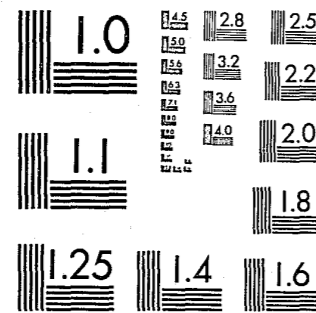


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POLICE PROJECT STUDY

PHASE I

"IMPROVED PATROL AND TRAFFIC ALLOCATION"

August 3, 1982

U.S. Department of Justice
National Institute of Justice

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CITY OF COLORADO SPRINGS
COLORADO

INTER - OFFICE MEMORANDUM

Date: August 3, 1982
To: Police Study Steering Committee
From: Police Study Project Staff
SUBJECT: PHASE I FINDINGS AND RECOMMENDATIONS

SUMMARY

The Phase I Study effort primarily addressing patrol resource allocation has been completed. This report summarizes the major findings of the investigative effort and proposes several actions to substantially improve the efficiency of the Department's manpower allocation and utilization system. Specifically, these actions will enable the Department to more efficiently respond to all Calls for Service, particularly priority calls.

The Study is a self-examination conducted by the Colorado Springs Police Department to determine the efficiency and effectiveness of policies, written procedures, operations and facilities. Phase I addresses the need to allocate personnel to better equalize the Calls for Service workload; this is a necessary first step toward developing an improved management patrol program. Subsequent study phases will review the need for special service units, the basis for current Calls for Service, alternative service deliveries, reduction in administrative activities, and expansion of directed patrol assignments.

By analyzing the makeup and temporal nature of the Calls for Service workload handled by field forces, it has been determined that substantially improved service can be accomplished by the Department adopting a different approach to allocating Patrol and Traffic manpower. At present, Patrol handles in excess of 88 percent of the Calls for Service workload. Manpower is allocated to three equal rotating shifts plus a fourth overlapping shift. For the most part, Manpower for each of the three rotating shifts work an alternating ten-day-on and four-day-off sequence, providing coverage to the entire City on a 24-hour/7-day-a-week basis. The fourth shift works nights and early morning hours only to accommodate the increased workload during these periods and serves as a training shift for recruits. Special units, such as Traffic, Tactical Enforcement Unit, and Special Anti-Crimes Squad, work varying schedules, and in 1981 serviced the remaining 12 percent of the Calls for Service workload.

That portion of the total Calls for Service workload requiring police response varies considerably over time of day and day of the week. Workload is lowest in the early morning hours between 4:00 and 9:00, and is considerably higher in the evening hours, particularly between 3:00 and 7:00. During the week, the Calls for Service workload increases slightly but steadily from Sunday through Saturday. The Department's current allocation approach does not compliment this workload pattern.

Although these trends have been known for some time, the Phase I analysis revealed the importance that traffic accidents have on the design of an improved manpower allocation system. Traffic accident workload during the week is highest during the late afternoon and highest on the weekends during late evening and early morning. Although the Project Staff designed alternative allocation systems, the approach which optimizes both patrol and traffic manpower utilization is one in which patrol personnel are allocated to three permanent shifts with permanent days off; on-duty personnel increase each day from Sunday through Saturday. An increased number of traffic accident investigators are assigned working shifts corresponding with high accident times and which compliment the new patrol shift design. This approach better equalizes workload over the hour of day and day of week.

Also, whereas total Calls for Service workload varies considerably over the hours of the day, it was found that Priority 1 workload is relatively stable throughout each day. In subsequent study phases this insight will enable alternative delivery approaches toward handling Priorities 2 through 4.

The second important finding is the extent to which utility of patrol forces are impacted by training schedules, automobile fueling and washing, and the process by which shift changes take place. The Department's program for training recruits in a field environment has detrimentally impacted on fourth-shift productivity, the only shift on which this program operates. This program should be decentralized with field training officers assigned to the three-shift configuration in numbers that coincide with the workload demands of those shifts. The practice of allowing overlap days for conducting in-service training should be terminated, with that program being re-defined and scheduled to better coincide with the temporal nature of workload demands.

The Department fuels its vehicles at either of two fuel depots operated by the Utilities Department, and washes its vehicles

at either of two contract locations. Substantially less time would be required to accomplish these activities if such services were available at Department work sites. Until a study of all the Department's space and facility requirements can be completed, it is proposed that only fueling facilities be immediately added to the Department's East and West Substations. Although these Substations are temporary, the cost involved in these investments would be recouped in about nine months.

For geographical deployment purposes, the City is separated into four zones, with a police team assigned to each zone on each shift. The team consists of a sergeant and six to eight officers. Problems associated with the shift change process include the timing of the shift changes, the manner in which officers are taken out and placed into service, the inadequacy of line-up facilities, the need for a debriefing activity at the conclusion of each shift change, and the need to implement a different approach regarding vehicle usage.

Each shift change should be accomplished approximately two hours earlier than presently scheduled, officers should be placed into and taken out of service on an alternating-sector basis for each area of town, and during peak workload hours, shifts should be overlapped to minimize out-of-service time. The addition of a line-up facility at the East Substation is necessary to improve the timeliness and effectiveness of the line-up process. Also, making vehicles generally available to all the forces, as opposed to assigning a specific vehicle to each officer, will further improve the timeliness of the shift change process.

Management activities of Patrol Commanders need to be expanded. Presently, a significant amount of administrative activity limits the time Commanders can devote to workload planning and analysis, and hands-on supervision of field forces. The addition of an administrative sergeant to each of the three shifts would resolve a good deal of this problem.

Also, field supervision can be further improved by altering the current practice of assigning sergeants. Presently, a field sergeant supervises a fixed number of officers; the entire team has the same days on and off. This arrangement is basically referred to as "team policing." The change to the proposed permanent shift arrangement will no longer accommodate this practice. Several new arrangements were considered by which sergeants might supervise field forces under the proposed permanent shift arrangement. The proposed arrangement calls for three sergeants assigned to each side of

town on each shift and supervising two police teams on a seven-day-a-week basis. With alternating days off, each sergeant may supervise any one of the two police teams.

It is estimated that \$133,377 is required to implement permanent shifts, add a line-up facility to the East Substation, and install fueling facilities at both the East and West Substations. This amount should be budgeted in 1983. Approximately \$84,557 is a one-time cost, with only \$47,320 being a continuing cost. This latter amount is required to implement a graveyard shift differential. The cost for all improvements will be offset by a 28-30 percent increase in productivity. This, coupled with a projected minimal future workload increase, permits a reduction in the 1983 budget of 11 police officer positions for a new annual savings of \$237,466, which will be realized each and every year hereafter. Further reductions in authorized positions or increased levels of service may be possible from improvements to be realized in subsequent study phases.

Vic Morris
Police Captain

Pat McElderry
Police Captain

James W. Ross
Senior Analyst

RECOMMENDATIONS

1. Implement a new patrol and traffic allocation system which:
 - A. Changes the three equal rotating shifts to unequal permanent shifts.
 - B. Eliminates the present fourth shift.
 - C. Eliminates the four overlap days.
 - D. Changes patrol's days on and off from a rotating to a permanent ten and four configuration.
 - E. Better proportions Patrol and Traffic shift assignments to more closely match time of day and day of week Calls for Service and crime occurrence workload.
 - F. Because of permanent shift assignments, requires an additional \$47,320 in the 1983 budget to cover a graveyard shift differential.
2. Make the following changes to improve the shift change process:
 - A. Overlap patrol shifts in order to provide field coverage for a 10-minute line-up at the beginning of each shift and a 15-minute debriefing at the end of each shift.
 - B. Approve the following starting times for the three patrol shifts so as to not fall in peak workload times:
5:20/6:20 AM - 1:30/2:30 PM
1:20/2:20 PM - 9:30/10:30 PM
9:05/10:05 PM - 5:15/6:15 AM
 - C. Accomplish shift changes on the East and West sides of town using a matrix approach.
 - D. Include in the Police Department's 1983 budget \$27,867 for a new line-up and debriefing facility at the East Substation and to add lockers and make other necessary changes to the East and West Substations to accommodate the deployment of increased police officers.
3. Approve the following with regard to Patrol vehicle fueling and use:
 - A. Include in the Police Department's 1983 budget \$58,190 to install fuel dispensing facilities at the Department's East and West Substations (the West Substation is leased).

- B. Instruct the Utilities Department to contract for the Police Department's gasoline requirements, adding to the purchase price a service fee necessary to cover contracting costs only.
 - C. Designate specific parking spaces for each fleet vehicle and approve the concept of officers not being assigned the same vehicle each day.
4. Implement the following training changes:
 - A. Disperse the Field Training Program on the fourth shift throughout the proposed three-shift configuration, with training officers allocated uniformly with workload among the shifts and assigned the same zone on each shift.
 - B. Approve the In-service Training Program to use manpower not essential to accommodate Calls for Service, instead of setting aside three overlap days for this purpose.
5. Make the following changes to improve traffic operations:
 - A. Reassign the two police officers currently assigned to radar operations to Spot Enforcement and integrate the radar activity into other Traffic Section functions.
 - B. Reassign the three police officers currently assigned to motorcycles and one of the two police officers currently assigned to the Hit and Run detail to Spot Enforcement.
 - C. Change the title of Spot Enforcement Officers to Accident Specialist, and assign them work hours to provide greater coverage during afternoon commute hours and late-night/early-morning weekend hours to service all traffic accidents at these times.
6. Improve supervision by:
 - A. Scheduling master patrol officers to assist sergeants in providing full supervisory coverage over each shift on each day of the year and assign three sergeants to each side of town each shift for supervision of two police teams on a seven-day-a-week basis.

- B. Supporting Commanders through the creation of a shift administrative sergeant position. Sufficient sergeant positions currently exist to allow three being assigned this new duty.
 - C. Providing improved management reporting, necessitating increased support from the Management Information Center.
7. Approve the reduction of eleven police officer positions in Uniform Services' 1983 budget, positions which are currently vacant and are no longer required as a result of Phase I operational analysis and increased efficiencies expected from the above recommendations.
 8. Consider the need to reinstitute a municipal night court in order to minimize overtime costs which will otherwise occur when officers working night duty appear at day court.

STUDY FINDINGS

I. Introduction

In April, 1982, a study of all facets of the Colorado Springs Police Department was initiated to:

- * Assess the effectiveness of police services;
- * Ascertain the efficiency of resource utilization; and
- * Develop and implement necessary improvement plans.

The Study was to proceed on a phase by phase basis, with recommended improvements implemented at the end of each phase. Seven phases were initially planned, but this number has since been reduced to five. The Study was to be conducted on a "Police Self-inspection Basis," with the Office of Budget and Management furnishing technical guidance and analytical approaches, and the Personnel Department rendering support relative to its area of expertise. A Project Office was created and staff selected to conduct the first-phase effort.

Phase I, which primarily addresses patrol resource allocation, has been completed and this report highlights the findings of this analysis effort. It also proposes actions to effect positive change in the patrol operational area.

The Patrol Division was studied first because of the sizeable portion of the Department's resources allocated to it (some 71.4 percent of the Department's uniformed personnel is allocated to Patrol), and the fact that Patrol, more so than any other area of the Department, has the greatest impact on the type and level of services rendered the public, prevention of crime, apprehension of criminals and maintenance of order.

The scope of review was primarily limited to the extent to which manpower resources of Patrol and, to some extent, Traffic operations, might be better allocated to provide the best response possible to Calls for Service. The need to change the type and level of service provided by Patrol will be reviewed in a subsequent study phase.

A significant amount of information was analyzed in the first-phase effort. Primary data sources included Calls for Service and Cover Call Incident data, Daily Field Activity

Reports, time book detail, and overtime data. Information was obtained in interviews with police officers, sergeants, lieutenants, and other Department personnel. Relevant studies conducted by or for other police departments and analyses performed by consultants on relevant subjects were studied. In-state police departments were visited and out-of-state departments were surveyed by telephone. The impact that the Department's approach toward manpower allocation, shift changes, report preparation, vehicle fueling and washing, and training, had on manpower utilization and workload performance was studied. The judgment of the Study Team was applied to establish the depth of the Phase I Study effort and the level of detail suited to the scope and task assignments.

The breadth of statistical information studied in the Phase I effort was mainly restricted to examination of 1981 workload activity, including Calls for Service workload, the extent and manner in which patrol resources were used to satisfy this workload, and the extent to which the response could have been bettered by improved manpower allocation and approaches.

The Phase I Study effort resulted in major findings in several operational areas impacting on patrol and traffic manpower utilization. These areas include manpower scheduling, shift change process, training schedules, vehicle fueling and washing, and supervision. Major findings, recommendations for improvement, and increased efficiencies and dollar savings from implementing such improvements are discussed below.

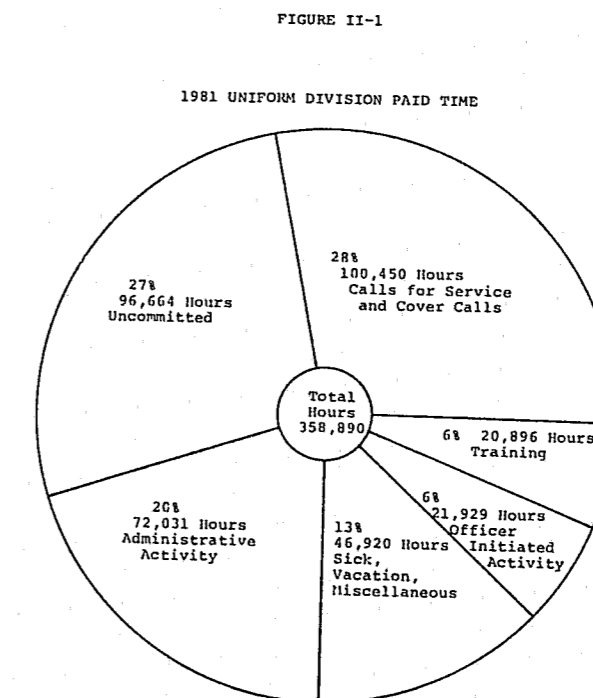
II. Workload Analysis

The determination of how many and when officers should be assigned to patrol duty should be through a careful and systematic analysis of the workload performed by patrol officers. Workload analysis requires accurate and complete reporting of patrol activities and man hours expended in a manner that facilitates analysis.

1981 workload and man hours expended was analyzed since it has the most recent complete year of data that could be assessed. A "consumed time" method of measuring workload was selected to provide the most comprehensive single measure of police activity. To accomplish a time-consumed time study, the time expended by officers on activities was grouped into six categories:

- Calls for Service and Cover Calls
- Officer Initiated Activity
- Personal and Administrative Activities
- Training
- Uncommitted Time
- Overtime

Time expended against five of these categories are provided in Figure II-1 and reflected as a percent of total 1981 paid time.



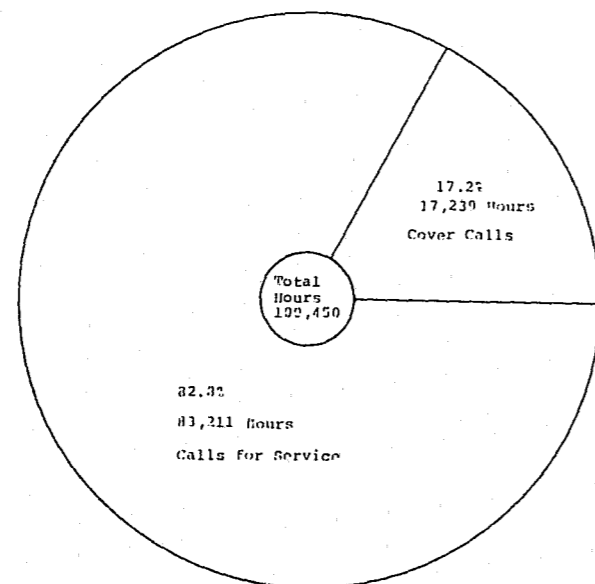
All these activities were broken into man hours consumed and displayed in temporal frequency distributions by time of day, day of week, and month of year in which the activity occurred. Information on certain of these activities is descriptive of an actual population, and some of the data is derived by inference from a systematic or random sample of data.

The allocation and deployment of patrol officer required to accomplish the activities in these categories are of significant importance and manpower availability is the key in determining the level of performance in which all of these activities are rendered. These issues are subsequently reviewed.

- A. The Calls for Service and Cover Call category primarily includes activities assigned to officers through the Communications Center. Dispatch cards record the information and form a computerized data base for all calls.

Adjustments were made in the 1981 computerized data base to eliminate calls that did not require a mobile field response (phone-in reports and appointments) and errors in data entry. As shown in Figure II-2, the adjusted 1981 data base includes 83,211 hours of Calls for Service and 17,239 hours of Cover Calls, a total of 100,450 hours of officer time.

FIGURE II-2
1981 CALLS FOR SERVICE AND COVER CALLS



Figures II-3, II-4, and II-5 reflect total Calls for Service and Cover Calls, Priority 1 Calls, and Priority 2 Calls broken into frequency distributions. Priority 1 and 2 Calls are the most urgent and demanding of rapid mobile response by police officers. Figure II-3 depicts 1981 Calls for Service workload by time of day and reflects a high total Calls for Service workload at midnight, falling steeply until about 6:00 a.m., rising gradually to a peak at about 3:00-4:00 p.m. and then declining slightly. Priority 1 Calls follow a much flatter pattern over the 24-hour period.

FIGURE II-3
1981 HOURS CONSUMED IN PRIORITY 1 & 2 AND
TOTAL CALLS FOR SERVICE AND COVER CALLS
By Hour of Day

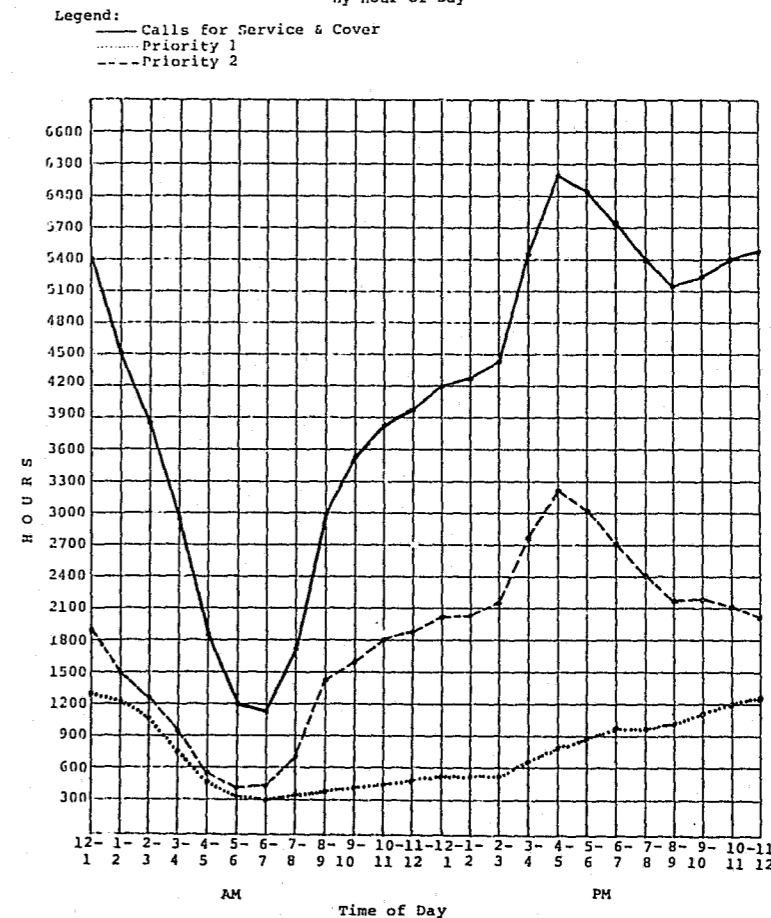


Figure II-4 shows activity by day of week and reflects a moderate increase in total workload throughout the week. Priority 1 Calls are more constant through the week with a slight increase on Saturdays. Priority 2 Calls increase slightly through most of the week, with a slight decrease on Saturdays.

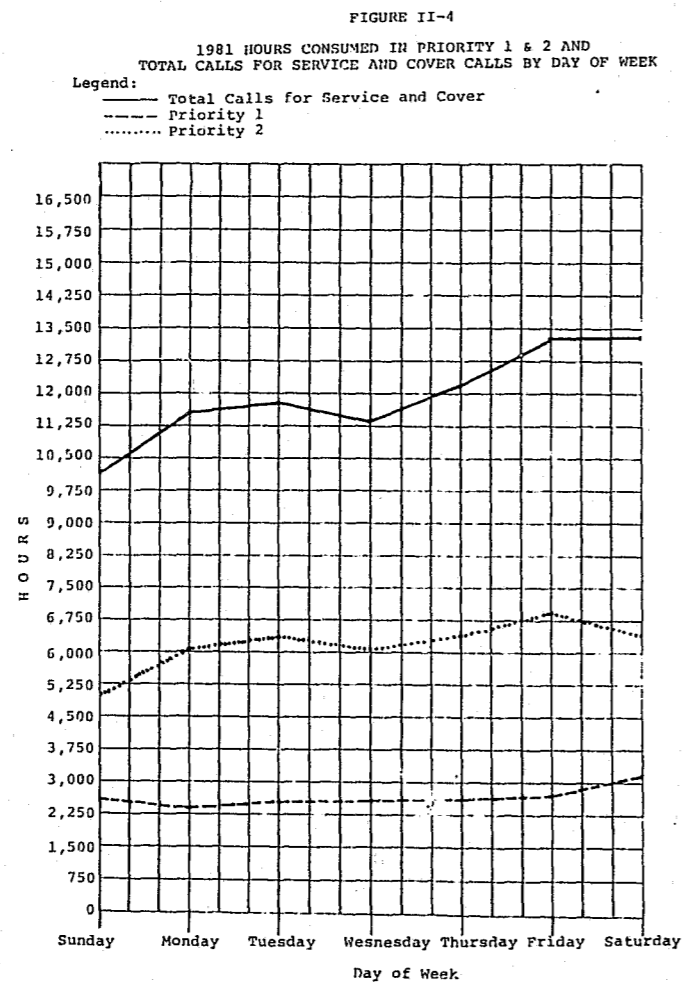
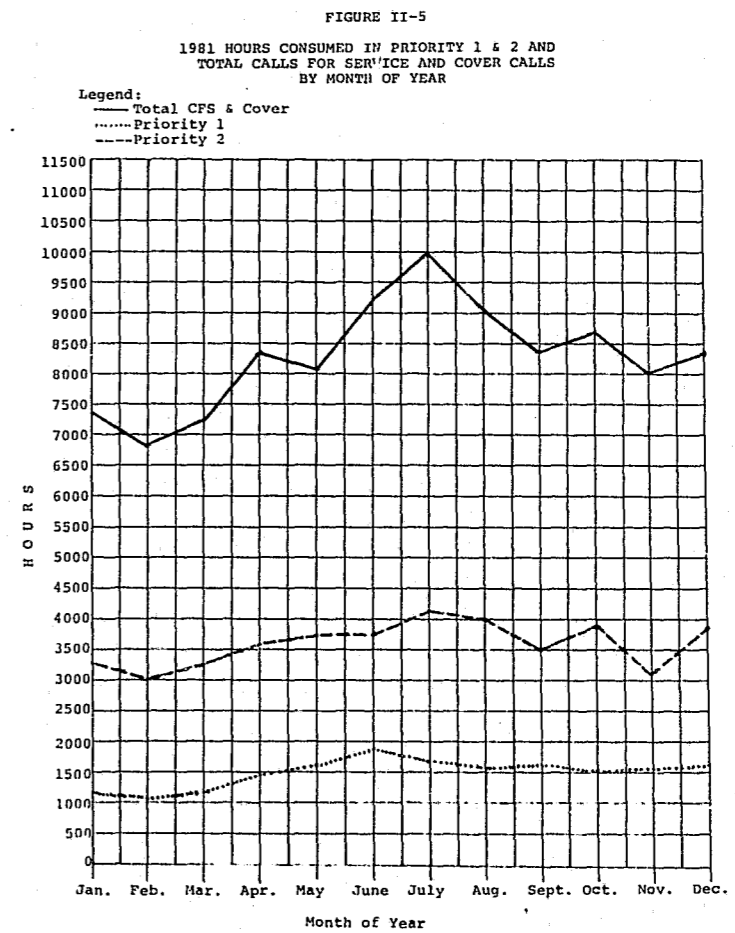


Figure II-5 shows the activity by month of year. The data generally reflect a higher workload in summer months for Priority 1 and 2 and for total Calls for Service.



An attempt was made to determine the Department's performance in responding to high-priority calls. Failure standards were established for Priorities 1 and 2 to determine performance to dispatch (time elapsed between receipt and dispatch of the call to a field unit), to arrive (time elapsed between

dispatch and arrival at the call location), and for total response (time elapsed between receipt of the call by the Department and the officer's arrival at the call location). Failure standards established are listed in Table II-1.

Table II-1

PRIORITY 1 and 2 FAILURE STANDARDS

<u>Priority</u>	<u>Dispatch</u>	<u>Arrive</u>	<u>Total Response</u>
1	4 min.	6 min.	9 min.
2	10 min.	9 min.	18 min.

The time to service every Priority 1 and 2 Call in 1981 was evaluated against these standards and the degree of failure was also determined. Failures were displayed on an hour of occurrence basis in the form of a frequency distribution. The results of this exercise are shown in Figure II-6 and Figure II-7. Figure II-6 reveals the failure levels in servicing Priority 1 Calls and Figure II-7 indicates the percent of failures in handling Priority 2 Calls. Both figures reveal a poor service performance during 1981.

FIGURE II-6

PERCENT 1981 PRIORITY 1 CALLS FOR SERVICE FAILURES

Legend:
..... Dispatch 4 Minutes & Greater
----- Arrival 6 Minutes & Greater
----- Response 9 Minutes & Greater

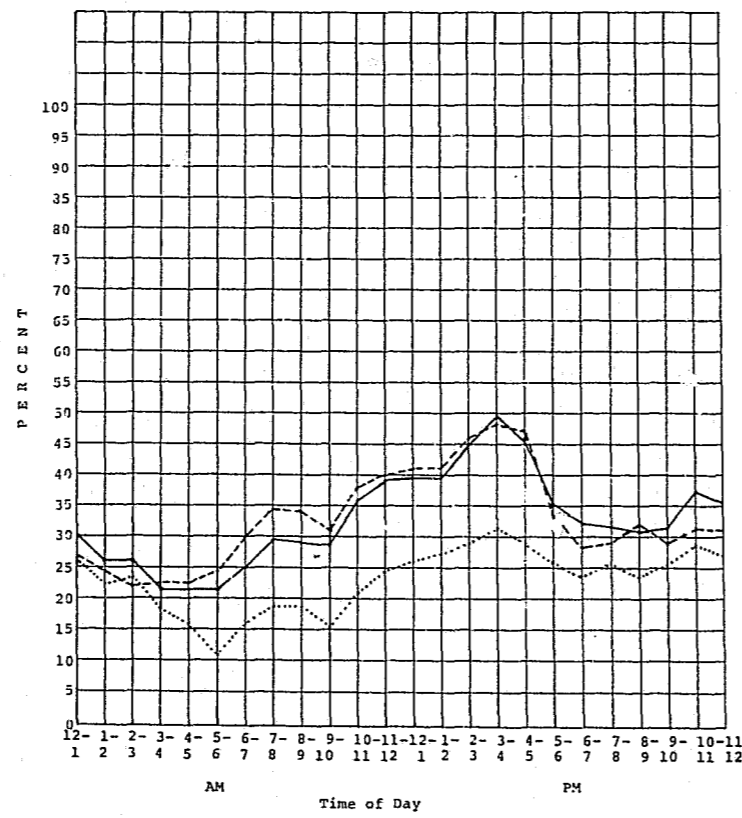
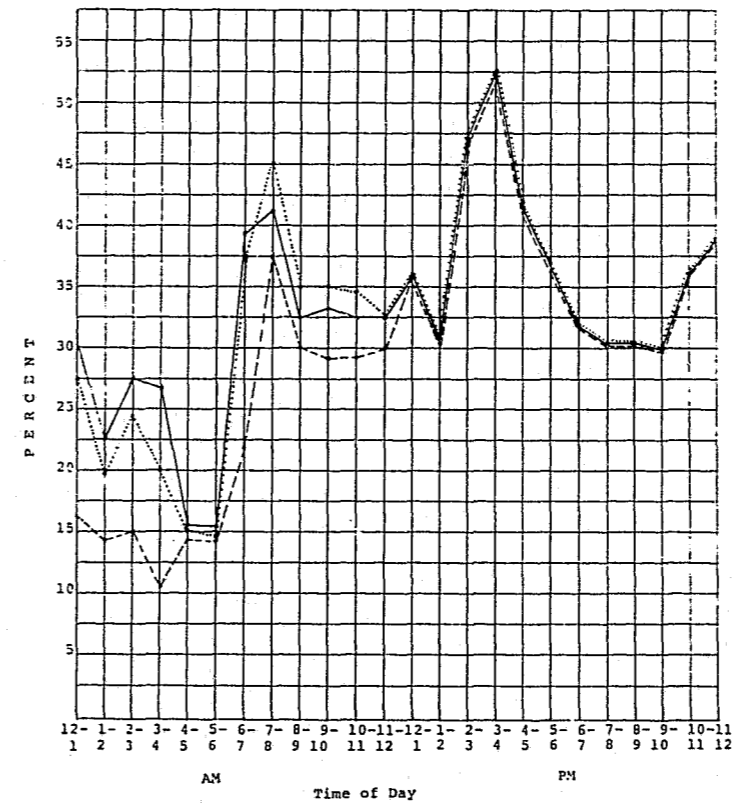


FIGURE II-7

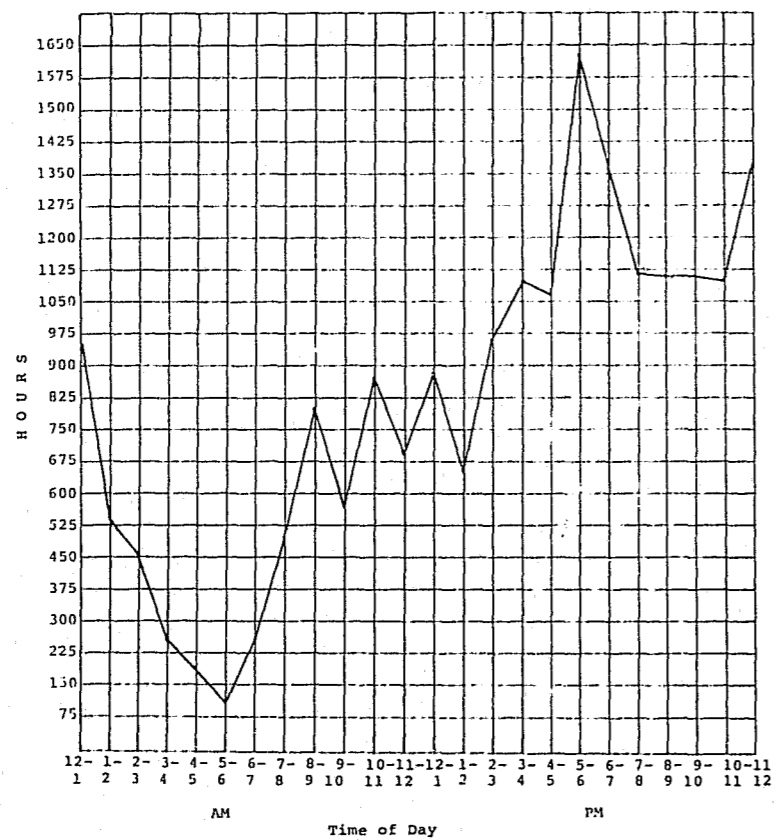
PERCENT 1981 PRIORITY 2 CALLS FOR SERVICE FAILURES

Legend:
..... Dispatch 10 Minutes and Greater
----- Arrival 9 Minutes and Greater
----- Response 19 Minutes and Greater



Field manpower should be allocated to accomplish an effective and timely response in handling Calls for Service, a reactive activity, and to effect a concerted effort to prevent crime, a proactive activity. An analysis of actual time of crime occurrence was conducted utilizing data gathered by sampling of case reports and from a prior experimental effort relative to the development of a new crime classification system. Figure II-8 reflects the results of this analysis in terms of time of day crime occurrence. It reveals that crime occurs disproportionately during the day and that the pattern of crime occurrence closely follows the pattern of Calls for Service. Crime occurrence patterns were constant over the days of the week and months of the year. In short, crime occurrence patterns are very similar to Calls for Service workload patterns. The development of an effective manpower allocation approach is significantly simplified by this major finding.

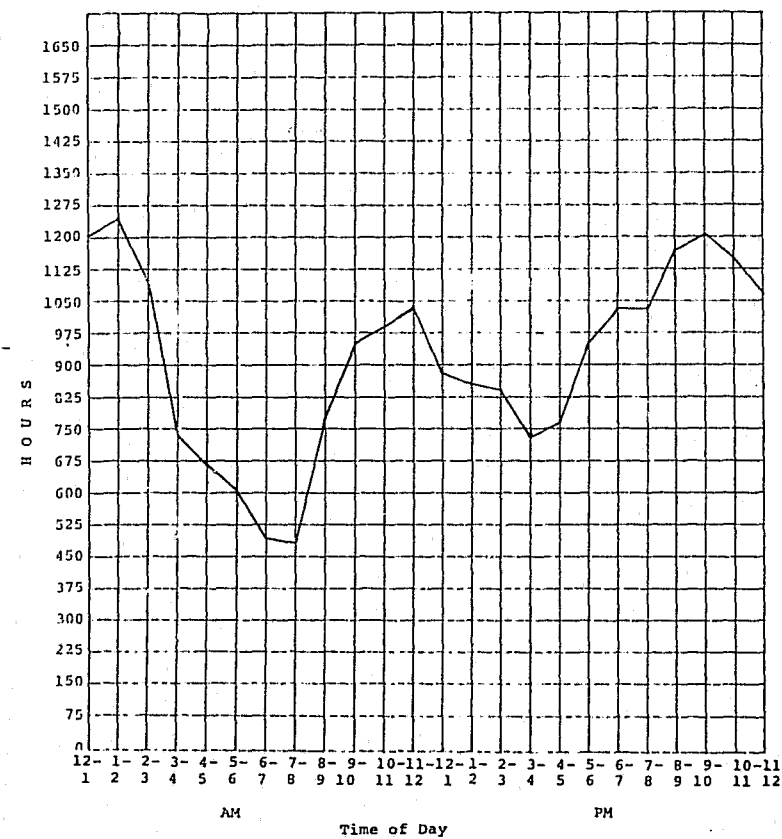
FIGURE II-8
SAMPLING OF 1981 CRIME OCCURRENCE
BY TIME OF DAY



B. Officer Initiated Activities are those tasks initiated by police officers, solely at their own discretion, which relate to crime control and order maintenance. These include vehicle stops, field interviews, follow-up investigations, and security checks. The level of officer-initiated activity, at any given time, is directly influenced by availability of uncommitted time. Information on officer-initiated activity was obtained from a 25 percent sample of the officers' Daily Field Activity Reports for 1981, inclusive of March, August, and December. Approximately 21,929 hours were accounted for in this activity and, as demonstrated in Figure II-9, most of this time was expended in afternoon and late evening hours.

FIGURE II-9

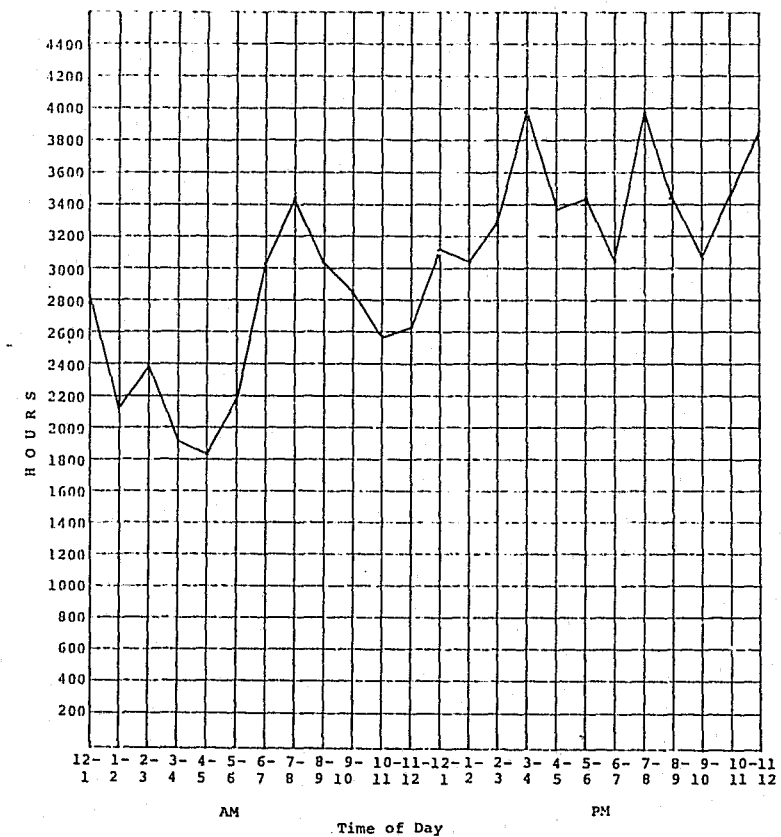
OFFICER INITIATED ACTIVITY
MARCH, AUGUST and DECEMBER, 1981
BY HOUR OF DAY



C. Personal and Administrative Activities include time for line-up, briefing sessions, meals, court attendance, servicing equipment, prisoner processing, report preparation, and other miscellaneous activities. The source of data used for analysis was also from the 25 percent sample of the officers' Daily Field Activity Report. Approximately 72,000 hours were expended in these types of activities in 1981, and, as demonstrated in Figure II-10, peak time expenditures correspond to shift change and meal times.

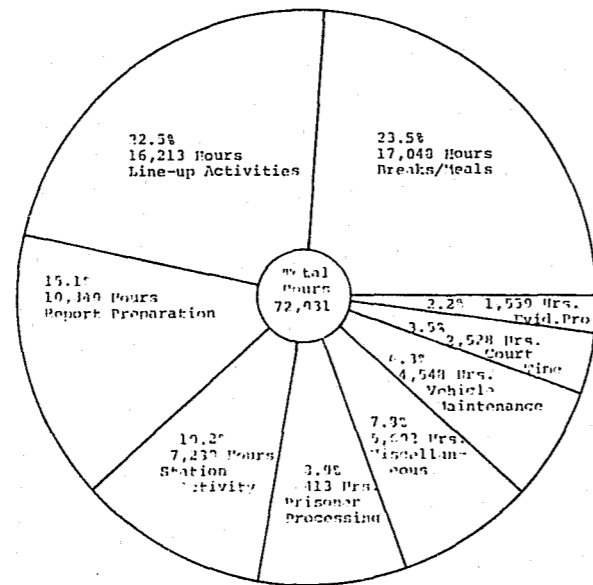
FIGURE II-10

PERSONAL AND ADMINISTRATIVE ACTIVITY
March, August and December, 1981
BY HOUR OF DAY



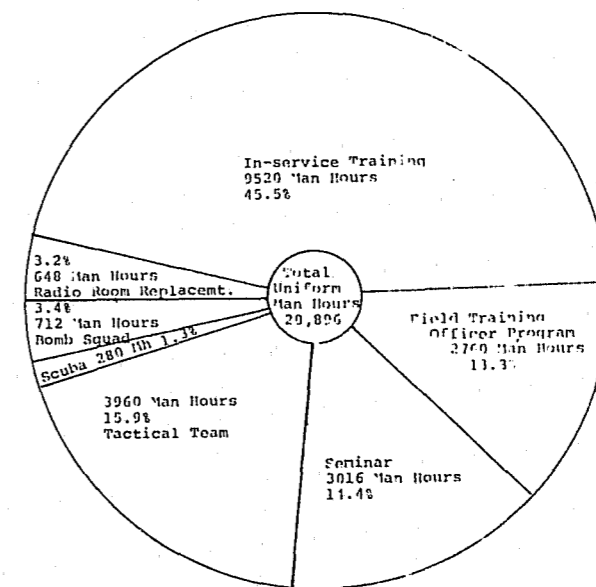
The purpose for which this time was spent is reflected in Figure II-11. Approximately three-fourths of the on-duty time was expended in four categories: breaks/meals (23.5 percent), line-ups (22.5 percent), report preparation (15.1 percent), and station activities (10.2 percent). The study concluded that a substantial amount of this time can be recovered through changes in policies and procedures. Changes in line-up and vehicle maintenance, addressed later in this report, are intended to reduce the time spent in these activities. Report preparation along with certain other personal and administrative activities will be discussed in a subsequent study phase.

FIGURE II-11
PERSONAL AND ADMINISTRATIVE ACTIVITIES
MARCH, AUGUST AND DECEMBER, 1981



D. The Department dedicates a considerable amount of time and effort to the training function, which unfavorably impacts on patrol work schedules and performance levels. To determine the level of this impact, data from training records, timebook notations, individual unit records, and billing were gathered and analyzed. Figure II-12 reflects the time dedicated to training provided to on-duty officers, except firearms training. The majority of this training occurs in four categories: In-service Training, Field Training Officer Program, Seminars, and Tactical. Approximately 19,256 hours, or 92 percent of the 20,896 hours expended in training in 1981, were expended in these four training categories.

FIGURE II-12
1981 TRAINING: BREAKDOWN BY TYPE



Firearms qualifications are required every three months and are accomplished during on-duty time. This training, unlike other types, is not scheduled and does not detrimentally impact on work performance. This is because officers qualify on off-peak workload hours. Roughly 1,700 hours were expended in this activity in 1981.

Several problems were recognized in this activity. First, there is a need for better coordination and evaluation of all these elements of the Department's training program. Some are organized by the Training Division and some are conducted by individual program managers.

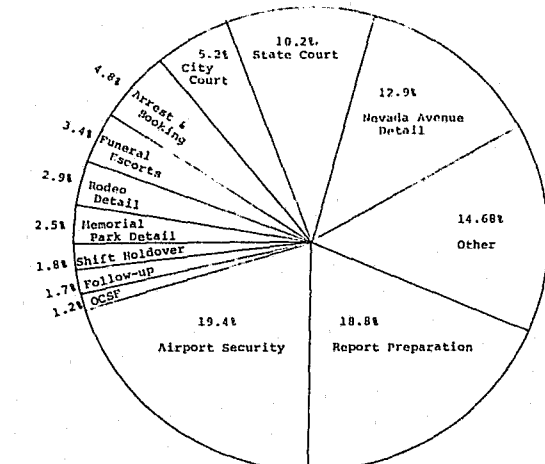
Second, In-service Training takes place on overlap days scheduled for Tuesday and Wednesday of every second and fourth week of each 28-day deployment period. This results in all officers being present on these days to facilitate training, with each officer training one full day each deployment period. Problems identified with this approach include occasional "All Cop" days when training did not take place, resulting in more officers on the job than vehicles and formal assignments available. This has resulted in eight-hour training periods and 96 hours of training per officer each year, which may not be effective nor justified. Certainly, this scheduling of training days does not relate to or compliment Calls for Service workload demands.

Third, the Field Training Program is operated solely on the fourth shift, which works evenings only. Officers on this shift are deployed throughout the City and for approximately one-half of the year, train recruits in field situations, necessitating that they respond to Calls for Service to a lesser degree than normally considered their share. Also, this shift is comprised of two units in order to provide seven-day-a-week coverage, with one day each week an overlap day. This overlap day is not justified, particularly in that it falls on Wednesdays, not a high workload day. Also, the ten-hour workday is not justified by Calls for Service workload. This approach toward conducting the Field Training Program has a detrimental impact on the Calls for Service workload.

- E. Uncommitted time is time not required for answering Calls for Service, personal/administrative activities, officer-initiated tasks, or training. In 1981 approximately 33 percent of officers' time was uncommitted, this time is significant since it might be used for directed patrol, crime prevention and other constructive activities. This time is vital to an effective patrol management program.
- F. The last category of activities analyzed for which time was expended is overtime. Such time must be included since it is an actual time commitment over and above the regular work schedule necessary to accomplish workload tasks.

In 1981, approximately \$686,000 was expended on overtime. Figure II-13 reflects the type activities for which overtime was expended and the amounts spent on each. Some two-thirds of the overtime was because of court appearance, airport security, Nevada Avenue detail, and report preparation. Major amounts of overtime are no longer being expended for airport security or Nevada Avenue detail since they have been incorporated in the Department's daily work program financed by regular salaries.

FIGURE II-13
1981 OVERTIME

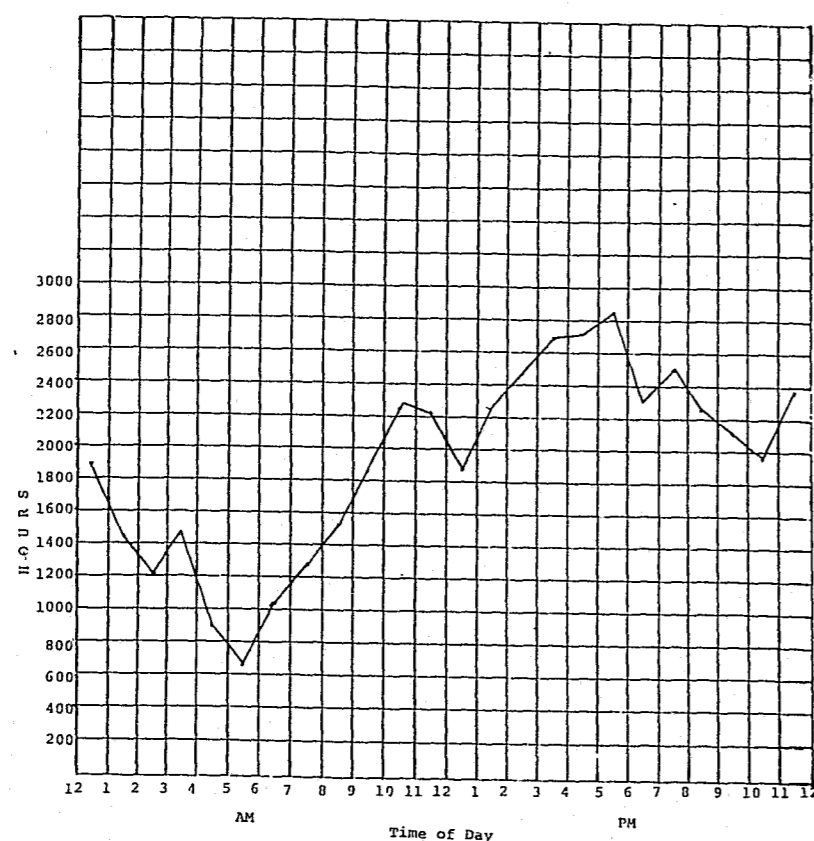


Category	%	\$ Expended	Category	%	\$ Expended
City Court	5.2%	\$ 28,278	Funeral	3.4%	\$ 24,396
State Court	10.2%	61,773	OCSF	1.2%	9,269
Report Prep.	18.8%	129,119	Airport	19.4%	146,220
Follow Up	1.7%	12,726	Other	14.68%	93,849
Nevada Avenue	12.9%	77,267	Arrest & Book.	4.8%	31,779
Memorial Park	2.5%	18,797	Shift Holdover	1.8%	7,839
Rodeo	2.9%	22,693	TOTAL		\$686,000*

*Total differs slightly from City Controller's expenditure amount since some overtime is paid from regular salary accounts.

Figure II-14 reveals the use of overtime by time of day. The highest use of overtime occurs in afternoon and evening hours, with two of the three overtime peaks occurring during shift change hours.

FIGURE II-14
1981 OVERTIME USAGE
BY TIME OF DAY



Upon completing an analysis of workload factors and performance, the number of officers employed and the use of their time was calculated. Monthly timebooks for patrol, traffic, and special operations were used to gain insight to these areas. This exercise determined to what extent manpower availability impacted on performance levels and calculated an assignment/availability factor for manpower planning purposes.

Although in 1981 the Department had 284 police officer positions authorized in Uniform Services, as many as 55 vacancies existed at times in 1981. Time reported by officers on duty totaled 358,890 hours, of which 291,074 hours were actually available for Calls for Service. The remaining 67,816 hours were for vacations, sick leave, training, etc. Figure II-15 reflects 1981 time on duty by time of day. Officer availability data were displayed and compared with workload on frequency distributions by time of day, day of week, and by month of year.

FIGURE II-15
1981 TIME ON DUTY
BY TIME OF DAY

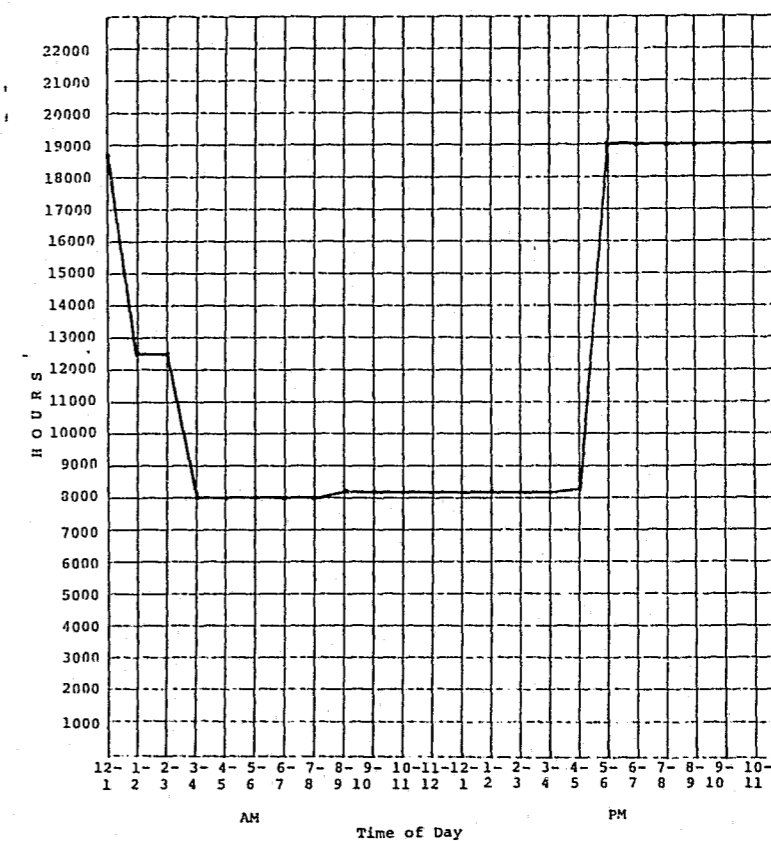


Figure II-16 reflects 1981 Uniform Division on-duty time by the level of activity performed. Approximately 66.7 percent of all officers' on-duty time in 1981 was committed to Calls for Service, Cover Calls, Officer Initiated Activities, and Administrative Activities, with 33.3 percent uncommitted.

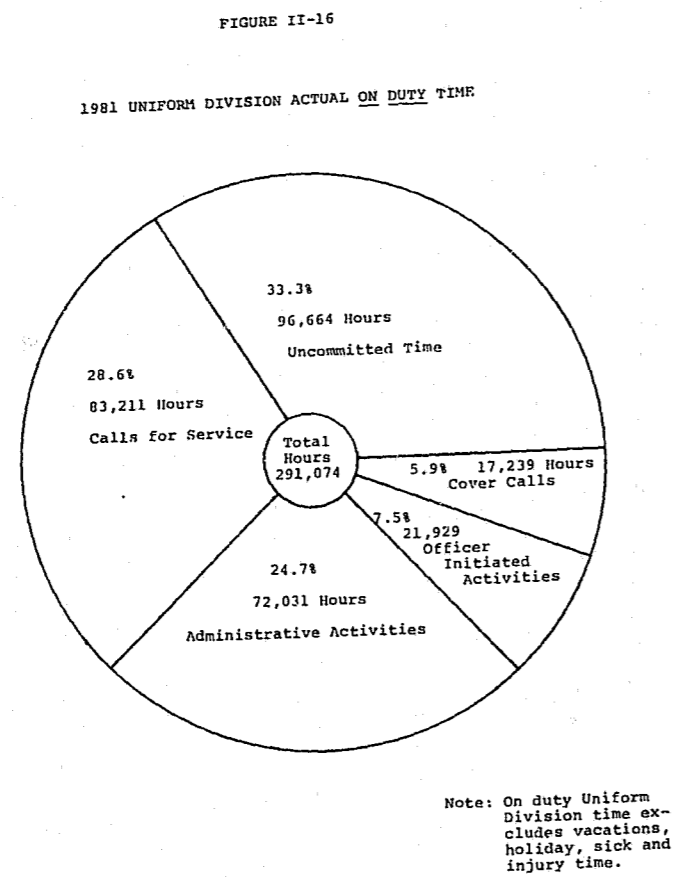
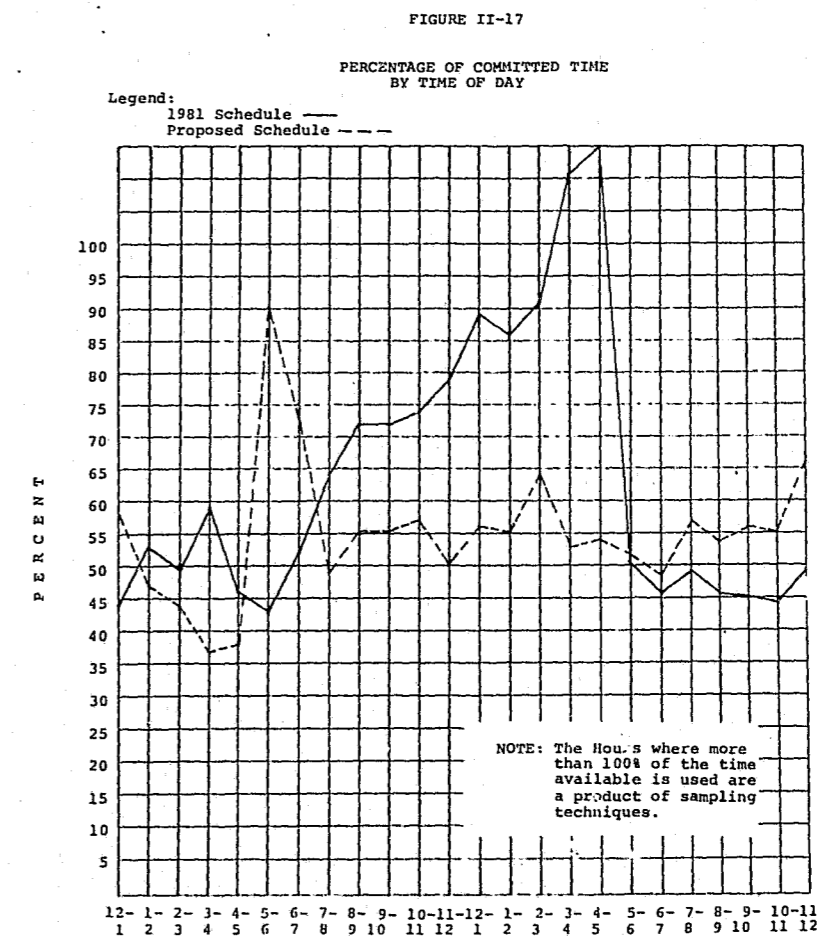


Figure II-17 depicts all committed time by time of day. It readily points out that insufficient hours were available in early afternoon hours to meet all workload requirements, and that uncommitted time occurred in late evening and early morning hours.



III. Allocation of Manpower to Shifts

A. Once all workload activities were tabulated, the number of patrol hours required to handle the workload on a more equalized basis was computed. The average percent of time for each patrol hour used for Calls for Service and Cover, Personal and Administrative, Officer Initiated Activity, and Uncommitted Time was used to calculate the staffing requirement which would evenly distribute such activity times over a 24-hour period. The availability factor was then applied to the patrol hours to establish the average acceptable number of officers that should be assigned on each hour. The same calculations were repeated to determine necessary staffing for each day of the week.

Table III-1 illustrates the number of officers required by time of day, as opposed to actual manpower distribution in 1981.

TABLE III-1
COMPARISON OF REQUIRED OFFICERS
TO 1981 STAFFING BY TIME OF DAY

Hour	Required/Optimal Officers	1981 Staffing
12 mid	44	64
1 a.m.	37	43
2 a.m.	31	43
3 a.m.	24	27
4 a.m.	16	27
5 a.m.	10	27
6 a.m.	9	27
7 a.m.	14	27
8 a.m.	25	27
9 a.m.	29	27
10 a.m.	31	27
11 a.m.	33	27
12 noon	35	27
1 p.m.	35	27
2 p.m.	36	27
3 p.m.	45	27
4 p.m.	51	27
5 p.m.	50	64
6 p.m.	48	64
7 p.m.	44	64
8 p.m.	43	64
9 p.m.	44	64
10 p.m.	44	65
11 p.m.	45	64

As shown in Table III-1, 172 patrol officers and 20 sergeants should be provided to meet the optimal patrol schedule. The objective is to distribute these officers to temporal shifts that most closely approximate the distributions of the optimal schedule. Obviously, a schedule cannot be designed which exactly duplicates the optimal schedule. Officers must work a full eight-hour shift with shift hours which approximate normal shift working hours.

B. In designing a shift schedule, there are issues which affect the decision process, in addition to workload:

1. Unity of Command
2. Team Integrity
3. Ease of Design and Use
4. Compatability with other departments
5. Personnel Rules
6. Equipment Availability
7. Compatibility of Schedule with off-duty activity of employees
8. Employee Fatigue

All of these issues are important when evaluating the impacts of a particular schedule.

The vast majority of police departments have structured schedules whereby the employee has a set pattern of on- and off-duty assignments. In structured schedules, there are properties or attributes that facilitate categorizing the schedule design:

1. Fixed Days Off/Rotating Days Off
2. Uniform/Variable Staffing by Shift
3. Uniform/Variable Staffing by Day of Week
4. Fixed or Rotating Shift Assignments

As in any systematic analysis, a clear understanding of methodology and terminology is important. Figure III-1 is used to provide understanding into work schedule design.

FIGURE III-1

10 DAYS ON/4 DAYS OFF PLAN

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											2
B				X	X	X	X								2
C							X	X	X	X					2
D								X	X	X	X				2
E											X	X	X	X	2
F	X	X	X											X	2
On	8	8	8	8	10	10	8	8	8	8	8	10	10	8	
Off	4	4	4	4	2	2	4	4	4	4	4	2	2	4	

The letters at the top represent days of the week and an "X" in a box signifies a day off. The letters on the left represent specific day on/day off patterns (for example, group "A" represents the officers whose work schedule permits Monday through Thursday off). The number on the right represents the officers assigned to a particular pattern (in Group A's case, the pattern is for 2 officers). The figures at the bottom represent officers scheduled to be on and off each day.

Deployment corresponding to workload patterns cannot be accomplished with proportional staffing by shift. Rotating shifts require work groups of substantial size, negating optimal staffing decisions. Deployment without regard to workload patterns has adverse effects on a department's ability to handle Calls for Service, the morale of patrol personnel, the ability to impact on criminal activity, and cost control for the patrol operation. Effective, efficient patrol operations mandate some form of permanent, proportional staffing.

Another important consideration is the rotation of days off. If the agency desires permanent shifts and permanent days off, officers can be assigned to pattern groups and no further adjustments are necessary. If, on the other hand, periodic pattern rotation is desirable, an officer can be transferred to another group. If the number of officers in the group is different, so as

to provide variable staffing by day of week, this rotation becomes more difficult. If, for example, there were two officers in group E but only one slot in group F, in a rotation only one of the two could go into group F.

- C. After review of several different work schedule configurations, a shift pattern of 10 days on/4 days off with three permanent shifts was selected. Once an officer is assigned to a particular shift, his days on/off and shift assignment will not change until the shift assignment process is repeated.

The three shifts proposed are of unequal strength: (Shift 1 - days - 43 officers; Shift 2 - swing - 66 officers; Shift 3 - midnights - 63 officers). These staffing levels were necessary to match the Calls for Service workload requirements by time of day.

In addition, the day off assignments were designed to provide increased staffing through the week. This is consistent with both Calls for Service workload and crime activity.

The proposed schedule is easy to administer. At the same time it affords the employee consistency in scheduling, thus facilitating greater compatibility with off-duty activities. This type schedule more closely conforms to work patterns in both the public and private sectors.

There will, of course, be some difficulties associated with this schedule. By its very nature, permanent shifts are inequitable. That is, week-ends off are not equally distributed among members. However, in reality, a shift pattern that has complete equity in day-off distribution probably cannot provide for increased weekend staffing. Another potential difficulty is the scheduling of vehicles for different staffing levels each day. We currently have an adequate vehicle fleet to accommodate the maximum number of officers scheduled, however the distribution of those vehicles will have to be closely monitored so as to minimize delays at shift change.

Also, the proposed schedule does not continue overlap days on which the current in-service training schedule is based, and requires the :

dispersion of the Field Training program among the three shifts. A new design for delivery of recruit field training and in-service training will have to be developed and evaluated.

The following figures detail the proposed starting times, days off pattern, and personnel assignments for the Patrol Division. Figures III-2 through III-4 detail schedules for police officers and Figure III-5 shows the proposed schedule for field sergeants, administrative sergeants and Commanders for each shift.

FIGURE III-2

PROPOSED SCHEDULE
Shift #1 (Days)

West - 23 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											4
B				X	X	X	X								3
C							X	X	X	X					4
D								X	X	X	X				4
E											X	X	X	X	4
F	X	X	X											X	4
On	15	15	15	16	20	20	16	15	15	15	15	19	19	15	
Off	8	8	8	7	3	3	7	8	8	8	8	4	4	8	

East - 20 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											3
B				X	X	X	X								3
C							X	X	X	X					4
D								X	X	X	X				3
E											X	X	X	X	3
F	X	X	X											X	4
On	13	13	13	14	17	17	13	13	13	13	14	17	17	13	
Off	7	7	7	6	3	3	7	7	7	7	6	3	3	7	

FIGURE III-3

PROPOSED SCHEDULE
Shift #2 (Swing)

West - 36 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											6
B				X	X	X	X								6
C							X	X	X	X					6
D								X	X	X	X				6
E											X	X	X	X	6
F	X	X	X											X	6
On	24	24	24	24	30	30	24	24	24	24	24	30	30	24	
Off	12	12	12	12	6	6	12	12	12	12	12	6	6	12	

East - 30 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											5
B				X	X	X	X								5
C							X	X	X	X					5
D								X	X	X	X				5
E											X	X	X	X	5
F	X	X	X											X	5
On	20	20	20	20	25	25	20	20	20	20	20	25	25	20	
Off	10	10	10	10	5	5	10	10	10	10	10	5	5	10	

FIGURE III-4

PROPOSED SCHEDULE
Shift #3 (Midnights)

West - 34 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											5
B				X	X	X	X								6
C							X	X	X	X					6
D								X	X	X	X				5
E											X	X	X	X	6
F	X	X	X											X	6
On	23	23	23	23	28	28	22	23	23	23	23	28	28	22	
Off	11	11	11	11	6	6	12	11	11	11	11	6	6	12	

East - 29 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
A	X	X	X	X											4
B				X	X	X	X								5
C							X	X	X	X					5
D								X	X	X	X				4
E											X	X	X	X	5
F	X	X	X											X	6
On	19	19	19	20	24	24	19	20	20	20	20	24	24	18	
Off	10	10	10	9	5	5	10	9	9	9	9	5	5	11	

FIGURE III-5

PROPOSED SCHEDULE
Supervisors

	M	T	W	T	F	S	S	M	T	W	T	F	S	S
A	X	X	X	X										
1 Shift Sgt.				X	X	X	X							
C							X	X	X	X				
1 Shift Sgt.								X	X	X	X			
E											X	X	X	X
1 Shift Sgt.	X	X	X											X

1 Lt.
1 Relief Lt.
1 Admin. Sgt.

ON	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Shift Sgt.	2	2	2	2	2	2	2	2	2	2	2	3	3	2
Admin. Sgt.	0	0	0	1	1	1	1	1	1	1	1	1	1	0
Lieutenant	1	1	1	0	0	0	0	1	1	1	1	1	1	1
Relief Lt.	1	1	1	1	1	1	1	1	1	1	0	0	0	0

- 3 Sergeants East
- 3 Sergeants West
- 1 Administrative Sergeant
- 1 Lieutenant
- 1 Relief Lieutenant

- D. One of the major demands for service, both in terms of frequency and consumption of time, are traffic accidents. During a large portion of the day, accidents represent 10 percent of committed time, with that rising to a high of 16-17 percent during afternoon commuting hours. This level of afternoon accidents corresponds with a similar increase in other types of calls, thus compounding late afternoon staffing problems.

The current authorized strength of the Traffic Section is 29 officers; however only 17 officers are assigned accident investigation responsibilities. The Traffic Section investigates only approximately 40 percent of traffic accidents. Increasing the number of traffic officers assigned to investigate traffic accidents and scheduling them so as to better coincide with accident occurrence would better compliment the new Patrol allocation plan.

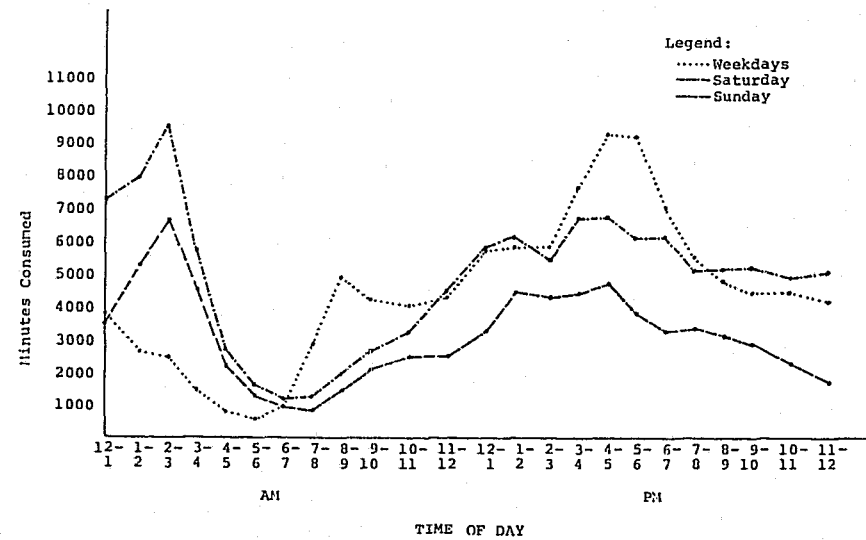
Alternative approaches to traffic accident workload will be investigated in subsequent phases and include:

1. The integration of traffic officers into Patrol, and the subsequent transfer of accident investigation responsibilities to patrol.
2. The introduction of para-professionals for accident investigation.
3. A revision of accident investigation policy to reduce the number of accidents investigated.

At present, it seems most appropriate to develop a revised schedule for Traffic Officers that more closely matches hourly accident workload requirements.

During the study, accident data were gathered and are displayed in Figure III-6. The majority of traffic accidents occur between 11:00 a.m. and 7:00 p.m.; there is an increase in accident activity between 1:00 and 3:00 a.m. on weekends; also, there is minimal accident activity associated with morning commute hours, and during the late evening hours, particularly 8:00 p.m. to 3:00 a.m., there is an increase in DUI and serious personal injury and fatal accidents. These facts were considered when designing the traffic shift schedule.

FIGURE III-6
1981 TRAFFIC ACCIDENTS IN MINUTES
Consumed on Weekdays, Saturday and Sunday



The new traffic work schedule had no effect on the DUI program, the School program, or the four traffic officers assigned "accident cars." These latter officers are to be re-designated "Traffic Investigators."

The 16 officers affected by the new schedule are to be designated "Accident Specialists." Thirteen of these previously worked Spot Enforcement, two radar operations and one hit and run detail. The radar function is to be absorbed broadly among traffic personnel.

Of the 16 Accident Specialists, two will work from 6:00 a.m. to 2:00 p.m., Monday through Friday (the weekend mornings have low accident frequency). Ten officers will work from 11:00 a.m. to 7:00 p.m. By using a 10 day on/4 day off pattern, seven-day-a-week staffing with increased staffing will be provided on Friday and Saturday. Four officers will work a 4 day/10 hour day plan (5:00 p.m. to 3:00 a.m. Wednesday through Saturday). This will provide extra coverage during the afternoon peak workload period, as well as increased staffing after midnight. In addition to investigating non-injury accidents, these four officers also assist the DUI Enforcement Team and the Traffic Investigators.

The work schedule for the 16 Accident Specialists provides for permanent shifts and permanent days off, the same as for Patrol. Table III-2 reflects this staffing by time of day and day of week and Table III-3 shows the actual times officers will be working.

TABLE III-2

PROPOSED STAFFING FOR ACCIDENT SPECIALISTS
BY TIME OF DAY AND DAY OF WEEK

	Day of Week						
	S	M	T	W	T	F	S
6:00 AM - 11:00 AM	0	2	2	2	2	2	0
11:00 AM - 2:00 PM	7	8	8	8	9	11	9
2:00 PM - 5:00 PM	7	6	6	6	7	9	9
5:00 PM - 7:00 PM	7	6	6	10	11	13	13
7:00 PM - 3:00 AM	0	0	0	4	4	4	4

TABLE III-3

PROPOSED ACCIDENT SPECIALIST WORK HOURS

6:00 AM - 2:00 PM - 2 Officers

M	T	W	T	F	S	S
X	X	X	X	X	0	0

11:00 AM - 7:00 PM - 10 Officers

	M	T	W	T	F	S	S	M	T	W	T	F	S	S
2	X	X	X	X										
1				X	X	X	X							
2							X	X	X	X				
2								X	X	X	X			
1											X	X	X	X
2	X	X	X											X
On	6	6	6	7	9	9	7	6	6	6	7	9	9	7
Off	4	4	4	3	1	1	3	4	4	4	3	1	1	3

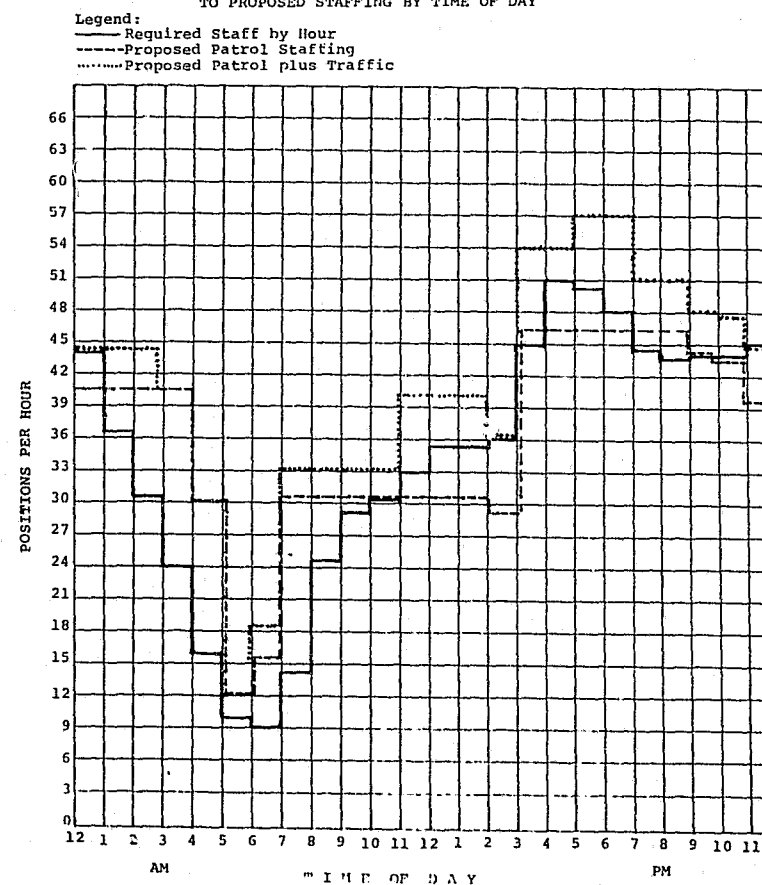
5:00 PM - 3:00 AM - 4 Officers

M	T	W	T	F	S	S
(4)	0	0	X	X	X	0

E. The following Figures compare proposed patrol and traffic schedules with the optimal schedule based on 1981 workload staffing. Note that no hour falls short of the required staffing level. Also, note that the proposed schedule closely approximates the optimal schedule. Figure III-7 compares proposed staffing with optimum requirements over time of day.

FIGURE III-7

OPTIMAL STAFFING COMPARED TO PROPOSED STAFFING BY TIME OF DAY



Figures III-8 and III-9 compare fluctuations in the Calls for Service and Cover Calls workload with manpower schedules over time of day.

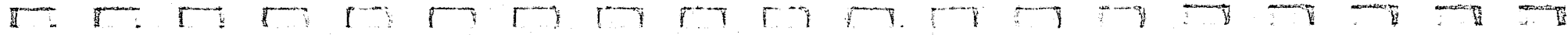


FIGURE III-8
 PROPOSED STAFFING COMPARED TO
 1981 CALLS FOR SERVICE WORKLOAD BY TIME OF DAY

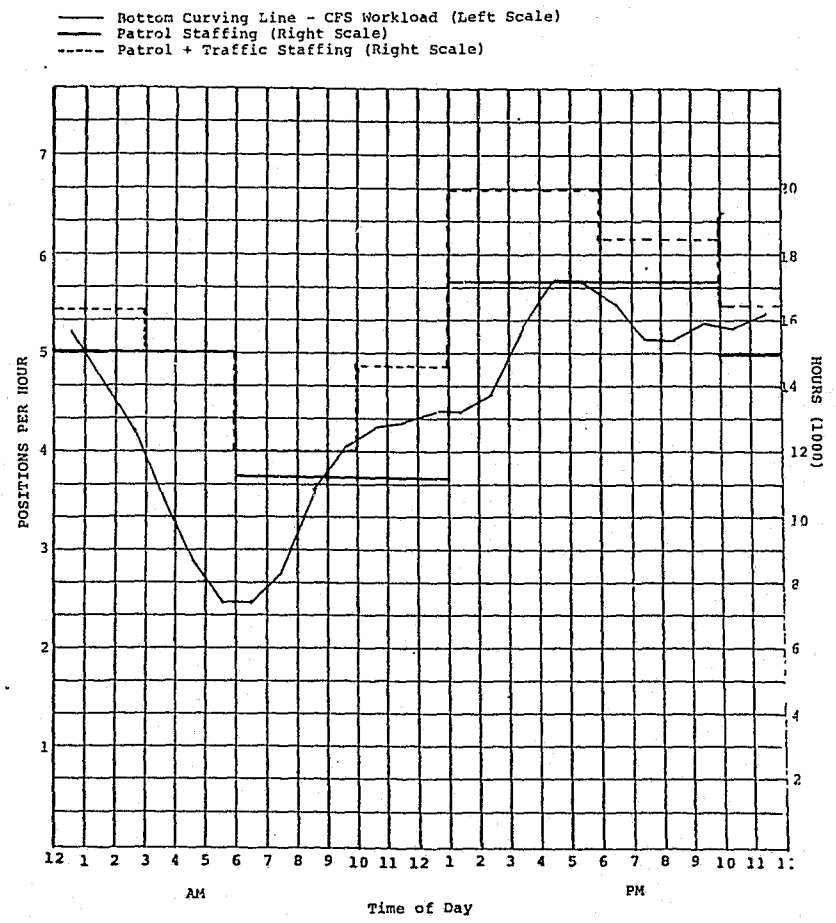


FIGURE III-9
 PROPOSED STAFFING COMPARED TO
 1981 CALLS FOR SERVICE WORKLOAD BY DAY OF WEEK

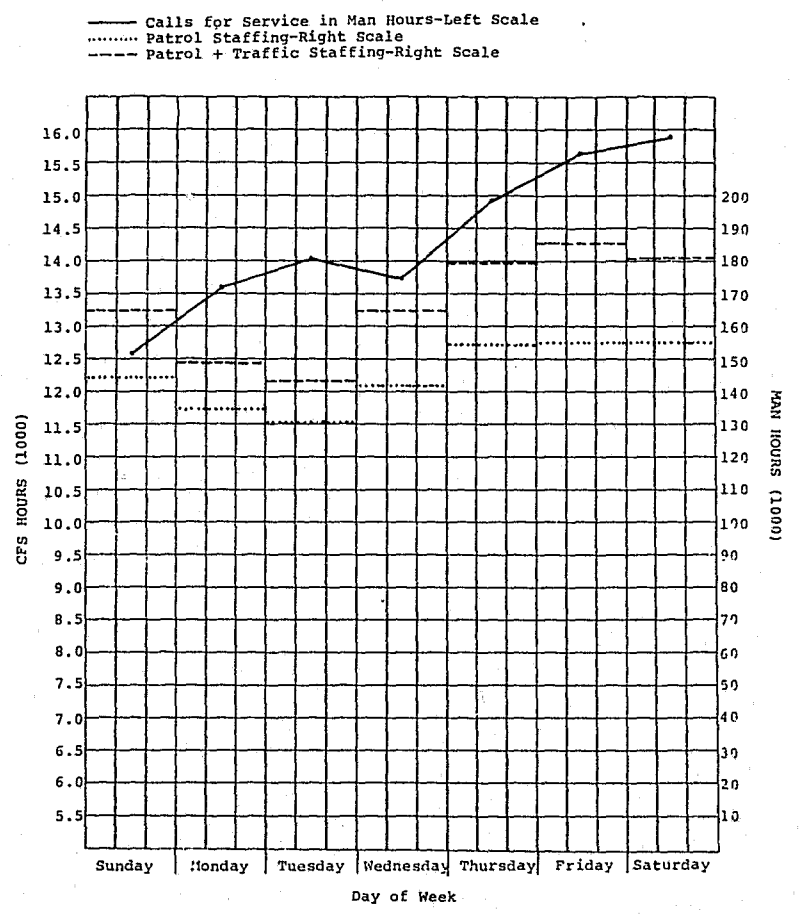


Table III-4 compares percent of Calls for Service and Cover Calls by the hour with percent of patrol and traffic manpower available on the hour.

TABLE III-4

PERCENT WORKLOAD COMPARED TO
PERCENT 1981 STAFFING AND PROPOSED STAFFING BY HOUR

Hour	% CFS & Cover	1981 Staffing Patrol & Traffic	Proposed - Patrol & 16 Traffic Officers
0	5.4	6.6	4.5
1	4.5	4.5	4.5
2	3.8	4.5	4.5
3	2.9	2.8	4.1
4	1.9	2.7	3
5	1.2	2.8	1.2
6	1	2.8	1.8
7	1.7	2.8	3.3
8	3	2.6	3.3
9	3.5	2.7	3.3
10	3.8	2.7	3.3
11	4	2.7	4.1
12	4.2	2.7	4.1
13	4.3	2.7	4.1
14	4.4	2.7	3.7
15	5.5	2.7	5.5
16	6.2	2.8	5.5
17	6.1	6.5	5.8
18	5.8	6.6	5.8
19	5.4	6.6	5.2
20	5.2	6.6	5.2
21	5.3	6.6	4.9
22	5.4	6.7	4.8
23	5.5	6.6	4.5

Table III-5 compares the percent of 1981 workload to the percent of 1981 staffing and proposed staffing each shift.

TABLE III-5

COMPARISON OF PERCENT 1981 WORKLOAD TO
1981 STAFFING AND PROPOSED STAFFING EACH SHIFT

<u>1981 Staffing</u>		
Hours	% Workload	% Staffing
12 AM - 8 AM	22.4	29.5
8 AM - 4 PM	32.7	21.5
4 PM - 12 AM	44.9	49
<u>Proposed Staffing</u>		
Hours	% Workload	% Staffing
10 PM - 6 AM	30.6	31.1
6 AM - 2 PM	25.5	27.3
2 PM - 10 PM	43.9	41.1

F. Officers are to be placed on shifts based on a number of factors including, but not limited to, officer hardship, educational endeavors, suitability to particular assignment (geographic area, shift time, compatability to other employees), officer choice, and officer seniority. Final approval for all assignments is to remain with the Captain of Patrol.

The logistics of the selection process itself will be relatively simple. On designated days, members of the Police Study Project will be at Police Headquarters to conduct the shift selection. All patrol division officers will be scheduled a block of time in which to appear. Those who fail to appear will forfeit their selection priority and will choose at a subsequent time.

At the time of the selection, each officer will be asked to indicate his preference for:

1. Shift
2. East or West side of town
3. Day off pattern

The shift assignment will be in effect for one year. Any officer who enters the Patrol Division after the selection process will be assigned at the discretion of the Patrol Captain. Any officer who wishes to exchange shifts with another officer does so at the discretion of the Patrol Captain.

If position slot vacancies necessitate the transfer of officers between shifts to different days off patterns on a shift and/or to different geographical areas, this decision will be made by the Patrol Captain, giving consideration to the extent possible to volunteers in the work setting from where the transfer is to occur.

Only officers who are assigned to the Patrol Division on the day of the selection process will be permitted to participate in the selection.

G. Currently, officers assigned the permanent fourth shift receive a 20¢ shift differential. Under the proposed schedule, both permanent swing and mid-night shifts will receive shift differential pay. In light of this, increased funds will be needed to pay increased shift differential costs. Table III-6 depicts estimated costs for 1983.

TABLE III-6

CALCULATION OF 1983 SHIFT DIFFERENTIAL COSTS

<u>1600-2400 Hour Shift</u>		<u>Traffic</u>	
<u>Patrol</u>			
66	Patrolmen	9	Patrolmen
7	Sergeants	<u>1</u>	Sergeant
<u>2</u>	Lieutenants		
75		10	

85 Officers Assigned 20¢/Hour differential

2080	Hours per man	
x .20	Differential	
\$ 416	Cost per man	
x 85	Officers Assigned	
\$35,360	Cost of Shift Differential	

<u>0001-0800 Hour Shift</u>			
2080	Hours per man	57	Patrolmen
x .35	Differential	7	Sergeants
		<u>1</u>	Lieutenant
\$ 728	Cost per man		
x 65	Officers Assigned	65	
\$47,320	Cost of Shift Differential		

\$82,680 Total cost of Shift Differential for 1983

H. Evaluation is integral in the implementation of a new work schedule. It provides the only reliable means of identifying the results of changes in resource allocation, and is a vitally important management tool for police administrators to monitor problems and design ways to cope with those problems. In this project, the task is made difficult because of the shortage of useful baseline data from pre-implementation information systems, and identification of direct cause-and-effect relationships between productivity measures and the schedule change. Despite these problems, several evaluation measures have been suggested. Some are based on existing information systems, and others will require revisions to current data-gathering procedures.

1. Response to Calls for Service: One objective of the allocation phase is to more closely align manpower with temporal workload demands. Response standards for Priority 1 and 2 Calls for Service were developed earlier in the project. A report should be generated that identifies Priority 1 calls that exceed an eight minute response, and Priority 2's that exceed 18 minutes. This report can be used to measure the allocation plan's ability to improve response to high priority calls. In addition, individual responses could be subject to supervisory review.
2. Manpower Availability: Previous efforts by the Study Project included a manual survey of time books of the Uniform Division. These automated data resulted in a report on actual on-duty time by hour of day and day of week for uniform officers. The report also detailed actual non-availability time (vacation, sick, miscellaneous).

Continuation of this information can result in two valuable evaluation reports. It is hypothesized that sick time may be reduced through implementation of the proposed schedule because it is less fatiguing and more satisfying to the officers. A monthly report of absences will be produced and compared to the 1981 baseline.

In addition, a program will be written to compare the relationship of Calls for Service to available manpower. These computer data will show time dedicated to Calls for Service and Cover Calls by time of day and day of week compared to available manpower, both in the baseline year and the previous months. Administrative Sergeants will be required to complete monthly time book data sheets for input to the computer. This should be a minimal time expenditure for the Sergeants, and will provide police managers with the ability to monitor the effectiveness of the allocation system against possible workload fluctuations.

3. Patrol officer arrests: The number of arrests by patrol officers should increase as a direct result of the proposed manpower allocations. More officers should be scheduled during high workload demand times, and the number of arrests should go up as a result. Arrest data are captured regularly by the Department, and the only change required will be to construct a table of officers assigned to the Patrol Division, and extract these officers' totals each month.
4. Formal complaints and accidents involving police cruisers: A more effective, less fatiguing work schedule may result in a decrease in patrol officers involved in vehicle accidents and a reduction in sustained complaints. The Inspection Services Bureau routinely gathers this information and can produce monthly reports comparing the 1981 baseline and the preceding months.
5. Overtime use for 1981 was examined by the Study Project as part of the workload analysis. Four categories of overtime are logically related to the allocation plan: report writing, follow-up, holdovers from the previous shift, and special details. All these are functions either of an officer being unable to complete routine activities within his normal work schedule, or not having enough officers regularly available to deal with the workload. These categories of

overtime will be monitored monthly and compared to the 1981 baseline and preceeding months, and it is anticipated that a more effective schedule should lower the expenditures.

The Police Department Planning and Research Unit, which presently collects overtime slips and develops certain information, could be responsible for developing this report.

6. Other Reports: Other valuable evaluation indicators (i.e. percent increase in uncommitted time, number of cross zone dispatches) were suggested, but could not be implemented at this time due to data collection constraints. These evaluations would be utilized on an interim basis, pending subsequent phases of the Project which will deal specifically with data collection and management information reports.

IV. Shift Change

Phase I included several tasks relative to shift change. The Department is hampered from improving its Calls for Service rapid-response performance because of the manner in which shift changes are taking place. The approach to these tasks was to gain insight by monitoring radio frequencies and conducting on-site surveys and interviews.

- A. An overview of Patrol Allocation and Deployment is provided as background to the shift process. The patrol unit has the responsibility of providing protection to the City 24 hours a day, 365 days a year. At present, four shifts are utilized to provide this protection:

Shift I	10:50 p.m./11:50 p.m. to 7:00 a.m./8:00 a.m.
Shift II	6:50 a.m./7:50 a.m. to 3:00 p.m./4:00 p.m.
Shift III	2:50 p.m./3:50 p.m. to 11:00 a.m./12:00 p.m.
Shift IV (overlaps shifts III and I)	4:50 p.m. to 3:00 a.m.

Shifts I, II, and III all work an eight-hour shift, 10 days on/4 days off on a 28-day reverse rotation schedule. The second and fourth Tuesday/Wednesday are designated as either training or double-up days.

Each of the three primary shifts is comprised of six individual teams collectively supervised by one Lieutenant or Shift Commander. Each team consists of one Sergeant/Supervisor and six to eight patrolmen, with a team allocated a zone, which is discussed below.

The six teams on each rotating shift (I, II, and III) have individual team designators (Southwest, Northwest, West Relief, Northeast, Southeast, and East Relief). The relief team works the same 10 days on/4 days off shift as the area designated teams. The relief teams will work two areas: Southwest and Northwest, or Southeast and Northeast, rather than being static in one area.

Due to shift scheduling and the number of personnel assigned, there are no provisions for sick and vacation relief. When an officer takes vacation, or is sick, his sector is left open, necessitating calls and routine patrol to be accomplished by adjoining sector officers.

Shift IV, designated as the training shift, works ten-hour days, 4:50 p.m. to 3:00 a.m., 4 days on/3 days off. This shift is also commanded by a Police Lieutenant. There are three teams on Shift IV, comprised of from six to thirteen officers supervised by a Sergeant. Two of the Shift IV teams have Sunday, Monday, and Tuesday off while the third team has Thursday, Friday, and Saturday off. On Wednesday of each week, all Shift IV personnel are scheduled to work. The team having Thursday, Friday, and Saturday off could be considered the Relief Team, although they are not designated as such. Shift IV officers are not assigned set zones or sectors as areas of responsibility, and can be deployed where needed during their tour of duty.

For deployment and record-keeping purposes, the City is separated into zones, sectors and census tracts. The smallest area in which the City can be divided is the census tract area. At the present time, there are 68 individual reporting areas or census tract areas in El Paso County. Census tract areas need not follow geographical obstructions. Most census tract areas have streets designating their perimeters, although three major perimeter designations are: Interstate 25, the east/west railroad tracks that parallel Constitution Avenue, and the Midland Expressway.

The next larger area (larger than the census tract) is the sector. Sectors can incorporate one or more reporting areas but cannot subdivide reporting areas. If sector realignment eventually becomes necessary, reporting areas could be split. Officers are deployed on a sector basis.

The largest division is the zone. A zone can be as large as the whole City (Zone 1) or as small as one sector. Presently, there are four zones and 27 sectors. Geographical barriers as well as the number of Calls for Service were considered in setting sectors so that each was workable yet equal in workload to other sectors.

It is important to consider the type and level of support Patrol receives from Operations in support of Calls for Service. The relationship Patrol has and the benefits derived from special units are as varied as the units themselves.

Patrol derives considerable benefit from traffic units deployed for accident investigations. During 1981, traffic units investigated approximately 40 percent of all traffic-related accidents occurring within the City.

The Teleserve program is another special unit that directly benefits Patrol. During 1981, 8,610 Calls for Service requiring case reports, or 31 percent of all reports taken by the Department, were taken by Teleserve. The absence of Teleserve would have necessitated the dispatch of a patrol officer on each of these different Calls for Service.

The Special Operations Unit, encompassing the Special Anti-Crime Squad (S.A.C.S.) and the Tactical Enforcement Unit (T.E.U.), impacts on Patrol in several areas. In 1981 through October, S.A.C.S. took 2,298 cases, after which time, its officers were deployed as sector units due to a manpower shortage. During December, the unit was deployed as a robbery detail around East side shopping complexes at which time the robbery rate was reduced by 100 percent compared to the previous year. During 1981, T.E.U. responded to 22 S.W.A.T. calls. In addition to handling S.W.A.T. calls, T.E.U. officers handled cover and disturbance calls four days a week from 7:00 p.m. to 3:00 a.m.

Other specialized units that have a direct cause-and-effect impact on Patrol are the lab, communications, and the Operations Resource Unit.

Currently Patrol holds line-ups at the beginning of each shift, but holds no debriefing sessions at the end of each shift. The purpose of line-ups is:

1. Familiarize the oncoming team with police-related problems occurring on the previous shift.
2. Familiarize the officers with recently generated policies, procedures and memoranda.

3. Take attendance.
4. Make zone/sector assignments.
5. Make vehicle assignments.
6. Discuss team-related problems (case report completion, crime trends etc.)

As previously indicated, line-ups for the current three rotating shifts occur six times each day at the East and West Substations. Line-ups for the fourth shift are held at Headquarters.

Shift changes are accomplished by taking the northeast and southwest teams out and at the same time leaving the northwest and southeast teams to police the entire City. Upon completion of the line-up process, the northeast and southwest teams police the City while the northwest and southeast teams conduct line-up/shift change.

- B. In an effort to determine time consumed during the shift change process (time from which the off-going officers leave their sectors until the on-coming officers go into service), two surveys were conducted. These surveys consisted of monitoring radio frequencies and conducting on-site surveys, including interviews.

The two radio frequencies, assigned east and west, respectively, were monitored. Table IV-1 is a summary of the shift change observations conducted on May 26, 27, and 28, 1982. Each zone was monitored for six consecutive shift changes and the times below are an average of the time lapses between when the off-going officers called out of service, normally upon driving into the substation parking lot, and the time the on-coming officers called into service, normally when they drive out of the substation parking lot. Thus, these times do not include driving time to and from assigned sectors. The combined average time lapse for all four zones was 29 minutes.

TABLE IV-1

SURVEY OF SHIFT CHANGES
BY MONITORING RADIO FREQUENCIES
MAY 26, 27, 28, 1982

Zone 4		Zone 6	
5-26-82	1500 hrs. - 38 min.	5-26-82	1600 hrs. - 43 min.
5-26-82	2300 hrs. - 33 min.	5-27-82	0001 hrs. - 41 min.
5-27-82	0700 hrs. - 40 min.	5-27-82	0800 hrs. - 26 min.
5-27-82	1500 hrs. - 29 min.	5-27-82	1600 hrs. - 20 min.
5-27-82	2300 hrs. - no time	5-28-82	0001 hrs. - 38 min.
5-28-82	0700 hrs. - 24 min.	5-28-82	0800 hrs. - 33 min.
- Average - 33 min.		- Average - 34 min.	
Zone 7		Zone 5	
5-26-82	1500 hrs. - 24 min.	5-26-82	1600 hrs. - 10 min.
5-26-82	2300 hrs. - 8 min.	5-27-82	0001 hrs. - 31 min.
5-27-82	0700 hrs. - 27 min.	5-27-82	0800 hrs. - 31 min.
5-27-82	1500 hrs. - 20 min.	5-27-82	1600 hrs. - 29 min.
5-27-82	2300 hrs. - 32 min.	5-28-82	0001 hrs. - 14 min.
5-28-82	0700 hrs. - 32 min.	5-28-82	0800 hrs. - 21 min.
- Average - 24 min.		- Average - 24 min.	

A second on-site survey was conducted to confirm the findings of the survey conducted above (see Table IV-2).

TABLE IV-2

ON-SITE SURVEY OF SHIFT CHANGES

	West Side	East Side
6-3-82	2300 hrs.	27 min.
6-4-82	0001 hrs.	30 min.
6-4-82	0700 hrs.	42 min.
6-4-82	0800 hrs.	54 min.
6-4-82	1500 hrs.	28 min.
6-4-82	1600 hrs.	no time
		33 min.
		22 min.
	- Average	27.66 min.
		36.20 min.

If driving times to and from the sectors are added to the above times, it is estimated that the average time to complete shift changes is from 45 minutes to one hour (with sectors farthest from substations being not covered for longer periods than sectors closer to substations. All sectors in zones undergoing shift change must be covered by sector units in the remaining two zones. The problems posed by leaving sectors in zones undergoing shift change uncovered for this length of time is compounded by the fact that calls are stacked at the end of each shift. The increased failure level in rendering rapid response to high priority calls at shift change hours has already been addressed.

The line-ups observed lasted approximately ten minutes. Line-ups, for the most part, start ten minutes before the hour and in some instances last only five minutes. Wasted time occurred following the line-ups by officers finding and checking out their vehicles and gathering all their duty-related equipment.

It has already been explained that under the present shift structure, debriefing time is a nonentity. Team Sergeants report to work 30 minutes before the hour, and thus leave 20 minutes before subordinates are due to get off shift. Off-going officers arrive at the substation, turn in their reports, and leave. There is no supervision during this time period, and officer discretion dictates how the process is carried out. This process, for all practical purposes, eliminates the efficient exchange of information between the shifts which may be crucial to the proper policing of the City for the next eight hours.

Approximately one and one-half years ago, a ten-minute debriefing period was held at the ends of Shifts I, II and III. The debriefing schedule was monitored for a period of one month. At the end of the monitoring period, the debriefing time was discontinued due to the inavailability of vehicles for shift change necessitating the stacking of numerous Calls for Service. This problem would not be present with the proposed work schedules.

One factor identified by the Study Project which may have considerable impact on the shift change process was refueling of vehicles. The ramifications of refueling will be discussed later in this report.

During the on-site survey at the East Substation, it was noted that the facility has inadequate restroom facilities, line-up and debriefing space, male and female separate dressing areas, and offices. With the advent of unequal permanent shifts and reassignment of some fourth shift personnel to the East Substation, the problem with this facility is substantially enlarged.

The current space available at the East Substation for line-ups is 384 square feet, of which 102 square feet are dedicated to wall lockers. This space is not sufficient to conduct a line-up while another group is reporting to go off shift. The off-going officers disrupt the line-up for the on-coming officers, solely by virtue of their proximity as a result of the limited space available.

A second consideration is that there are not separate mens and womens locker rooms. Difficulties of a coed locker room were observed. There is only one restroom to serve both sexes and there is no office for sergeants.

- C. Action which needs to be taken to correct shift change problems include the addition of a temporary line-up facility at the East Substation and development of new work hours which include shift overlap time for improved line-ups; accommodate debriefing activities; and reduce the time to complete shift changes.
1. A temporary mobile office should be placed on the northeast side of the East Substation and Fire Station #7. It will be virtually impossible, under the new allocation and schedule design, to conduct any reasonable type of line-up or debriefing with the amount of area now available. The proposed temporary facility should be at least 672 square feet in size and should accommodate a line-up room/briefing room, a debriefing room, and an office for sergeants.

Work tables for officers to complete reports, other furniture, and phones are required. Additional exterior lighting is proposed to enhance night visibility and security of the area, as well as safety of the officers. The suggested lighting would be high-pressure sodium lights with electric photo cells to control activation and deactivation of these units.

Assigning permanent parking places for each police vehicle would ensure smooth flow of on-coming and off-going officers.

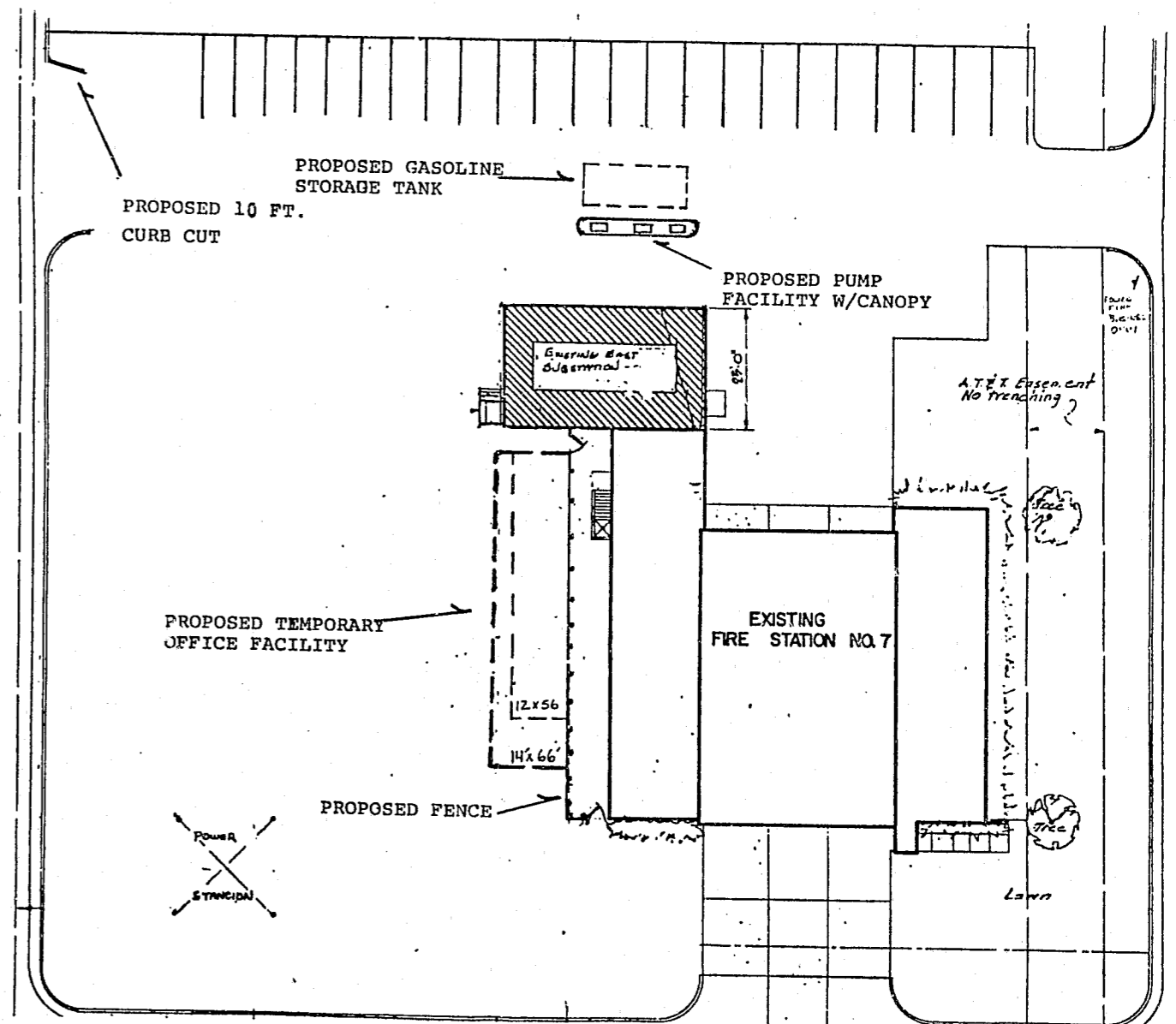
Project members have worked with the Fire Department, the Department of Public Works, and Regional Building to secure necessary preliminary approvals and cost estimates. The estimated cost for the addition of this facility is detailed in Table IV-3. Figure IV-1 depicts the location at the East Substation.

The facility, being temporary, will probably have to be removed by the end of the third year.

TABLE IV-3
ESTIMATED COST TO PURCHASE AND INSTALL
TEMPORARY LINE-UP FACILITY AT THE
EAST SUBSTATION

Mobile classroom purchase:	
13'x56' shell	\$13,864
Electrical hookup - 110 and 220	198
Phone installation	475
Furniture	1,100
Partition for office	2,000
Sliding partition	500
Site preparation	1,600
Fence	1,080
Gravel	300
Sewer tap fee	750
Sewer and water hookup	1,000
Lighting for parking at east and west parking	3,000
10-foot curbcut south end of east driveway	500
Estimated total	<u>\$27,867</u>

FIGURE IV-1
PROPOSED SITE OF
TEMPORARY FACILITY AT EAST SUBSTATION



2. The new hours proposed will alleviate the problem of shift changes occurring during the times of the day when there are increased Calls for Service. The recommended hours will also provide a ten-minute briefing period at the beginning of each shift and will provide an overlap so the last 15 minutes of each shift can be utilized as a debriefing period. The proposed shift hours will also disperse the workload for each shift in a more equitable fashion.

The procedure of having two entire zones (one east and one west) change shifts at the same time will be eliminated. Instead, shift changes are proposed to be accomplished in a matrix approach.

V. Vehicle Refueling and Maintenance

- A. Problems stemming from police fleet practices were identified. Vehicle fueling, washing, and maintenance were analyzed.

The Department has received fueling and maintenance services from the Department of Public Utilities for several years.

Table V-1 shows the fuel purchased from the Department of Utilities and Vickers Petroleum Company. Only five gallons or less can be purchased at one time from Vickers stations and only in emergency situations; and motorcycle units periodically purchased premium fuel from Vickers. Because of the minimal amount purchased, the amount paid for the unleaded and premium was not separated from the total cost. The unit price for Vickers was derived by averaging the cost at the beginning, middle, and end of each billing period.

In 1981, \$437,019 of gasoline was purchased. The Police Department paid approximately \$80,800 more than if it had purchased its own gas from its own tanks.

Ninety-eight percent of all unleaded fuel used by the fleet in 1981 was purchased from the Utilities Department at a cost of \$1.27 per gallon, which minimumly provides a profit margin of 18.5 percent for the Utilities Department. As of August 2, 1982 the City bulk rate is \$1.03 per gallon which provides the Utilities Department with a 22 percent profit margin. During the "gas glut" in the latter part of 1981, the Utilities Department purchased gas for \$.94 per gallon, providing a 35 percent profit. These price savings were not passed on to the Police Department. It would have been less expensive to purchase fuel from private industry than from the Utilities Department during this period.

The traveling time to the fueling facilities and the time these facilities are available do not provide an efficient transition of on-coming and off-going shifts, especially Shifts III and I change. The hours in which gas can be obtained from Utilities is restricted and is depicted in Figure V-1.

TABLE V-1

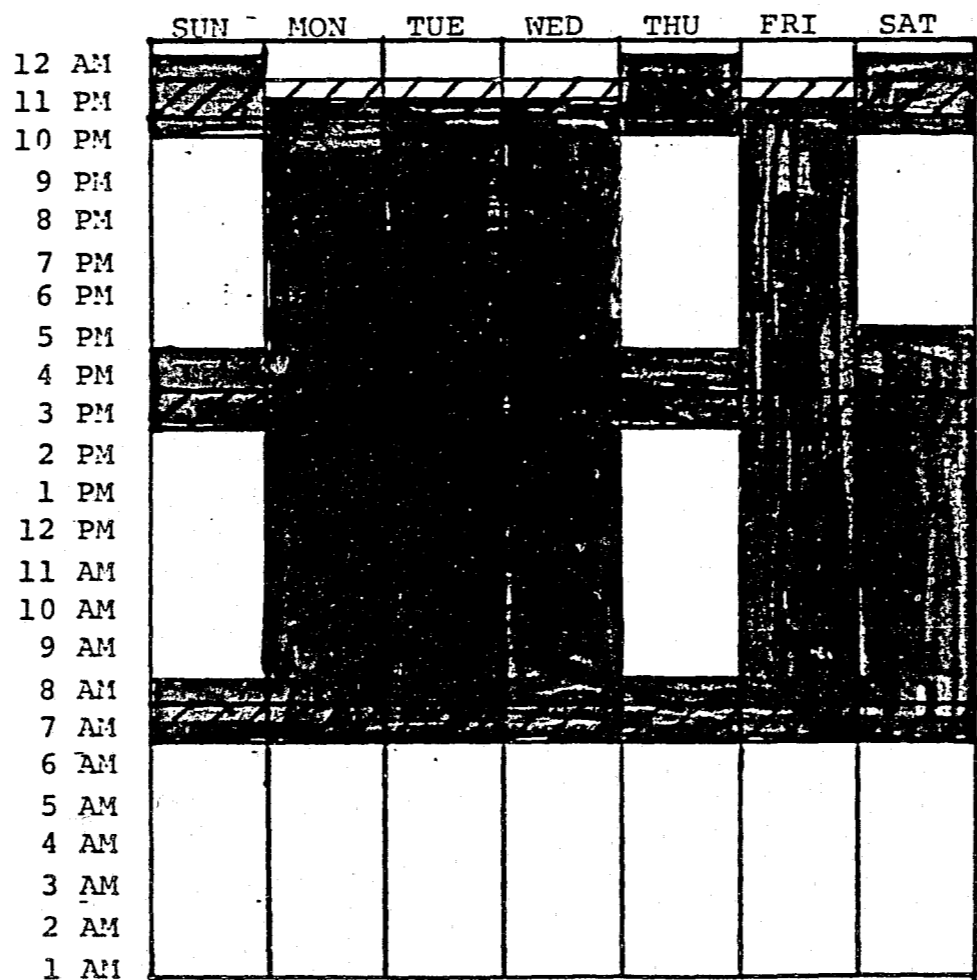
1981 FUEL PURCHASED

Date	Utilities Unleaded			Utilities Regular			Utility Totals		Vickers Unleaded & Premium		
	Unit Price	Number of Gallons	Monthly Costs	Unit Price	Number of Gallons	Monthly Costs	Total Cost Utilities	Total Gallons Utilities	Unit Price	Number of Gallons	Monthly Payment
Jan 81	1.24	27,297	\$ 31,873.65	1.19	2,017	\$ 2,253.28	\$ 34,126.93	29,314	119.9	485.12	\$ 581.66
Feb 81	1.24	25,874	31,370.18	1.19	1,759	2,048.48	33,418.66	27,633	125.5	277.54	348.32
Mar 81	1.27	29,155	37,026.85	1.23	2,124	2,612.52	39,639.37	31,279	131.2	404.03	530.09
Apr 81	1.27	25,759	32,713.93	1.23	2,158	2,654.34	35,368.27	27,917	130.9	354.90	464.57
May 81	1.27	25,806	32,773.62	1.23	1,747	2,148.81	34,922.43	27,553	132.5	537.74	712.51
Jun 81	1.27	27,469	34,885.63	1.23	1,690	2,078.70	36,964.33	29,159	128.5	519.92	668.11
Jul 81	1.27	28,291	35,929.57	1.23	1,730	2,127.90	38,057.47	30,021	129.5	531.70	688.56
Aug 81	1.27	26,788	34,020.76	1.23	1,710	2,103.30	36,124.06	28,498	127.9	588.94	753.26
Sep 81	1.27	26,217	33,295.59	1.23	1,836	2,258.28	35,553.87	28,053	128.2	398.64	511.06
Oct 81	1.27	25,505	32,391.35	1.23	2,015	2,478.45	34,869.80	27,520	119.6	981.0	1,173.90
Nov 81	1.27	26,376	33,497.52	1.23	1,699	2,089.77	35,587.29	28,075	117.9	758.6	894.83
Dec 81	1.27	25,256	32,075.12	1.23	1,755	2,158.65	34,233.77	27,011	124.6	662.81	826.12
Yearly Total	-	319,793	\$401,853.77	-	22,240	\$27,012.48	\$428,866.25	342,033	-	6500.94	\$8,152.99
Monthly Average	1.26.5	26,649	\$ 33,487.81	1.22.3	1,853.3	\$ 2,251.04	\$ 35,738.85	28,502.75	126.35	541.75	\$ 679.41

FIGURE V-1
 FUELING FACILITY AVAILABILITY
 BY DAY OF WEEK

B
Y
H
O
U
R
O
F
D
A
Y

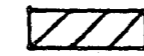
-62-



Gas Barn Open



Gas Barn Closed



Shift Change Times

Thursday - Depicts operational hours for Holidays/normally regular weekday hours

Gas Barn Hours

Sunday/Holidays 7-8:30 AM
 3-5 PM; 10:30 PM - 12:30AM

Weekdays - 7 AM - 11:30 PM

Saturdays - 7 AM - 5:30 PM
 10:30 PM - 12:30 AM

North Gas Barn - 400 W. Fontanero

East Gas Barn - 2900 E. Willamette

- B. Fleet cars are washed at one of two contract car wash facilities. One is on the east side of town and one is south of downtown. Cars are washed at the discretion of the driving officer during normal shift duty. This service should eventually be provided at the Police Department work facilities.

Vehicle maintenance is provided by the Utilities Department at their two fueling locations; the East facility is responsible for all "preventive maintenance", except for new car warranty work and major body work. This requires that vehicles at the West substation be transported to the East side of town for this maintenance. The hourly rate charged to the Department for mechanical work is \$26.

The Department currently has 102 marked vehicles, 56 unmarked vehicles, and 5 utility vehicles. The marked vehicles receive preventive maintenance once a month or as needed, depending on mileage driven during that month. During the shift change some vehicles coming on shift need some light maintenance such as headlight replacement or fuse replacement, etc., before going to their respective sectors. Eventually, light maintenance service should be provided at police work facilities.

The loss of a vehicle as a result of an accident has a detrimental impact on manpower utilization. If the vehicle is determined to be a total loss, the general practice is to return insurance settlements to the general fund. However, in no case is the vehicle replaced in the year in which it was wrecked; it is simply replaced with funds budgeted the next year.

In the six years prior to 1981, the Department lost an average of three vehicles per year, owing to accidents. In 1981, nine vehicles were lost and not replaced in that year.

- C. A fueling facility consisting of a 10,380-gallon unleaded gasoline tank, two gasoline dispensers, each with two pumps, and a canopy with lights should be installed at the East and West Substations. This size tank was chosen because of the reduced bulk fuel price available when purchasing in quantities greater than 8,500 gallons.

Approximately 25 percent of the vehicles coming on shift need refueling and this requires traveling from Headquarters, Substations, and special unit locations to the two fueling facilities. The distance and time expended in traveling from these locations to the fueling facilities was found to be significant and is detailed in Table V-2.

TABLE V-2
TRAVEL DISTANCE AND TIME
FROM POLICE FACILITIES TO FUELING SITES

	<u>Time</u>	<u>Mileage</u>
West Substation to North Garage	8:53	4.8
Headquarters to North Garage	4:40	2.4
Special Operations Office to North Garage	7:15	2.4
Special Operations Office to East Garage	7:00	2.5
East Substation to East Garage	6:14	2.0
Municipal Airport to East Garage	10:45	5.0

Refueling requires either (1) the on-coming officer driving from the substation to the fuel facility and then to his sector, or (2) the off-going officer driving from the sector to the fuel facility and then to the substation.

To determine the dollar loss for the refueling time, the hourly cost per officer was calculated and multiplied times time devoted to refuel. The hourly cost of an officer is \$15.46 and fueling time is 13.6 hours per day. The total daily cost of refueling for all sectors is estimated at \$211, or over \$77,000 per year. This could be eliminated if fueling facilities were installed on site. (See Table V-3 for computation of 1982 hourly costs per officer.)

TABLE V-3

COMPUTATION OF 1982 HOURLY COSTS PER OFFICER
(Based on 2080 hours worked per year)

<u>Salaries</u>	
Wages (\$22,817/yr - P.O. 1st Class)	\$10.96
Benefits:	
Police State Workers' Compensation (2.6%)	.29
Life Insurance (\$5.76/\$1,000 of Sal-1.5 x Sal)	.09
Police Pension (combination old/new - 14.9%)	1.64
Health Insurance (family plan - \$90.04/mo)	.52
Dental Insurance (\$6.93/mo)	.04
	<u>13.54</u>
<u>Expense</u>	
Cleaning (\$350/yr. per officer)	.17
Vehicle maintenance (fuel and repairs)	<u>1.05</u>
	<u>1.22</u>
<u>Capital</u>	
Vehicle (replacement every two years - \$12,263 equipped with vis-a-bar, siren, prisoner shield, radio, shotgun, and rack)	<u>.70</u>
Total Hourly Cost	<u>\$15.46</u>

Fuel purchased in a quantity of less than 8,500 gallons costs an additional 10¢ per gallon. The two dispensers would fuel four vehicles at a time. The canopy would protect the officers and their clothing during inclement weather and provide light during night time fueling. The fuel tanks and dispenser can be removed and relocated if and when new police facilities are later constructed. Table V-4 details the estimated cost of \$58,190 to complete the installation of these facilities.

TABLE V-4

ESTIMATED COST TO INSTALL
FUELING FACILITIES AT
EAST AND WEST SUBSTATIONS

4 - dual single product dispenser @ \$1,800	\$ 7,200
2 - 10,380-gallon unleaded fiberglass tank @ \$7,380	14,760
2 - canopy w/lights (14'x24') (installed) @ \$7,000	14,000
2 - pump w/leak detector @ \$695	1,390
2 - concrete islands, pads, and installation of tanks - \$8,500 each	17,000
2 - electrical hookups for pumps/lights and storage cabinet @ \$1,920	<u>3,840</u>
Total	<u>\$58,190</u>

Off-going shift officers should refuel the vehicle when there is less than one-half tank of gas at the completion of the shift. One-half tank of gas should provide an acceptable margin, if the officer exceeds the 50-mile average distance driven each shift. Timely dispersment of field units should be more efficient with pre-fueled vehicles available for the on-coming units.

The off-going officer should advise on-coming officers of any mechanical or equipment deficiencies. Minor mechanical deficiencies should be addressed by the day shift officer. Utilities garage facilities are closed late night and early morning hours; the day shift, particularly in early morning hours will be less busy than officers assigned night duty. The Sergeant of the on-coming shift has overall responsibility to ensure the quality of vehicles and equipment accepted from the prior shift.

VI. Improved Management

- A. One of the conclusions drawn from the Phase I Study effort is the need for improved supervision and management systems. Improved field supervision should result from the manner in which patrol sergeants supervise patrol officers under the proposed allocation and shift schedule previously discussed. In addition, there is a need to free up shift commanders' time for increased workload planning and analysis and hands-on supervision of field forces. The addition of a shift administrative sergeant would accomplish this objective, and sufficient sergeant positions will be available for this purpose.

Currently, commanders perform such administrative details as responding to telephone complaints, recording monthly work schedules, signing evidence invoices, making press releases on just-occurred crime situations, reviewing and critiquing offense reports, maintaining and indexing recently generated policy and procedure changes as well as performing other time-consuming duties which could more properly be handled by lower-level staff. Such duties make it difficult for commanders to perform higher-level responsibilities.

To ensure proper resource utilization, commanders need to be free to address questions of deployment, tactical approaches to crime problems, and personnel matters which cannot be resolved at other levels. Commanders need to spend greater time in the field to develop the best foundation to make field tactical decisions. Also, field time is necessary to develop the best possible communications flow with their assigned staff and to improve relations with the Operations Resource Unit. Increased crime-specific information needs to be reviewed and tactical and operational assignments issued. Conversely, patrol needs to identify and communicate through the commander their perception of crime patterns. The addition of shift administrative sergeants would permit the commanders to perform at higher levels.

The administrative sergeant will assume and be responsible for the day-to-day operation duties now performed by commanders. Although, no persons

report directly to shift administrative sergeants on a fulltime basis, the sergeant will exercise functional supervision over any and all subordinates as deemed necessary. Supervision could assume many forms, from simply giving advice to officers on how to proceed with an investigation, to recommending disciplinary action.

In the absence of the commander, a shift administrative sergeant would act as the designated replacement. This would occur at times of illness, injury, and vacation. Shift administrative sergeants would report for duty one-half hour prior to shift time to accommodate planning and unforeseen problems that might occur for the upcoming shift period.

- B. Another approach in improving supervision is by the addition of a debriefing period at the end of each shift, which is provided for in the new allocation and schedule design. The debriefing period will provide for and facilitate officer accountability and the effective exchange of information, as well as provide officers with the opportunity to verbalize frustrations.
- C. Improved management reports providing insight to workload trends and patrol utilization and performance are essential. As discussed in Section III, reports are to be generated from existing data sources for Phase I evaluation purposes. Pending revision of the Department's management information systems, several of these reports will be furnished to commanders to provide greater insight to workload and manpower utilization, thus improving their basis for decision-making.

VII. Study Benefits

As previously discussed, the Phase I data analysis revealed the need for only 172 of the 190 authorized patrol officers to accommodate the 1981 workload. Historical and projected workload trends suggest this is sufficient for 1982 and possibly for several years to come. Only 11 of the extra 18 positions need to be eliminated at this time, however, in order to provide for unanticipated workload increases.

A. Historical data reveal the following:

1. City population has increased from 176,620 in 1975 to approximately 226,422 in 1982, or 28.2 percent over the eight-year period; Police Department employment has increased from 379 in 1975 to 519 in 1982, or 37 percent, with 116 of this increase being uniformed officers. Thus, as revealed in Figure VII-1, population served per Department employee decreased from 466 in 1975 to 436 in 1982.
2. Calls for Service workload from 1975 through 1982 (estimated) increased at about the same rate as population. However, the Calls for Service workload requiring a field response increased at a lesser rate. The Calls for Service per thousand population in 1975 was 526, with the Calls requiring a field response being only a projected 472 per thousand in 1982. Field responses are less in recent years, primarily because of the calls now handled by the Teleserve Program (Fig. VII-2).
3. That portion of Calls for Service workload that Teleserve has substantially impacted is case reports. Case reports have generally increased from 1975 through 1982 (estimated) at about the same rate as population. Because of the sizeable number of case reports taken by Teleserve, the reports per thousand population taken by field personnel has dropped significantly. As revealed in Figure VII-3, reports taken by field forces per thousand population has decreased from 118 in 1975 to 71 (estimated) in 1982.

FIGURE VII-1

COLORADO SPRINGS POLICE DEPARTMENT
POPULATION SERVED BY POLICE EMPLOYEE
1975-1982

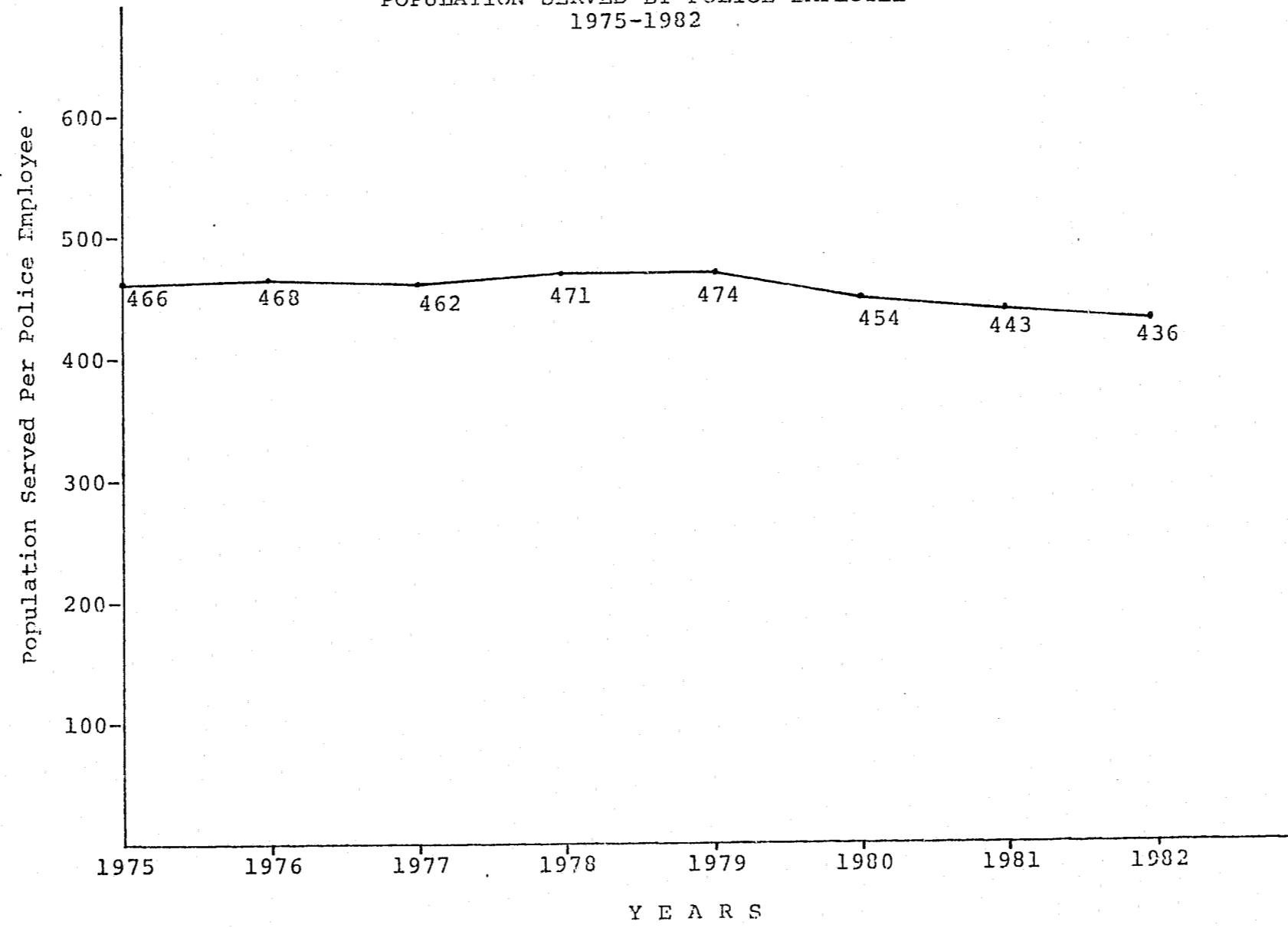
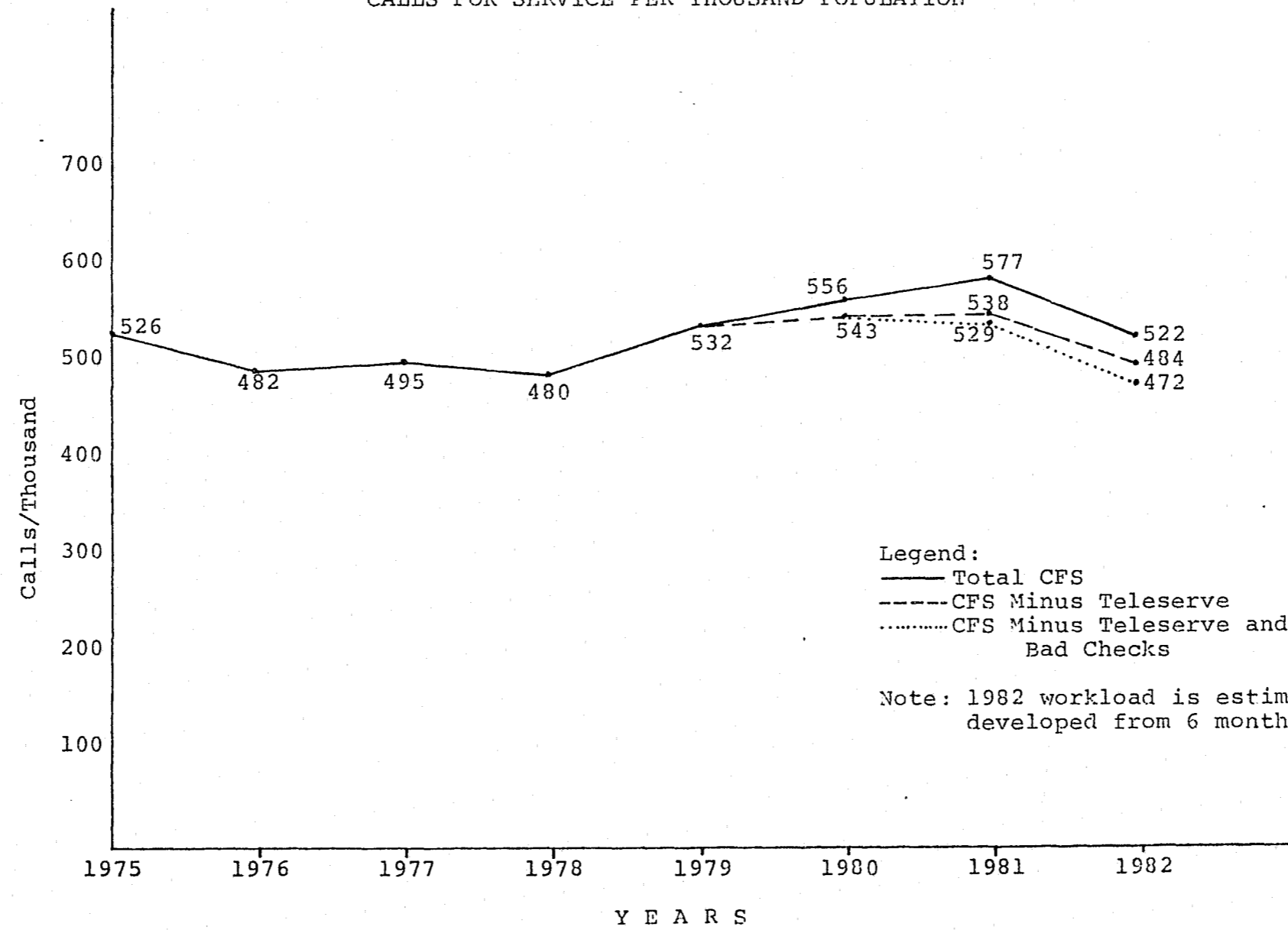
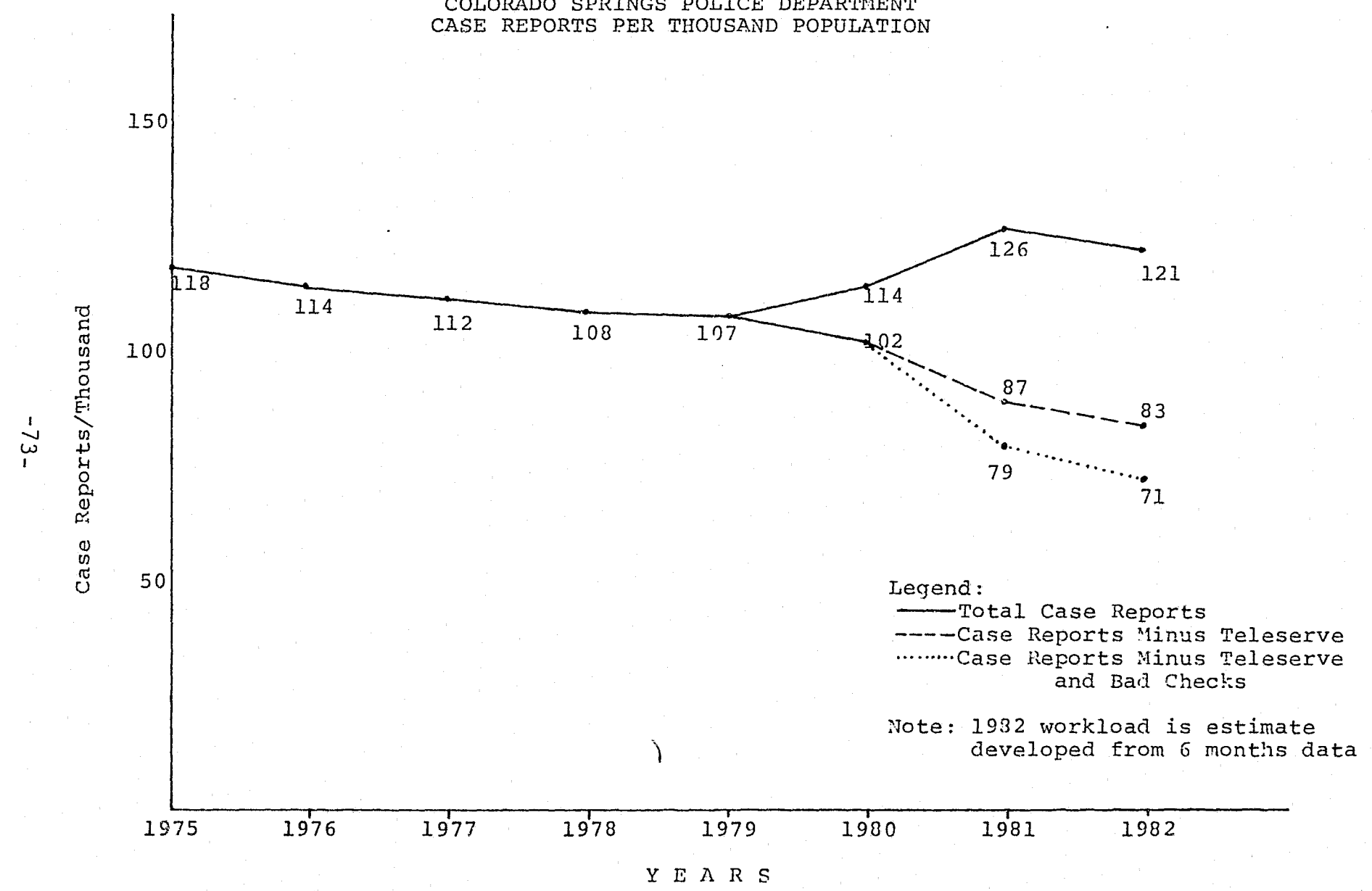


FIGURE 1-2

COLORADO SPRINGS POLICE DEPARTMENT
CALLS FOR SERVICE PER THOUSAND POPULATION



COLORADO SPRINGS POLICE DEPARTMENT
CASE REPORTS PER THOUSAND POPULATION



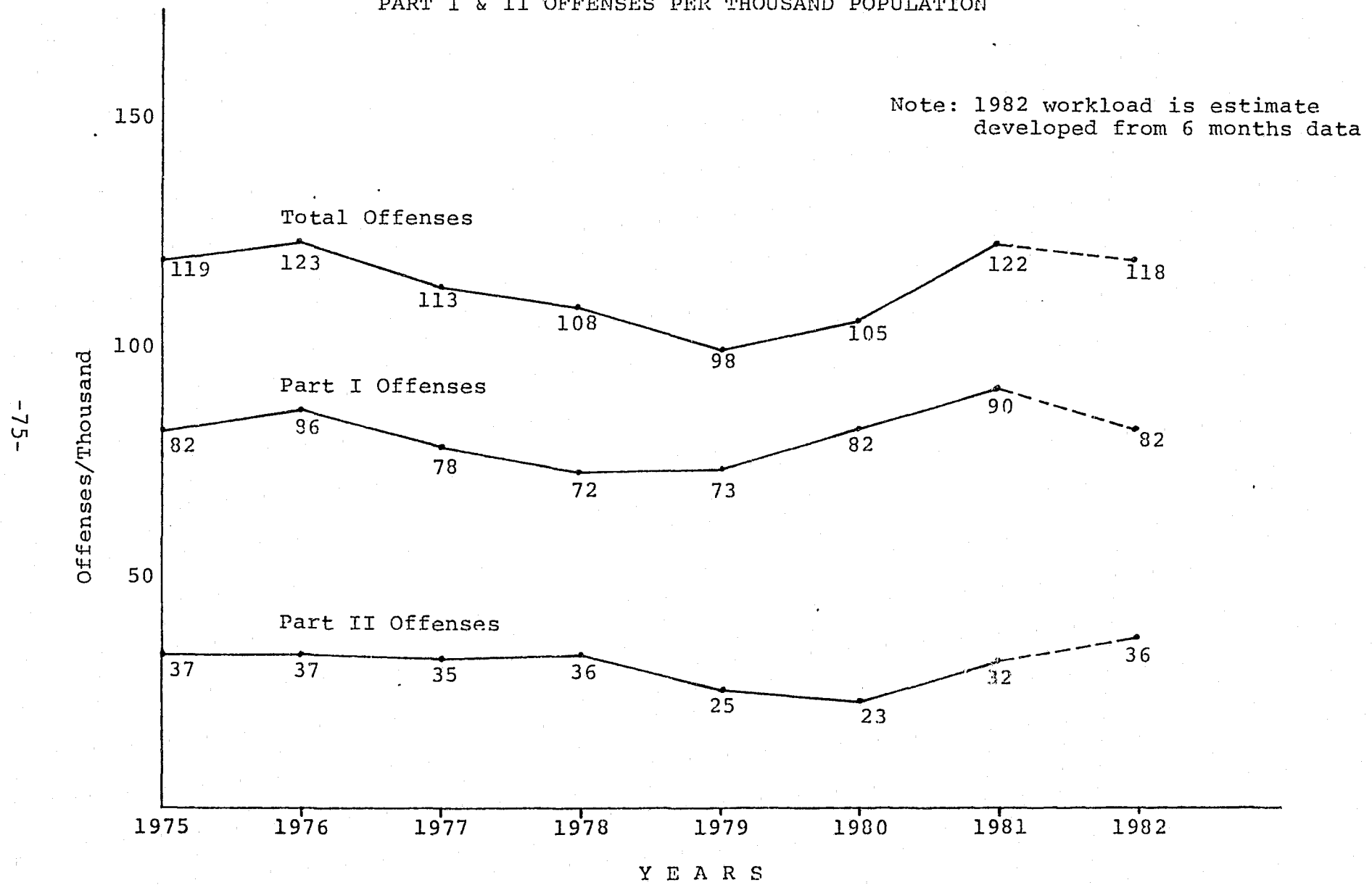
4. Crime, consisting of Part I and Part II offenses, also has risen at about the same rate as population. Part I, Part II and total offenses per thousand population are depicted in Figure VII-4. Total offenses increased at a lesser rate than population from 1975 through 1979, increased in 1980 and 1981, and for 1982 appear to be increasing at the same rate as population.
5. Figure VII-5 reveals that traffic accidents per thousand population have decreased slightly from 1975 through 1982 (estimated).

Historical and 1982 projected workload trends tend to support the conclusion that manpower may be reduced somewhat.

- B. An attempt was made to determine the increase in efficiency in patrol and traffic operations expected from the enhancements proposed in Phase I. Productivity will be improved through:
 1. The new patrol and traffic allocations and new shift design.
 - (a) Substantially more equalized workload by hour of day and day of week.
 - (b) More productive personnel as a result of permanent shifts.
 - (c) Less time required for shift changes.
 - (d) Significantly better use of manpower.
 2. Improved management by:
 - (a) Addition of shift administrative sergeants.
 - (b) Improved methodology in sergeants supervising patrol officers.
 - (c) New management reports.
 - (d) Addition of debriefing period.
 3. Reduced time for fueling fleet cars.

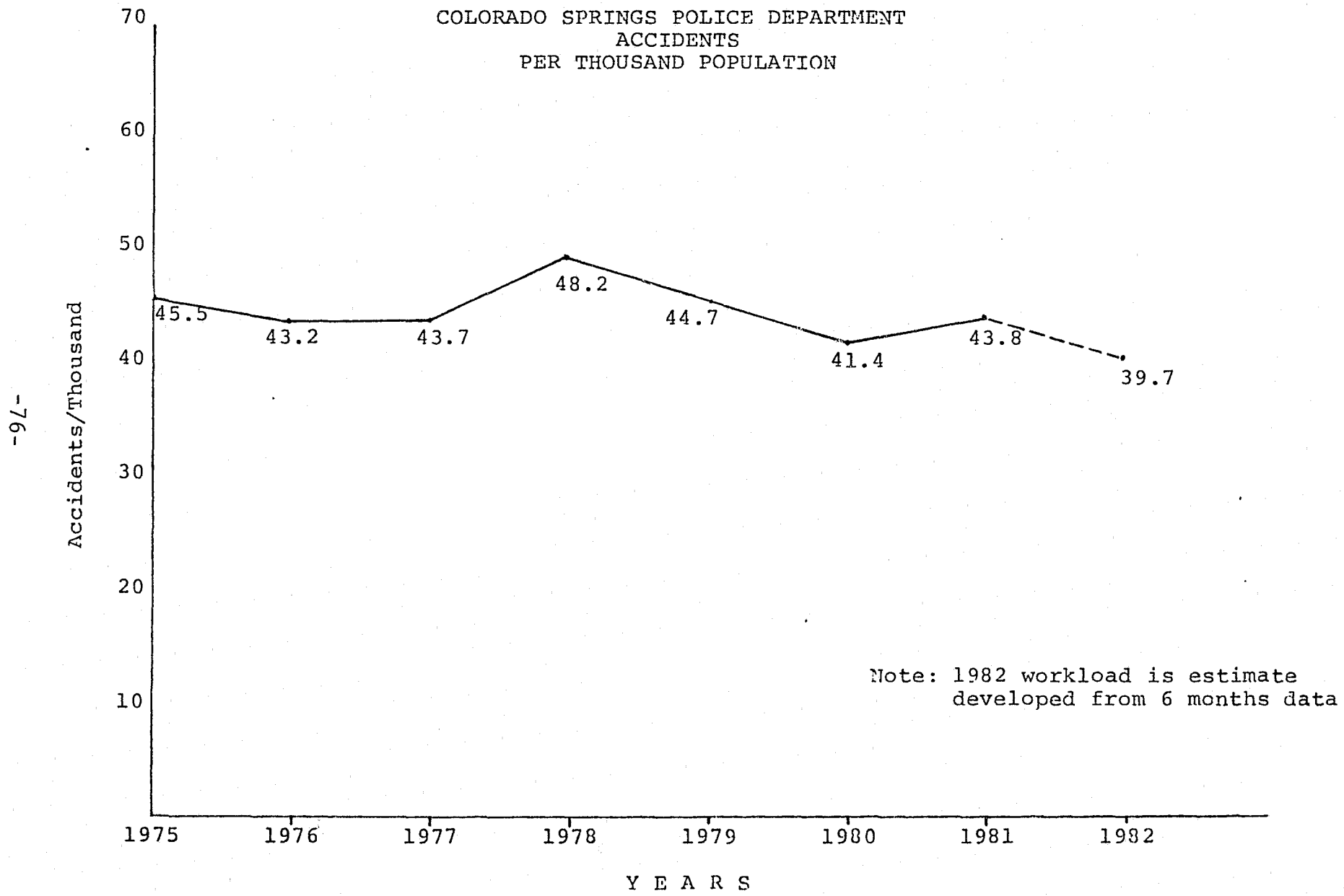
FIGURE VII

COLORADO SPRINGS POLICE DEPARTMENT
PART I & II OFFENSES PER THOUSAND POPULATION



-75-

FIGURE VII-5



-9/-

The increased efficiency was calculated by determining the extent to which costs could be reduced and time made better use of, such as allocating manpower so as to equalize workload by time of day and day of week. This approach indicates increased productivity of between 28-30 percent should be expected from the implementation of these Phase I recommendations.

C. The annual savings from eliminating 11 police officer positions is depicted in Table VII-1 and totals \$237,465.80. This will result in 1983 and each year thereafter. This savings is offset by the cost of adding the fueling facilities (\$58,190), line-up and debriefing facilities at the East Substation (\$27,867), and a slightly increased swing differential cost and the addition of a graveyard shift differential necessitated by going to permanent shifts (\$47,320).

TABLE VII-1

ANNUAL SAVINGS FROM ELIMINATION OF
11 POLICE OFFICER IV POSITIONS

I. <u>Salaries Per Officer</u>	
Wages	\$ 17,184.00
Benefits:	
Police State Workers' Compensation	446.78
Life Insurance	144.00
Police Pension	1,838.69
Health Insurance	1,080.48
Dental Insurance	83.16
	<u>20,777.11</u>
II. <u>Expense Per Officer</u>	
Uniform and Equipment Issue	<u>810.69</u>
Total annual cost per officer	\$ <u>21,587.80</u>
Savings - 11 positions	<u>\$237,465.80</u>

END