRD	.477	.358	3.7	66.82	0.00	0.000	16.71
*CSQUAD	.561	.421	4.1	70.26	0.00	0.000	17.57
AVERAGE	.514	.385	4.7	79.15	0.00	0.000	16.49

CENTRAL : CENTRAL : DAY: MON-TUE

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.540	.405	5.6	*****	0.00	0.000	15.68
*SECOND	.458	.419	4.5	71.04	0.00	0.000	17.76
*THIRD	.320	.240	3.2	88.76	0.00	0.000	22.24
*CSQUAD	.490	.367	3.9	85.49	0.00	0.000	21.37
AVERAGE	.480	.360	4.6	89.07	0.00	0.000	18.56

CENTRAL : CENTRAL : DAY: TUE-WED

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.548	.411	5.6	*****	0.00	0.000	15.82
*SECOND	.499	.374	4.4	84.19	0.00	0.000	21.85
*THIRD	.278	.208	2.9	*****	0.00	0.000	25.32
*CSQUAD	.403	.302	3.4	*****	0.00	0.000	27.36
AVERAGE	.445	.334	4.5	99.50	0.00	0.000	20.73

CENTRAL : CENTRAL : DAY: WED-THUR

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.524	.393	5.6	*****	0.00	0.000	16.92
*SECOND	.538	.401	4.3	82.11	0.00	0.000	20.33
*THIRD	.275	.206	3.2	*****	0.00	0.000	26.72
*CSQUAD	.415	.311	3.4	*****	0.00	0.000	27.84
AVERAGE	.450	.338	4.5	*****	0.00	0.000	21.25

CENTRAL : CENTRAL : DAY: THUR-FRI

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.525	.394	5.5	*****	0.00	0.000	16.93
*SECOND	.514	.385	4.3	84.80	0.00	0.000	21.20

*THIRD	.299	.225	3.1	92.15	0.00	0.000	23.84
*CSQUAD	.420	.315	3.4	*****	0.00	0.000	26.12
AVERAGE	.455	.341	4.4	97.35	0.00	0.000	20.39

CENTRAL : CENTRAL : DAY: FRI-SAT

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.515	.387	5.6	*****	0.00	0.000	16.32
*SECOND	.534	.401	4.2	85.75	0.00	0.000	21.44
*THIRD	.276	.222	3.0	93.53	0.00	0.000	23.33
*CSQUAD	.441	.331	3.4	*****	0.00	0.000	26.68
AVERAGE	.459	.344	4.4	97.82	0.00	0.000	20.38

CENTRAL : CENTRAL : DAY: SAT-SUN

	AVG. UTIL. (EFF)	AVG. UTIL. (ACT)	AVG. TRAV. TIME	PATROL HRS PER SUPP CR	AVG. PATROL FREQ.	AV PTL FREQ TIMES SUPP CR PER HR	AVG CARS AVAIL.
WATCH							
FIRST	.482	.362	5.8	*****	0.00	0.000	14.95
*SECOND	.521	.391	4.3	80.34	0.00	0.000	20.08
*THIRD	.372	.279	3.2	95.66	0.00	0.000	21.41
*CSQUAD	.484	.366	3.6	91.63	0.00	0.000	23.41
AVERAGE	.462	.347	4.4	90.11	0.00	0.000	18.82

CENTRAL : CENTRAL

AVERAGE	.466	.349	4.5	93.68	0.00	0.000	19.52
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CENTRAL : CENTRAL : DAY: SUN-MON

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	41.0	324.0	31.7	29.1	.003	0.00	0.01	5.75
*SECOND	45.7	365.6	41.4	31.4	.001	0.00	0.01	4.55
*THIRD	38.4	310.4	29.9	30.7	.002	0.00	0.01	3.74
*CSQUAD	10.2	81.6	45.0	29.7	.002	0.00	0.01	4.11
AVERAGE	33.9	271.4	34.3	30.5	.003	0.00	0.01	4.68
TOTAL	135.7	1085.6						

CENTRAL : CENTRAL : DAY: MON-TUE

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	45.5	364.0	33.4	33.1	.002	0.00	0.01	5.63
*SECOND	45.6	364.4	44.3	30.4	.001	0.00	0.01	4.51
*THIRD	38.4	310.4	21.1	29.3	.000	0.00	0.00	3.17
*CSQUAD	12.8	102.4	40.6	30.3	.000	0.00	0.00	3.86
AVERAGE	35.7	285.4	32.9	31.2	.002	0.00	0.01	4.60
TOTAL	142.7	1141.6						

CENTRAL : CENTRAL : DAY: TUE-WED

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	46.7	373.6	35.1	32.7	.001	0.00	0.00	5.59
*SECOND	43.9	351.2	39.5	31.8	.009	0.02	0.05	4.44
*THIRD	19.5	156.0	20.7	29.1	.000	0.00	0.00	2.92
*CSQUAD	19.3	154.4	35.8	31.2	.000	0.00	0.00	3.36
AVERAGE	37.3	298.8	31.8	31.4	.004	0.01	0.02	4.53
TOTAL	149.4	1195.2						

CENTRAL : CENTRAL : DAY: WED-THUR

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	46.3	370.4	32.5	31.6	.004	0.01	0.02	5.59
*SECOND	48.5	389.0	45.0	31.3	.006	0.01	0.02	4.32
*THIRD	42.7	341.6	22.0	27.5	.008	0.01	0.04	3.24
*CSQUAD	17.1	136.8	36.3	30.9	.000	0.00	0.00	3.43
AVERAGE	38.6	309.2	33.2	31.5	.006	0.01	0.02	4.50
TOTAL	154.6	1236.8						

CENTRAL : CENTRAL : DAY: THUR-FRI

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	47.5	389.0	34.1	32.9	.003	0.00	0.01	5.49
*SECOND	48.4	387.2	44.3	30.4	.008	0.01	0.04	4.30
*THIRD	38.0	304.0	21.3	27.7	.000	0.00	0.00	3.08
*CSQUAD	15.6	124.8	39.4	28.9	.000	0.00	0.00	3.43
AVERAGE	37.4	299.0	33.2	30.7	.005	0.01	0.02	4.45
TOTAL	149.5	1196.0						

CENTRAL : CENTRAL : DAY: FRI-SAT

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	44.9	359.2	32.9	31.7	.003	0.00	0.01	5.57
*SECOND	49.2	393.6	49.7	29.7	.004	0.00	0.01	4.22
*THIRD	37.0	296.0	23.0	25.7	.000	0.00	0.00	3.02
*CSQUAD	19.5	156.0	44.3	28.7	.000	0.00	0.00	3.42
AVERAGE	37.6	301.2	35.2	29.4	.003	0.00	0.01	4.34
TOTAL	150.6	1204.8						

CENTRAL : CENTRAL : DAY: SAT-SUN

WATCH	ACT. CARS	CAR HRS	CALL RATE	SERV TIME	PROB CALL DELAYED	AVG P2 DELAY	AVG P3 DELAY	AVG TOT DELAY
FIRST	38.5	308.0	30.6	27.3	.004	0.01	0.02	5.42
*SECOND	44.0	352.0	46.0	28.5	.002	0.00	0.01	4.26
*THIRD	38.3	306.4	28.4	26.8	.000	0.00	0.00	3.20
*CSQUAD	19.1	152.8	44.2	27.4	.000	0.00	0.00	3.58
AVERAGE	35.0	279.8	35.0	27.7	.002	0.00	0.01	4.43
TOTAL	119.9	1119.2						

CENTRAL : CENTRAL

AVERAGE	36.3	292.1	33.7	30.3	.003	0.01	0.01	4.31
TOTAL	1022.4	8179.2						

APPENDIX F

HOW SUPERVISORY PERSONNEL
SPEND THEIR TIME ON
VARIOUS WORK TASKS

	% of Time Spent on Work by:			
	Sergeants	Lieutenants	Captains	Inspectors
Supervision and Command	37.6%	33.7%	28.6%	5.8%
Administration and Management	19.3	21.1	26.3	19.9
Inspection and Control	6.4	3.2	6.5	7.3
Planning	2.4	4.8	3.0	3.8
Complaint Processing	4.4	1.3	1.7	1.9
Training	4.8	8.0	0.2	0.3
Personnel Counseling and Discipline	5.5	3.5	7.0	9.2
Meetings	7.6	11.6	6.6	25.7
Public Relations/Media	1.2	0.6	0.9	2.2
Miscellaneous	10.9	12.2	19.3	23.8

Note: These time data were collected from time logs developed by the study team.

END