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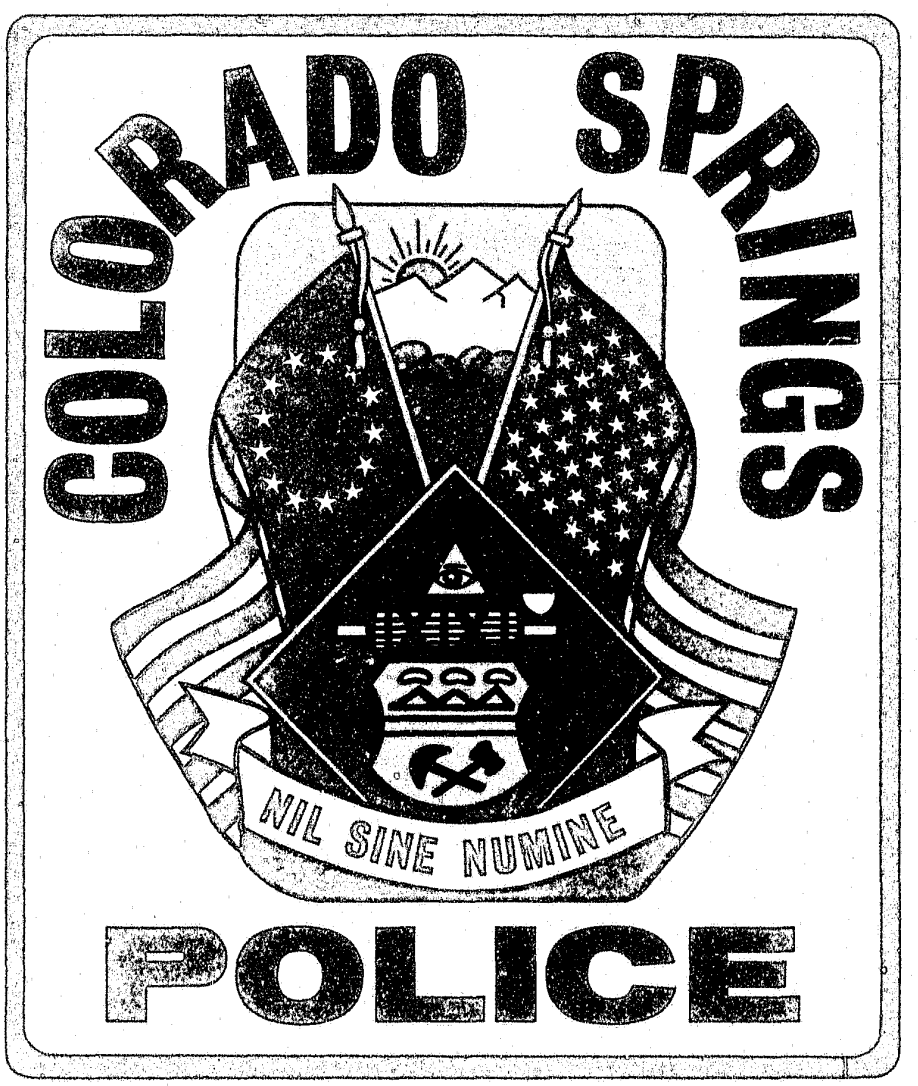

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FORECASTING PATROL MANPOWER NEEDS

FOR THE COLORADO SPRINGS POLICE DEPARTMENT

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I. INTRODUCTION AND EXECUTIVE SUMMARY

In the Fall of 1987, a task force was formed at the direction of Police Chief James Munger to study various methods which could be used to project manpower requirements for the Colorado Springs Police Department. The task force was charged with determining methods for projecting manpower requirements for all sections and units within the Police Department.

At the outset of the project it became apparent that the driving force behind manpower requirements for the department was the workload experienced by the Patrol Bureau. The workload experienced by Patrol is directly related to the number of requests for police services which are received by the Department. The activities of the Patrol Bureau, in many ways, determine the workload for much of the balance of the Department.

With this in mind, a review of pertinent literature referencing police manpower projections was undertaken. While some of this material concerned the development of manpower needs for the investigative function and traffic control function, most of it concerned the development and use of models to determine required staffing levels for the police patrol function. The review of the literature suggested that there were many models, both manual and automated, which could be employed for the production of manpower needs projections. These models were carefully studied and the task force determined that the most suitable model for use in this department was the Patrol/Plan computer model, developed by The Institute for Public Program Analysis (TIPPA), and revised for use in other police departments.[1]

While a model is a useful tool for determining manpower requirements, the model chosen must realistically reflect the policies of the department using it. Additionally, the model must operate within the constraints of available data, time and personnel resources. The task force felt that the Patrol/Plan model had the capability to accurately reflect operant policies at the CSPD, and that it was uniquely easy to prepare the required data base, given the data presently available through the CAD system.

When the determination of a suitable model was made, existing Computer Aided Dispatch (CAD) information was formatted into reports which could be used to enter data into the Patrol/Plan model. Additional information required for the model was gathered from several other sources, including City Planning, Pikes Peak Area Council of Governments and existing departmental studies.

The model was then run, utilizing projected calls for service data for 1989. Performance measures, called constraints, were put into the model. These constraints allowed the task force to determine

the number of staff required to obtain defined levels of police service. For the purposes of this study, the following assumptions were used in defining constraints.

1. Officers will have an average of twenty (20) minutes each hour to conduct random, routine patrol.

2. An average of three (3) units will be available for calls at all times in each dispatch zone.

3. The probability that all units will be busy when a call is received will not exceed 2.5%.

4. The queue delay for Priority I calls will not exceed three (3) minutes.

5. The response time for Priority I calls should not exceed eight (8) minutes.

The results of the model indicated that a total of 210 officers were needed to handle the anticipated calls for service workload and a total of 26 officers were needed to handle the expected traffic accident investigation workload, for a total required officer strength of 236. Currently, the Patrol Bureau is authorized a total strength of 244 officers. Of these, 29 are assigned to Traffic and 27 are assigned to fixed post or special positions in Patrol such as the Tactical Enforcement Unit and the Airport. In order to maintain current necessary staffing in the specialized functions, and adequately address the expected calls for service and traffic workload, a total of thirty-five (35) additional officers are required. Comparisons of performance measures without increased staffing and with the increased staffing revealed a decrease in the probability that all units will be busy when a call arrives from 5.77% to 1.92% and a decrease in average travel time from 5.68 minutes to 5.28 minutes for Priority I calls. Utilizing a ratio of 1 sergeant for each 8 officers, an increase of 8 sergeants would be needed to supervise the increased patrol staff.

The database used for the model can be adjusted to reflect expected changes such as call rate and area square miles. Then, the model can be used to predict manpower needs well into the future.

The report concludes with a series of recommendations for policies regarding patrol performance measures, staffing of specialized units, and staff responsibility for ongoing manpower needs projections.

This report is intended only to address the manpower requirements for the Patrol Bureau. It is recognized that the workload of the Patrol Bureau will determine in large measure the workload of the remainder of the Department. Specific staffing formulas will be developed for investigations and administrative functions once staff approval has been received for the patrol staffing model as it is presented in this report.

II. REVIEW OF MANPOWER ALLOCATION METHODS

The variety of methods used to project manpower requirements in police agencies runs from simple ratio determinations to sophisticated computer simulation models. In reviewing much of the literature on the subject, as well as surveying several police agencies about their manpower allocation methods, it is clear that allocating and distributing manpower can be a once-a-year paper and pen exercise or an ongoing process constantly being updated with current data.

The key issue in selecting a model, however,[2] is finding a match between the model and policy issues. The model should answer the questions at hand within the financial and time constraints set by the users. Additionally, the data needed for input into the model should be readily available and in the appropriate format. Finally, the outcome of the model should be capable of providing insight for the decision making process of the users.

With this framework in mind, the purpose of the literature review and agency survey was to learn about the methods and models available for manpower allocation which could be applied to this agency. The methods reviewed fell mainly into two categories: 1) the primarily manual methods which used a limited number of factors and parameters and very simple formulas to determine manpower needs, and 2) computer models, often based on queuing theory.

A. Manual Models

Several of the manual models took a very basic approach, thereby excluding many factors which may have a significant impact on manpower projections. In discussing the model for manpower levels in Cincinnati, Ammann (1986) addressed the need for personnel levels to be both consistent with demand for service and concurrently, budget sensitive. He further explained that it is not appropriate to use a population ratio to determine the number of officers needed. However, his model for determining future manpower needs is based primarily on calls for service.[3] Essentially, this is simply determining demand based on a work-generating variable. Several of the agencies surveyed also based their manpower projections primarily on historic calls for service data. The Cincinnati model used calls for service data and average time spent on calls for service to arrive at a future manpower need.[4] The only parameter used in the model which would vary from agency to agency is the percent of an officer's time to be spent on calls for service work.

The Washington State Patrol developed a Modified-Arizona Deployment Model in 1984 to determine minimum staffing levels for field operations. Although their model was similar to Cincinnati's in that it relied primarily on calls for service and time spent on calls, it went one step further. Included in the Washington State Model were more subjective inputs, such as identifying detractor activities and using experience-based factors to determine staffing needs. Although Washington State's model required more inputs than Cincinnati's model, it still relied on calls for service and associated time-consuming activities as its basis.

Similarly, a model developed at the Edmonton, Ontario Police Department was based on time consumed per officer per shift on all their activities and time consumed on calls for service. Historical information was used to develop a linear regression model for projecting future manpower needs. However, as the authors noted, the model does not allow for changes in either internal or external conditions, i.e., an increase in the population growth rate or changes in policies affecting patrol activities.[5]

The Illinois State Police based their model on four components: calls for service, policing, patrol, and overhead. Policing is identified as enforcement and services provided as part of patrol, such as writing citations. Patrolling is time actually spent in the vehicle, while overhead includes personnel managing the organization who do not normally police and patrol. Illinois developed their model after finding other models inadequate for a state police agency which deals in both urban and rural areas.[6]

While it is agreed that calls for service are the most important component of any manpower projection model, a number of other factors must be taken into consideration.[7] Depending on the desired specificity of the outcome, most computer models require several inputs such as service times, response and patrol speeds, percent of calls requiring one, two or three units, and the size and street miles of the patrol area. With these kinds of inputs, many models can be used in both a descriptive and prescriptive manner.

B. Computer Models

The Hypercube Queuing Model is designed mainly to configure patrol areas and determine the impact of changes in dispatch policy, as opposed to determining the precise number of units needed in a given area. The Hypercube Model is based on the assumption that for each patrol unit, there are two possible conditions -- available or unavailable. With inputs by the user such as average number of emergencies per hour, average service time per incident, average speed of patrol unit and the number of street miles, the Hypercube Model calculates how often the two opposing states will

occur for each unit, using probability theory. The end result is an output describing situations such as the workload of each unit, each unit's average travel time, and the difference in workload between the busiest and least busy unit.[8] The St. Louis County Police Department has used the Hypercube Queuing Model to project deployment and allocation of manpower; however, because of a countywide geographic information system, the data needed for this type of model was easily available to them. Such an undertaking for this agency would require a great deal of time and effort in compiling the necessary information to run the model.

Larson and Kee (1985) point out the main criticism of the Hypercube Model is that it does not take the human factor into account. That is, the police dispatcher may not always choose the next closest available unit when the first preferred unit is unavailable. Instead, the dispatcher takes into consideration special situations that arise, such as the need for a bilingual patrol officer at the scene even if there is a closer unit. Larson and Kee, therefore, propose combining an expert system (artificial intelligence) with the Hypercube Queuing Model to factor in some of the human expertise used in decision-making for dispatching particular units. Although this concept has great potential for future models, it is currently not practical to adopt expert systems. Both the financial considerations and the need for an expert in the field of artificial intelligence preclude the use of this type of allocation method.

The Patrol Car Allocation Model (PCAM) is probably the best known allocation method currently being used. PCAM is both a descriptive and prescriptive model giving quantitative information about the allocation of units by time of day and geographical area (descriptive), and specifying allocations that best meet the standards of performance input by the user (prescriptive). Although PCAM could be used to answer the questions put forth in this study, the amount and format of data needed for input into PCAM is cumbersome. Furthermore, the output from PCAM is not easily understood. Therefore, it was decided that PCAM would not be the best model for the current study.

Patrol/Plan is a computer model that is based upon the same mathematical principles as PCAM. Like PCAM, Patrol/Plan can be used descriptively or prescriptively. In addition to these capabilities, the model offers very easy database preparation and easy to read output. The program, originally developed by The Institute for Public Program Analysis (TIPPA) was written for Apple computers. Our research discovered that the program was recently rewritten for use on IBM compatible computers. Along with relative ease of operation, the program provides details about policing objectives (called constraints), such as response time, call queues, system saturation and others. The model is currently

in use in King County, Washington, and San Diego, California. It has also been used effectively by the Dallas Police Department.

C. Summary

Regardless of which manpower allocation technique is used, a number of decisions need to be made before employing the model and considering its output. The parameters, or constraints, to which the staffing levels must conform are defined as the acceptable performance levels for the function under consideration (patrol, traffic, etc.). The constraints entered in any model are the key to arriving at reliable and useful output. Not only should there be global parameters which apply to the entire geographic area being studied, but a set of parameters may be developed for each zone in line with the zone's unique qualities. Management must determine the constraints to be used in the model, such as the methods of prioritizing the calls, the maximum length of time a call should wait in queue, and the maximum percent of calls received when all units are busy. Thus, projections of future manpower needs are not simply a matter of number-crunching, but also require policy decisions to be made at the management level.

III. METHODOLOGY

A. Choosing a Model

For our purposes, the various manual models were rejected as not taking into account a sufficient number of variables. It was clear that for departments which can generate the data required for the computerized models to be utilized, these more sophisticated models are an efficient way to test various staffing and deployment options. The computer models use the complex mathematics of queuing theory and rapidly perform calculations which would be very tedious and time consuming to do by hand.

Patrol/Plan was chosen because, unlike the Hypercube Model and several others, it is designed to project manpower needs rather than suggest deployment for existing resources. Additionally, although PCAM is currently available for use on microcomputers and would provide the output desired, it is not as "user-friendly" as Patrol/Plan. PCAM requires input data which would be more difficult to compile, and its output is not presented in an easily understandable format.

The output in Patrol/Plan is displayed on the screen in tabular formats that are clear and concise and can be printed out as needed. It is very easy to experiment with setting up different constraints representing different conditions or desired standards in Patrol/Plan, and seeing the effect on the performance measures.

B. Using Patrol/Plan

Patrol/Plan uses queuing theory as the basis for its patrol operation simulation in that it determines the probability that a call for service will be received when all units are busy. In other words, Patrol/Plan determines the probability of saturation, which is directly related to the calls for service rate, the number of patrol units, and the service time for each call.[9] As the probability of saturation increases, the lower the likelihood that there will be a free unit to answer a call for service. Therefore, as the probability of saturation increases, the need to put calls in queue increases.

Patrol/Plan determines the number of units needed to satisfy all the performance objectives input into the model. However, one objective will eventually "drive" the model, as a certain number of units will be required to satisfy that particular constraint after the other constraints have been satisfied.

The design of Patrol/Plan allows the user to determine the number of patrol units needed by geographic area or by time, or both. In this study, the model was employed using geographic zone, day of week and shift. For example, North-Mondays-Shift I; North-Mondays-Shift II, etc. Data used came from the period of October 1, 1986 - September 30, 1987. Most of the variables based on calls for service or time consumed data came directly from or were calculated based on output from the CAD system. The inputs are explained in more detail in the following section.

C. Inputs

1. **Calls for Service Rate** -- the number of calls for police service received in one hour. This was calculated by summing the number of calls received during a given shift for all the occurrences of that day in one year in one zone, i.e., all calls received during Shift I on Mondays during the year in the North zone. The total was then divided by the number of Mondays in the year (52) and divided by eight hours (per shift) to arrive at an hourly call rate for that zone, day and shift. Complete data is available on disk in the Research and Development Unit.

2. **Units Required Per Call** -- the percent of calls requiring one unit, two units, etc. This information was calculated by using CAD system output.

3. **Service Time** -- the average time spent in service for a call by the first unit, second unit, etc. The total time consumed for calls (including travel time) by the primary responding unit during a shift divided by the total number of calls for service results in the average time consumed per call for the first unit. For the purposes of this study, based upon our experience, it was assumed that the second unit spent approximately half as much time as the first unit on a call, and so on. Complete data is available in the Research and Development Unit.

4. **Non-calls for Service Time** -- the average number of minutes per hour a unit spends in doing work other than responding to calls (e.g., traffic stops, reports, business checks). This information was gathered from a survey of officers' log sheets, conducted in the summer of 1987, and generally conforms to findings of similar surveys in this and other departments.

5. **Dispatch Policy** -- availability of backup or fixed post units to answer calls when the sector units are busy. For this study, it was assumed that if all units are busy, all

calls for service are placed in queue and are dispatched, in priority order, as units become available. This is an assumption which can be changed and would possibly affect the outcome of the model. It may be determined by a policy decision that special units, such as canine or TEU, should answer either Priority I calls or any call when all patrol units are unavailable.

6. **Priority of Calls** -- the percent of calls that are Priority I, II and III. This data was calculated by the CAD system.

7. **Region Area** -- the number of square miles in the given geographic area. The model assumes three geographic zones conforming to the geographic divisions for substations. The area's square mileage was determined by the City Planning Department.

8. **Street Miles** -- the miles of street in the given geographical area. Because of the way data is collected by the Street Department, only estimates are available. The street miles were estimated for each zone by taking total miles of street in the city as determined by the Street Department, then multiplying that number by the fraction of land area in a given zone.

9. **Response Time** -- the average response time for units travelling to a call. This data came from CAD as a time function from dispatch to arrival at scene. Although as an input, actual response times were used, this variable can be listed as an output measure when setting maximum response times as performance objectives.

10. **Patrol Speed** -- the average speed of the units when patrolling. This variable is used only to determine the average patrol interval in a region -- how many times a patrol unit will pass a certain geographic point during its shift. Because of the nature of Colorado Springs, this was not considered an appropriate performance measure. However, since the model required an input to complete its calculations, 15 m.p.h. was used as the patrol speed.[10]

D. Model Validation

Patrol/Plan has enjoyed favorable results in other jurisdictions, such as King County, Washington and Dallas, Texas. When the task force was contemplating the use of Patrol/Plan, however, it was necessary to validate its use in Colorado Springs.

In order to validate the model, data for the current geographic divisions (east/west) were input into the model. Then the model was allowed to project response times for Priority I calls. Output from this data was compared to known Priority I response times. For all shifts and each geographic zone, the projected response times were within one minute of the average response times actually recorded by the CAD system.

With these favorable results, the decision to use Patrol/Plan was finalized. The validation process took place with the version of Patrol/Plan which utilized Apple hardware. The results of subsequent applications of the model also conform to reasonable expectations of the patrol workload.

E. Performance Criteria Used to Determine Required Staffing

Patrol/Plan offers eight constraints to be used in determining manpower needs. The user can specify any or all of these constraints to be used when running the model, and the program will calculate how many units are needed to satisfy all the constraints. Therefore, one constraint will eventually be identified as the "driver" -- that constraint which requires more units than any other to be satisfied.

- **Actual Work/Unit** -- the amount of time in minutes per hour that a unit is committed to doing work. For this study, actual work/unit includes responding to calls for service, as well as directed patrol, administrative work, etc.

- **Uncommitted Time/Unit** -- the amount of time in minutes per hour that the unit is not committed to responding to calls or doing other patrol or administrative-related work and is available for routine patrol or self initiated enforcement activities. The sum of Uncommitted Time/Unit plus the Actual Work/Unit totals 60 minutes. These two factors are directly related to the number of patrol units available for response.

- **Average Number of Free Units** -- the average number of units available to answer calls at any given time.

- **Minimum Patrol Interval** -- the length of time between incidents of a patrol unit passing a given geographic point in the patrol area.

- **Percent Calls - All Units Busy** -- the probability that a call will be received when there are no units available to respond.

- **Queue Delay** -- the maximum length of time in minutes that a call can wait in queue, by priority.

- **Travel Time** -- the maximum length of time, in minutes, that a unit takes to arrive at the scene from the time it is dispatched on the call.

- **Response Time** -- the maximum length of time, in minutes, from when the call is received until a unit arrives at the scene. This is actually the sum of travel time plus queue delay.

In the first run of the model, five constraints were chosen to determine the required manpower. These represent performance objectives which would optimize the use of the units in responding to calls, in self-initiated activities, in directed patrol, and in allowing for administrative work and uncommitted time.

- Patrol units will spend no more than 40 minutes per hour (or 2/3 of their time) on actual work time. Actual work includes both calls for service time and non-calls for service time. Calls for service work is only that time spent responding to calls. Non-calls for service work includes administrative tasks, such as report writing; directed patrol and self-initiated patrol activities; and meal breaks.

- An average of three units should be available at any given time.

- The probability that all units are busy should not exceed 2.5%. This means that when a call is received, there is a 97.5% chance that a unit will be available to respond immediately. The Dallas Police Department conducted a study in 1983 using Patrol/Plan to determine manpower needs, in which they decided the probability that all units are busy should not be more than 3%.[11] The task force chose to specify the 2.5% probability because of the large land area which Colorado Springs covers, as well as to improve officer and citizen safety. As the model was run with varying probabilities for non-availability of officers, it became apparent that the relationship between the number of officers allocated to a zone and the non-availability factor was curvilinear. That is, as officers were decreased, even by one or two, the non-availability factor accelerated rapidly. For this reason, the task force chose a fairly conservative percentage for this factor. As with all the constraints, these are guidelines based on past performance, preferred performance and reviews of other studies. Furthermore, these constraints can be altered and the model can be run again for new results.

- The queue delay for Priority I calls should be no greater than three minutes.

- The response time for Priority I calls should be no more than eight minutes.

Whichever constraints are used to run the model, the outputs will be shown for all of the objectives. During the first run of the model, it was clear that the "probability that all units are busy" constraint (Percent Calls-All Units Busy) was driving the program. All other constraints input were satisfied before this one.

F. Patrol v. Traffic

In an effort to accurately determine the number of personnel needed based on the given constraints, patrol and traffic data were input and run separately. The assumption was made that, ideally, a separate traffic function should not only handle enforcement activities, but should also investigate all injury accidents and approximately 65% of non-injury accidents. The remaining 35% of traffic accidents for which the patrol function would be responsible for would primarily be those that could be reported via short form, and would consume relatively little of the patrol officer's time. In order to arrive at an accurate estimate of manpower requirements for each function (traffic and patrol), the projected 1989 call rate and average time spent were calculated separately for each function. CAD reports were generated which allowed the workload for traffic investigation to be separated from other patrol workload. Thus, 35% of the non-injury traffic workload was allocated to patrol, and the call rate and average time spent were calculated for each function. Other input variables, such as number of units required per call and priority of calls were adjusted to reflect the differential nature of traffic work.

In this manner, two sets of workload data were generated; one for all patrol functions plus 35% of all non-injury accidents, and another for the traffic function which included all injury accidents plus 65% of all non-injury accidents. One data set will be referred to as the Patrol workload; the other set will be referred to as the Traffic workload. Separate runs were made on each data set so that independent manpower projections could be made for the Patrol function and for the Traffic function.

G. Future Projections

The database generated for this report is reflective of the expected 1989 workload. By changing the call rate and other

factors, the database can be adjusted to reflect whatever workload is desired. Therefore, a regression analysis can be conducted to determine calls for service data in the future, street miles and area square miles can be adjusted to reflect expected increases, then the model can be used to project manpower needs well into the future. Obviously, these projections will only be as accurate as the estimates which are used in the database.

IV. FINDINGS

A. Daily Unit Requirements

As stated earlier, a separate data set describing the patrol workload was generated for each shift, by day of week and geographic zone. Additionally, a separate data set describing the traffic workload was generated for each shift, for each day of the week for each geographic zone. Thus, a total of 126 data sets were considered, each describing either the patrol workload for the particular shift, day and zone or the traffic workload for a particular shift, day and zone. Workload constraints for both the traffic data set and the patrol data set were determined. The constraints for the patrol data set were detailed in Section III-E and include the following:

- amount of time spent in calls for service and non call related work (40 minutes maximum)
- average units available (3)
- unavailability probability factor (2.5%)
- queue delay for Priority I calls no greater than three (3) minutes
- response time for Priority I calls no greater than eight (8) minutes.

For the traffic data sets, the constraints were the same. However, the non-availability factor was not considered an appropriate constraint for traffic work.

The model was run and output obtained for each shift by day of week and geographic zone. Obviously, to view the actual computer output for 126 individual data sets would be confusing and cumbersome. Therefore, only a sample output from the data sets is presented here. Complete output data are contained on computer files located in the Research and Development Unit.

THE INSTITUTE FOR PUBLIC
PROGRAM ANALYSIS

PATROL/PLAN

OUTPUT SUMMARY - BLOCK 1: NMON1

NO OF UNITS DISP/CFS = 1.3
SERVICE TIME/DISP UNIT = 38.5 MIN
SERVICE TIME/CFS = 50.5 UNIT-MIN

WORKLOAD DISTRIBUTION (MIN/HR)

PRIORITY LEVEL	PRIMARY UNITS (ACTUAL)	BACKUP UNITS (ACTUAL)	TOTAL (INCOMING)
1	79.4	0.0	79.4
2	108.0	0.0	108.0
3	130.3	0.0	130.3
TOTAL	317.8	0.0	317.8

INCOMING CFS & NON-CFSWORK/UNIT = 28.9 MIN/HR

ACTUAL CFS & NON-CFS WORK/UNIT = 28.9 MIN/HR
ACTUAL CFS WORK/UNIT = 11.9 MIN/HR
NON-CFS WORK/UNIT = 17.0 MIN/HR
UNCOMITTED TIME/UNIT = 31.1 MIN/HR

AVG NO OF FREE UNITS = 5.7
MINIMUM PARTOL INTERVAL = 6.3 HRS

% OF PRIORITY 1 CALLS DELAYED IN QUEUE = 2.2
% OF PRIORITY 2 CALLS DELAYED IN QUEUE = 2.2
% OF PRIORITY 3 CALLS DELAYED IN QUEUE = 2.2

AVG NO OF CALLS IN QUEUE = 0.0

PRIORITY LEVEL	QUEUE DELAY	TRAVEL TIME	RESPONSE TIME
1	0.1	6.7	6.8
2	0.2	9.2	9.3
3	0.3	10.6	10.8
AVG	0.2	9.1	9.3

NUMBER OF OFFICERS = 11

Table I shows a summary of the suggested manpower requirements for each data set. Since traffic functions are a citywide operation, only a total of all zones is presented in Table I.

Table I

Patrol/Plan Suggested Unit Requirements

Day	Shift	North Zone*	West Zone*	East Zone*	Traffic All Zones**
Mon	I	11	13	12	6
Mon	II	15	17	17	6
Mon	III	10	13	12	3
Tue	I	11	14	13	5
Tue	II	15	18	18	7
Tue	III	11	13	12	3
Wed	I	11	14	13	6
Wed	II	15	17	17	6
Wed	III	11	13	12	3
Thu	I	12	14	12	6
Thu	II	15	17	17	6
Thu	III	11	13	13	3
Fri	I	12	14	13	5
Fri	II	16	18	17	9
Fri	III	13	15	15	4
Sat	I	12	13	12	4
Sat	II	15	18	18	6
Sat	III	13	16	16	3
Sun	I	10	12	11	3
Sun	II	14	16	16	5
Sun	III	11	12	12	3
Total units per week		264	310	298	102

* includes all patrol work plus 35% of non-injury accidents; does not include fixed posts or special assignments

** includes all injury accidents plus 65% of non-injury accidents; does not include fixed posts or enforcement units

Once the model was allowed to project manpower requirements based upon the constraints which were detailed above, it was necessary to compare these outputs to the performance that the Department could expect if no increase in manpower was forthcoming. In order to accomplish this, a database for each of the three new area commands was developed. This database contained the projected workload including the appropriate traffic investigation workload. Assigned personnel were determined based upon the results of the allocation formula already in use by the Department. This formula allocated 66 officers to the West area command, 68 officers to the East area command and 53 officers to the North area command. The model was then allowed to project patrol performance on five (5) constraints. These constraints included work per unit per hour, average number of free units, average patrol interval, probability that all units will be busy when a call arrives (saturation probability) and average travel time for Priority I calls for service. The projected performance for patrol without staff increases was then compared to projected performance with the staff increases which the model suggested in order to meet the constraints which were previously outlined. The results of this comparison are summarized in Table II.

Table II

Comparison of Performance Measures with Increased Staffing Citywide

	Without Staff Increase	With Staff Increase
Work per Unit (min/hour)	34.02	30.88
Avg Free Units	5.46	6.64
Patrol Interval (hours)	5.10	3.90
Saturation Probability	5.77%	1.92%*
Avg Travel Time Priority I Calls (minutes)	5.68	5.28

* While the parameter specified for saturation probability was 2.5%, the actual saturation probability was calculated at 1.92% because the program allocates only whole units to satisfy constraints. This caused the actual saturation probability to be well below the specified parameter.

The table clearly shows the reduction in work per unit, saturation probability and average travel time for Priority I calls. Also indicated is an increase in the average available units.

The differences between performance measures with increased staffing and without increased staffing become more marked in individual area commands and in particularly busy times of the day. A table which compares the performance measures for each of the area commands is contained in Appendix A.

B. Total Manpower Requirements

While the Patrol/Plan program determines the number of units required to handle a given workload, it does not determine the number of persons required to staff those units. In order to identify the number of persons required to staff the suggested number of units, the following procedure was used. First, the assumption was made that all units would be one-officer units. Secondly, the number of suggested units for each shift each week was totalled for each geographic zone. Thus, a total of 264 units per week were required for the North zone, 310 units per week were required for the West zone, 298 units per week were required for the East zone and 102 units per week were required citywide for traffic functions (refer to Table I). Once the total weekly unit requirement was identified it was necessary to determine how many persons were needed to staff the given number of units weekly. In order to calculate this figure, the total weekly unit requirement for each shift and zone was multiplied by 8 (number of hours in a shift) then by 52 (number of weeks in a year). This calculation provided the total number of man-hours required per year. This figure was then divided by 1763 (the average number of hours per year an officer works).[12] The result is the actual number of officers who will be needed to meet the daily requirements for each shift. Table III indicates the number of officers who are needed on each shift in each zone. The same formula was applied to traffic data and the results also appear in Table III.

C. Policy Implications

Presently, there are a total of 244 officers assigned to the Patrol Bureau. Of these, 29 are assigned to Traffic and 27 are assigned to fixed-post positions in Patrol or other special patrol assignments such as TEU, Airport, Desk, etc.[13] Net patrol officers available are 188. The Patrol/Plan model shows, based upon the constraints which were applied, that the patrol workload requires a minimum of 210 officers excluding traffic, fixed posts

Table III

Staffing Requirements

Zone	Shift	Weekly Units Required	Manpower Required	Zone Totals
North	I	79	19	
North	II	105	25	
North	III	80	19	Total 63
West	I	94	23	
West	II	121	29	
West	III	95	23	Total 75
East	I	86	21	
East	II	120	29	
East	III	92	22	Total 72
Traffic	I	35	9	
Traffic	II	45	11	
Traffic	III	22	6	Total 26
			Total Officers	**236**

and special assignments. This indicates a deficit of twenty-two (22) officers. It should be noted that in some cases, such as the airport detail, special assignments are required by law or regulation. Other special assignments are necessary for officer or citizen safety, such as the Tactical Enforcement Unit, the Crime Prevention Unit, and the Canine Unit. Traditionally, the Patrol Bureau is the pool from which most special assignments are drawn, thereby creating a shortage of officers who are available to do patrol work. Adequate patrol staffing then becomes not only a question of increasing officer strength, but also of the priority which various special assignments receive.

The same logic holds true for traffic functions. The present authorized officer strength in the Traffic section is twenty-nine (29). Of these 29 officers, four (4) work DUI Enforcement, seven (7) work 55 M.P.H. Enforcement, two (2) work School Enforcement, two (2) work Hit and Run Investigations, and one (1) works Commercial Vehicle Enforcement. A total of sixteen (16) officers are assigned to special duties. This leaves thirteen (13) officers available to do traffic accident work. Our findings indicate that 26 officers are needed to adequately handle the accident workload. Thus, thirteen (13) more officers are needed for Traffic. The suggested increase in officers, then, is twenty-two (22) for the patrol workload plus thirteen (13) for the traffic accident workload, for a total of thirty-five (35) officers.

Because of the importance of the specialized functions within the department, the following section is devoted to explaining each function in detail.

V. FIXED POSTS AND SPECIAL ASSIGNMENTS

In addition to patrol and traffic functions, the Police Department has officers assigned to several specialized functions and fixed posts throughout the city. These are primarily functions which cannot be adequately addressed by the assignment of patrol officers as a part of their regular patrol duties. Patrol has twenty-seven (27) such positions and Traffic has sixteen (16) such positions. The specialized functions which are assigned to the Patrol Bureau are as follows:

FUNCTION	# OFFICERS
Tactical Enforcement Unit	10
Canine	5
Airport Security	5
CAB/Utilities	2
Front Desk	3
Crime Prevention Unit	2
Traffic-DUI Enforcement	4
Traffic-55 M.P.H. Enforcement	7
Traffic-School Enforcement	2
Traffic-Commercial Vehicle Enf.	1
Traffic-Hit and Run Invest.	2
Total Patrol Bureau Special Functions and Assignments	43

Two of the functions mentioned above, Airport Security and CAB/Utilities Security, are required by policy. The Federal Aviation Administration (FAA) requires a level of police staffing which will ensure a minimum response time standard to certain terminal locations. As a Category I airport, we must meet a five minute response time standard to the screening station at the concourse entrance. This is a fairly new requirement, in that, until March 23, 1988, only a ten minute response time standard was required. We are currently meeting this more stringent requirement with the same number of personnel which were assigned previously. This increased requirement has meant significantly increased usage of required overtime. It is projected that at least two additional officers will be needed to staff the Airport detail in 1989, due to this increased response requirement. The officers' salaries and overtime are reimbursed by the Airport to the General Fund budget.

We have two officers who are assigned the responsibility of providing security in and around the City Administration Building and

the Utilities Building. Seventy-five percent (75%) of the costs associated with this service are reimbursed to the General Fund by Utilities.

The Police Department has a specially trained unit of ten officers who provide tactical services such as special arrests, raids, directed patrol activities, barricaded suspects and hostage situations. The Tactical Enforcement Unit provides services which, when properly utilized, can reduce or prevent the loss of life suffered by private citizens and officers in these dangerous situations. Naturally, this specialized function requires a significant amount of training time. Officers assigned to this unit work the hours when these situations are most likely to arise and are called-out when their services are required at another time. Because of the specialized nature of the services which they provide, Tactical Enforcement officers are generally shielded from routine calls for police services.

The Department currently has five (5) officers assigned duties as canine handlers. These officers handle special incidents such as crowd control, building searches and suspect tracking. These officers also require a significant amount of training time with their dogs. Canine officers are scheduled for duty at a time when their services are most likely to be required. Like Tactical Enforcement officers, Canine officers are not usually required to answer routine police calls due to the specialized nature of the unit. These officers will handle over 2,000 calls for their specialized services in 1988.

Each patrol shift assigns at least one officer to staff the front desk at the downtown Police Headquarters building. It is anticipated that desk duties will be assigned to civilian clerks at the substations. For the foreseeable future, however, at least one officer will be required to staff the main building, twenty-four hours per day.

The Department presently has two (2) uniformed officers assigned to duties as Crime Prevention officers. These officers work with a civilian Crime Prevention Specialist and provide liaison with area schools, service organizations and Neighborhood Watch groups on numerous crime prevention activities.

In addition to these twenty-seven (27) special assignments, there are 188 officers assigned to patrol duty. Since the Patrol/Plan model calls for 210 officers, a deficit of twenty-two (22) officers is indicated, assuming special assignments continue to be staffed at their present levels.

The Traffic section has many specialized enforcement functions. Seven (7) traffic officers and one (1) sergeant are assigned to 55 M.P.H. Enforcement under a grant from the Colorado Division of Highway Safety. These officers have been quite successful in reducing the average speed of vehicles which travel on Interstate 25 and in reducing injury accidents on this road. In the time the unit has been in operation, the average speed of vehicles traveling on this road has been reduced by 5% and the number of injury accidents has been reduced by 28%. The continued commitment of these officers to this program is required in order to continue the Department's efforts towards traffic safety in the community.

Four (4) traffic officers are assigned to DUI enforcement duties. These officers work during evening hours when the need for their services is at its peak. In addition to patrolling for suspected drunken drivers, these officers process the arrests which are made by patrol officers in order to free the patrol officers to return to normal duties. These four officers also help to support the efforts of a Division of Highway Safety grant for DUI enforcement. Last year each officer in this unit made or processed over 300 DUI arrests and wrote over 1400 summons and complaints.

Two (2) traffic officers are assigned to enforce speed limits and other laws within school zones in the city. These officers work from 7:00 a.m. to 3:00 p.m. on school days in selected school zones. Each officer assigned to this unit writes about 1100 citations each year. The officers cover more than 60 elementary schools as well as responding to problem areas throughout the city. When school is not in session, these officers are reassigned to other traffic duties.

One (1) traffic officer is assigned to duties as a Commercial Vehicle enforcement officer. This officer is responsible for monitoring compliance with commercial vehicle tax and use laws. The officer wrote 1353 summons and complaints last year and impounded ninety-seven (97) improperly registered vehicles.

Two (2) traffic officers are assigned to duties as Hit and Run Investigators. These officers follow up and file cases of hit and run. Each officer assigned to the unit is assigned over 400 cases per year, and annually clears over 250 of these cases.

In addition to the duties which were reviewed above, the Traffic section also has eleven (11) officers assigned to accident investigation plus two (2) vacancies for a total of thirteen (13) positions available to handle accidents. The Patrol/Plan model indicates that approximately 26 officers are required to handle the accident investigation workload in the city, indicating a deficit

of (13) officers. Complete descriptions of the duties and productivity measures for special assignments and functions which are performed by the Patrol Bureau are attached as Appendix B.

This section has made it clear that the specialized functions within the Patrol Bureau are required. These special assignments and units reduce the patrol workload, thus freeing patrol officers to engage in more productive usage of their time. While the main function of a police agency is to answer citizen requests for police services, other duties are also required. In some instances, these other functions increase citizen and officer safety, such as the Tactical Enforcement Unit, Canine Unit, and School Enforcement Units. In other cases, such as the DUI Enforcement Unit, the specialized functions reduce or manage the workload so that patrol officers can better respond to calls for service. In still other instances, these specialized units perform a legally required function, such as the Airport Unit. It is evident that the specialized functions play an integral part in the provision of police services in Colorado Springs. Our analysis shows that the specialized functions could not be eliminated without an attendant reduction in community services, emergency preparedness or citizen safety.

VI. SUPERVISORY POSITIONS

To this point in the report, we have been concerned only with officer staffing. Of course, supervision is a critical function in the police profession, due to the scrutiny under which all police work is placed. Recent experiences in both the Houston, Texas Police Department and the Miami, Florida Police Department[14] point to the absolute requirement for adequate police supervision in the field. This section is primarily concerned with first line supervision, although command level supervision is briefly discussed.

Police supervision requirements are a function of two phenomena; the number of police officers and the organizational structure of the department. Thus, while a department may require a one-to-seven ratio of sergeants to officers, if the officers are spread across two organizational units of divergent responsibility, then common sense would indicate the need for at least two supervisors.

Therefore, the first level of analysis for determining required supervision in the Colorado Springs Police Department involves the identification of organizational entities which need separate supervision functions. The second level of analysis involves ascertaining the number of officers assigned to the organizational entity and application of a desired ratio of supervisors to officers. Since the scope of the present report involves only those functions assigned to the Patrol Bureau, only Patrol Bureau supervision will be considered here. Fixed post and specialty unit supervision is not considered.

First, the new decentralized organizational structure of the Police Department requires that there be one shift of patrol officers in each of three (3) geographical zones. Therefore, at least three (3) supervisors will be needed for each patrol shift, each day of the week, for each of the three (3) geographic zones. Since each shift requires a staffing of between ten (10) and eighteen (18) officers each day, it is obvious that more than one supervisor will be needed in each zone on each day of the week. At this point, a ratio of supervisors to officers needs to be applied. The ratio which was decided upon for this department is 1:8, which will provide an acceptable level of supervision for a department of this size. There are two different ways to apply this ratio. It can be applied to the total of all officers assigned to a zone, i.e., if there are 80 officers assigned to the West Zone, a total of ten (10) supervisors would be needed. The problem with such a method is that it does not take into account the relief factor required for supervisors. An alternative method is to apply the ratio to the required officer staffing for each shift, day and zone. Referring to Table I, and providing enough supervision so that there is never a ratio greater than 1:8

in any shift/day/zone, we can determine the supervision required daily, and include the necessary relief factor. These requirements are shown in Table IV below.

Table IV

Suggested Supervision

Day	Shift	North Zone	West Zone	East Zone	Traffic All Zones
Mon	I	2	2	2	1
Mon	II	2	3	3	1
Mon	III	2	2	2	1
Tue	I	2	2	2	1
Tue	II	2	3	3	1
Tue	III	2	2	2	1
Wed	I	2	2	2	1
Wed	II	2	3	3	1
Wed	III	2	2	2	1
Thu	I	2	2	2	1
Thu	II	2	3	3	1
Thu	III	2	2	2	1
Fri	I	2	2	2	1
Fri	II	2	3	3	1
Fri	III	2	2	2	1
Sat	I	2	2	2	1
Sat	II	2	3	3	1
Sat	III	2	2	2	1
Sun	I	2	2	2	1
Sun	II	2	2	2	1
Sun	III	2	2	2	1
Total Supv per Week		**42**	**48**	**48**	**21**

After calculating the number of supervisors required for each week and each zone, the number of supervisors which need to be employed to attain this desired level of supervision must be derived. The same method used to calculate the number of officers required to attain a desired level of staffing can be used, as follows. The total number of weekly supervisors is multiplied by 8 (number of hours per shift), then multiplied by 52 (number of weeks per year), then divided by 1,763 (the average number of hours an officer is available for duty each year). These results are presented in Table V below.

Table V

Supervisor Staffing

Zone	Shift	Weekly Supv Required	Manpower Required	Zone Totals
North	I	14	3	
North	II	14	3	
North	III	14	3	9
West	I	14	3	
West	II	20	5	
West	III	14	3	11
East	I	14	3	
East	II	20	5	
East	III	14	3	11
Traffic	I	7	2	
Traffic	II	7	2	
Traffic	III	7	2	6
			Total Supervisors	**37**

Presently the Patrol Bureau has a total of twenty-nine (29) sergeants who are not assigned to fixed posts or special assignments. The application of the 1:8 ratio using the method detailed above indicates that there would be a deficit of eight (8) supervisors if the Department is in fact staffed with the number of officers that the Patrol/Plan model indicates is required.

VII. RECOMMENDATIONS

In consideration of the preceding analysis, the following recommendations are made regarding the projection and publication of manpower requirements for the Colorado Springs Police Department.

1. This report should form the basis for the personnel request for the patrol and traffic functions for the 1989 budget.

2. Because of the technical requirements of making manpower needs projections, future projections should be formulated by the Planning Section of the Department, with assistance from the Fiscal Services Section. At a minimum, these projections should be made once each year in preparation for the submission of the budget.

3. The Department should adopt the Patrol/Plan Model as the tool which is used to make manpower needs projections for patrol and traffic accident investigations.

4. The Department should, as a matter of policy, adopt the following performance objectives to optimize the use of patrol and traffic units:

   a. Patrol units will spend no more than forty (40) minutes per hour actual work time. Actual work time includes both calls for service time and time spent on non-call related activities. This, of course, means that patrol units will have at least twenty (20) minutes per hour to engage in routine and random patrol activity.

   b. An average of three (3) units should be available in a dispatch zone at any one time.

   c. The probability that all units will be busy when a call is received should not exceed 2.5%.

   d. The queue delay for Priority I calls should be no greater than three (3) minutes.

   e. The total response time for Priority I calls should be no greater than eight minutes.

5. Since recruit officers cannot be used to engage in calls for service work for at least nine months after they are hired, they should not be considered as viable resources to apply to the workload in the year they are hired. We suggest that the recruiting, hiring and training process be scheduled in such a manner as to ensure that rookies will be fully trained at the beginning of the calendar year. In this way, when projections are made for a particular calendar year, the rookie class can be considered available manpower for that year. This implies that manpower needs projections should be made at least two years in advance so that they can be included in the budget of the preceding year in which they would apply.

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APPENDIX A

Comparison of Performance Measures with Increased Staffing By Zone

EAST

	without increased staffing	with increased staffing
Work per Unit (min/hr)	33.52	31.28
Free Units	6.03	6.71
Patrol Interval (hours)	3.16	2.76
Saturation Probability (%)	4.37	1.92
Travel Time (minutes)	5.11	4.84

WEST

	without increased staffing	with increased staffing
Work per Unit (min/hr)	35.12	31.78
Free Units	5.52	6.90
Patrol Interval (hours)	4.30	3.36
Saturation Probability (%)	6.06	1.98
Travel Time (minutes)	5.18	5.16

NORTH

	without increased staffing	with increased staffing
Work per Unit (min/hr)	33.43	29.58
Free Units	4.83	6.33
Patrol Interval (hours)	7.85	5.75
Saturation Probability (%)	6.84	1.86
Travel Time (minutes)	6.75	5.85

APPENDIX B

SPECIALTY PATROL BUREAU FUNCTIONS

Position:

TRAFFIC INVESTIGATOR (Spot Cars)

Duties:

1. Investigate injury and non-injury accidents
2. Selective traffic enforcement
3. Felony traffic case filings
4. Court
5. Cover calls
6. Special events

* **Annual Productivity Per Traffic Investigator**

* 876.4 summonses
* 435.8 accident reports
* 7.8 DUI arrests
* 5.1 felony arrests
* 12.6 misdemeanor arrests

Schedule:

Five officers cover one shift, 11:00 a.m. - 7:00 p.m., seven days/week

Workload Impactors:

1. # non-injury accidents
2. # injury accidents
3. availability of Accident Investigation units
4. traffic enforcement complaints
5. traffic problem identifications by CAU
6. # patrol traffic case filings

Comments:

Traffic complaints generate 75% of the selective enforcement activities. Average time to investigate an accident is one hour. The Spot Cars are first priority for dispatch in non-injury accidents and are second priority (after Accident Investigation Unit) for dispatch to injury accidents.

Training Required:

Prefer Level I accident investigation, radar

* Based on 1987-1988 average 12-month productivity per Traffic Investigator

Position:

ACCIDENT INVESTIGATOR

Duties:

1. Investigate fatal/injury accidents
2. Investigate non-injury accidents
3. Felony traffic case filings
4. Court
5. Selective enforcement
6. Cover calls
7. Special events

* **Annual Productivity Per Accident Investigator**

* 620.6 summons
* 156.8 accident reports
* 36.2 DUI arrests
* 13.6 felony arrests
* 32.8 misdemeanor arrests

Schedule:

Six officers cover three shifts, 5:00 a.m. - 1:00 p.m., 1:00 p.m. - 9:00 p.m., and 9:00 p.m. - 5:00 a.m., seven days/week

Workload Impactors:

1. # fatal and injury accidents
2. scope of fatal accidents (investigation can range from 8 hours - 40 hours)
3. # non-injury accidents
4. availability of Traffic Investigation units (Spot Cars)

Comments:

A serious felony traffic case is similar to a serious felony criminal case in the extent of investigation required. The Accident Investigation units are first priority for dispatch in injury accidents and are second priority (after Spot Cars) for non-injury accidents.

Training Required:

Prefer Level III accident investigation

* Based on 1987-1988 12-month average productivity per Accident Investigator

Position:

DUI ENFORCEMENT

Duties:

1. Detection, apprehension and processing of drunk drivers
2. Transporting and processing Patrol DUI's
3. Selective enforcement
4. Cover calls
5. Special events

* **Annual Productivity Per DUI Enforcement Officer**

* 1447.4 summons
* 306.6 DUI arrests (includes Patrol arrests processed by DUI Enforcement)
* 23.4 accident reports
* 22.6 felony arrests
* 76.6 misdemeanor arrests

Schedule:

Three officers cover one shift, 7:00 p.m. - 3:00 p.m. and one officer rotates through a 9:00 p.m. - 5:00 a.m. shift

Workload Impactors:

1. Self-initiated
2. # Patrol DUI arrests

Comments:

80% of all CSPD DUI's in 1987 were arrested or processed by Traffic. When DUI Units are not available, Patrol can process DUI's (all MPO's are intoxilyzer trained) but this diverts Patrol field officers from regular duties. This function is the foundation for the Department's drunk driving enforcement program.

Training Required:

Intoxylizer

* Based on 1987-1988 12-month average productivity per DUI Enforcement Officer

Position:

SOLO UNIT (55 MPH Grant)

Duties:

Detect and ticket hazardous moving violations on I-25 and other State and Federal highways (i.e., Hwy 115, Hwy 24, Hwy 83)

* **Annual Productivity Per Solo Unit Officer**

* 2085.1 summons
* 1868.7 speeding summons (included in summons above)

Schedule:

Seven officers cover two shifts; 7:00 a.m - 3:00 p.m. and 10:00 a.m. - 6:00 p.m.

Workload Impactors:

1. Self-initiated
2. Traffic complaints
3. Special events

Comments:

Grant requires preponderance of dedication to speed enforcement on State/Federal highways. In 1987, 10% of Solo Unit workload was other selective enforcement (e.g., school zones) and 5% was special events. This special enforcement function was initiated last year and traffic fatalities fell 28% last year. The high visibility of the police motorcycles is an important preventive element in our traffic program.

Training Required:

2 week solo motorcycle course, intoxylizer and radar

* Extrapolated from 1987-1988 10-month average productivity per Solo Unit Officer

Position:

HIT AND RUN

Duties:

1. Follow-up hit and run accidents
2. Special events

* **Annual Productivity Per Hit and Run Investigator**

* 425 reports assigned
* 250.5 reports cleared
* 111.5 hit and run charges filed
* 160 other charges filed
* 447.5 interviews conducted

Schedule:

One officer 7:00 a.m. - 4:00 p.m.; one officer 8:00 a.m. - 5:00 p.m.

Workload Impactors:

hit and runs with solvability

Comments:

Actual hit and run accidents are handled in field by Traffic or Patrol. The Hit and Run investigators do the follow-up investigation and achieved a 59% clearance rate for the 12-month period analyzed. This is a specialized investigative function that must be performed to obtain clearances of hit and run cases.

Training Required:

Level III accident investigators

* Based on 1987-1988 12-month average productivity per Hit and Run Investigator

Position:

SCHOOL ENFORCEMENT

Duties:

1. Enforce speed and other traffic laws in school zones (75%)
2. Make prevention presentations (25%)
3. Train District 20 crossing guards
4. Special events

* **Annual Productivity Per School Enforcement Officer**

* 1149 summons
* 153 verbal warnings

Schedule:

Two officers work 7:00 a.m. - 3:00 p.m., Monday through Friday

Workload Impactors:

1. Complaints
2. # schools (focus on elementary)

Comments:

The School Enforcement units cover over 60 elementary schools as well as respond to problem areas and complaints. Last year, 40% of auto-pedestrian accidents involving children age 12 and under occurred when the children were going to or from school. This function provides a targeted response to the sensitive enforcement problem of moving hazardous traffic violations around elementary schools when children are present. The School Enforcement officers also make safety presentations to the schools.

Training Required:

Radar

* Based on 1987-1988 12-month average productivity per School Enforcement Officer

Position:

COMMERCIAL VEHICLE ENFORCEMENT

Duties:

1. Detect and ticket commercial vehicle violations
2. Traffic accident investigation involving large vehicles
3. Other selective traffic enforcement
4. Special events

Annual Productivity Per Commercial Vehicle Enforcement Officer

* 1353 summons
* 97 vehicles impounded
* 454 warnings
* 61 days with POE scales

Schedule:

One officer works 8:00 a.m. - 4:00 p.m.

Workload Impactors:

Self-initiated

Comments:

This position is also the P.D.'s Haz-Mat representative. The position was created due to the number of complaints of truck and other commercial vehicle violations.

* Based on 1987-1988 12-month average productivity

Position:

CRIME PREVENTION OFFICER

Duties:

1. Civic group presentations
2. Neighborhood Watch Group presentations and contact
3. Security surveys (residential & commercial)
4. Training
5. Cross assistance to school resource program
6. Administration of program (e.g., data entry, handouts, etc.)
7. Installation of Neighborhood Watch signs
8. Community liaison
9. School field trips
10. Public Service Announcements
11. Neighborhood crisis intervention

Annual Productivity Per Crime Prevention Officer

* 38 new Neighborhood Watch groups formed (see Note 1 below)
* 385 new Neighborhood Watch households (see Note 1 below)
* 75.5 other community group presentations (see Note 2 below)
* 2278 persons receiving presentations (see Note 2 below)

Schedule:

Monday through Friday, 7:30 a.m. - 4:30 p.m., several evenings and weekends each month

Workload Impactors:

Requests

Comments:

This is a critical community service delivery position which probably has more positive benefit to the CSPD than any sworn position in Patrol. The workload is high volume.

Note 1: Data includes assistance by Reserve Officers
Note 2: Figure represents average of the Crime Prevention officer and the civilian Crime Prevention specialist - actual Crime Prevention officer workload is considerably higher

Position:

SCHOOL RESOURCE OFFICER

Duties:

1. School presentations (drugs, civics, personal safety, etc.)
2. School liaison
3. Community group presentations
4. Neighborhood Watch presentations
5. Training
6. Community problem trouble-shooting
7. Cross-over assistance to Crime Prevention (e.g., PC Robot)

Annual Productivity Per School Resource Officer

* 232.8 school presentations
* 13,209.6 students contacted

Schedule:

Flexible, based on demand

Workload Impactors:

Primarily based on community requests

Comments:

This position creates widespread positive community impact for the CSPD. There is an overwhelming demand for the services of the School Resource Officer - at this time, April 12, he is booked through June 1.

Training Required:

None, but familiarity and skills critical

Position:

FRONT DESK OFFICER

Duties:

1. Handle news media call-ins
2. Screen calls to Commander
3. Information calls diverted from Comm Center and others
4. Transient record check and referral
5. Detox record check and referral
6. Walk-in case reports
7. Coordinate and sign clearance checks
8. Review and sign cold accident reports
9. Coordinate walk-in fingerprint clients
10. Assistance to Commander
11. Responsible to monitor Holding Cell and log for all prisoners
12. Monitor runaways, DUI's, who completed breathalyzer, in lobby
13. Maintain administrative reports/supplies

Annual Productivity Per Front Desk Officer

No workload records are kept. However, workload is varied and often overwhelming.

Schedule:

Coincides with shift schedules - one officer per shift

Workload Impactors:

Primarily citizen and officer calls and walk-ins

Training Required:

Familiarity with duties above

Position:

BUILDING SECURITY OFFICER

Duties:

1. Building and personnel security for CAB/Utilities
2. Special handling of situations
3. Write parking tickets
4. Handle simple case reports
5. Arrests when necessary
6. Respond to City officials requests for assistance

Annual Productivity Per Building Security Officer

* 115 parking tickets
* 3 case reports
* 3 follow-up reports

Schedule:

CAB - 8:00 a.m. - 5:00 p.m., Monday through Friday
Utilities - 8:30 a.m. - 5:30 p.m., Monday through Friday
The two officers fill in for one another when on vacation, sick, etc.

Workload Impactors:

Staffing is City policy requirement

Comments:

Salary for 1 1/2 of the two positions is paid by Utilities into the General Fund.

Training Required:

Requires familiarity with building, alarm system, special problems, etc.

Position:

AIRPORT SECURITY UNIT OFFICER

Duties:

1. Airport building, grounds and perimeter security
2. Respond to reported crimes, investigate, make case reports
3. Medical response situations
4. Write accident reports
5. Airport incident reports
6. Write traffic summons and parking violations
7. Public relations responses (e.g., car lock-outs, etc.)
8. Up until March 23, 1988, FAA required 10 minute response to Screening Area - now requires 5 minute response

Annual Productivity Per Airport Security Unit Officer

* 43.8 incident reports
* 12.4 case reports
* 3.2 accident reports
* 4.6 follow-up reports
* 6.6 arrests
* 1.4 moving violations
* 445 parking violations

Schedule:

Five officers working under a sergeant are scheduled on two 10 hour shifts/day - 6:00 a.m. - 4:00 p.m., and 3:00 p.m. - 1:00 a.m., 7 days/week. Current staffing and scheduling requires supplementing with extra duty and overtime to have two officers on duty simultaneously to meet FAA response time requirement.

Workload Impactors:

FAA 5 minute response time requirement dictates level of staffing required - need 3.3 more officers to staff 2 on each shift to meet standard

Comments:

Salary for the 5 officers and 1 sergeant is paid into the General Fund by the Airport.

Training Required:

Completion of one week Transportation Safety Institute in Oklahoma City, sponsored by FAA.

Position:

CANINE OFFICER

Duties: The primary duty of a canine officer is to deliver a trained dog to a needed call for service. These calls may include:

1. Explosive searches and detection
2. Building searches
3. Tracking of suspects
4. Open seeks
5. Evidence searches
6. Crowd control
7. Lost or missing persons
8. Any situation which requires the specialized capabilities of the K-9 unit

*** Activities/Productivity of the unit:**

	1/87 - 12/31/87	1/1/88 - 3/31/88
Building searches	294	88
Field searches	262	47
Tracks	149	33
Scent detection	67	34
Cover officers	248	70
Traffic	109	42
Calls	1,658	655
Arrest assists	78	23
Misdemeanor arrests K-9	62	7
Felony arrests K-9	53	26
Property recovery	$103,030	$39,902
Narcotics recovery	$165,715	$92,954

* The five officers and dogs were in-service different lengths of time during 1987-1988, and individual dogs have specialties so that average productivity measures per dog/handler are inappropriate.

Schedule:

Eight hour shift, 7:00 p.m. to 3:00 a.m., plus available for call out.

Workload:

Workload is affected by volume of calls for service in which a trained dog is needed for assistance and by overall volume of calls for service since handlers and dogs are available to respond to regular calls for service as needed.

Training:

Initially, the Canine officer and his dog attend a 180-hour basic handler course. One day per week is devoted to in-service training. This does not include training of individual handlers with their dogs.

Comments:

Under the FAA Detector Dog Program, the FAA provides two explosives detector/patrol dogs to the Department. In return, the Department makes the dogs available to respond to the Airport within 30 minutes, 24 hours a day, for scent detection and risk management.

Position:

T.E.U. (Tactical Enforcement Unit) OFFICER

Duties: The primary function is to assist any department unit that needs a mobile, highly trained tactical enforcement officer to handle exceptional situations such as:

1. Barricaded gunman
2. Sniper or suspected sniper
3. Hostage or suspected hostage situations
4. VIP security
5. High risk warrant service
6. Hijackings
7. Civil disturbances
8. Mass arrests
9. Narcotics raids
10. Security for crime scene or bomb threat situations
11. Any other situation which requires a highly mobile and flexible police unit

A secondary function of the unit is to work directed activities, especially those involving robbery and burglary, using either location oriented or suspect oriented surveillance in either a high or low visibility mode.

Activity/Productivity April 1987 - March 1988 for the unit as a whole:

Tactical deployments	50
Special assignments	40
Directed activities	34
Arrests - felony	204
Arrests - misdemeanor	213
Cases cleared	154

Schedule:

T.E.U. is available to respond 24 hours per day. Officers' hours and days off change often as determined by the assignments. The normal shift is eight hours.

Workload:

Workload varies in type of activity and quantity according to the situations which arise that require the special functions T.E.U. officers are trained to provide. (See list of duties above.)

Training required:

1. Minimum requirements: First class police officer; pass a T.E.U. physical fitness test; pass psychological screening; perform satisfactorily in oral interview.

2. In-service training includes intensive classroom and practical training in special weapons, chemical agents, riot control, rappelling, aircraft/hijacking techniques, officer rescue, building entry, officer survival, PR-24, terrorist activity, and VIP security.

Comments:

Because of the specialized and diverse nature of T.E.U. assignments, one day per week per officer is involved in on-going training.

Special Assignment:

EXPLOSIVE TECHNICIAN (Currently one patrol sergeant, one T.E.U. officer and one Research and Development officer are assigned to this unit.)

Duties:

1. Remove and render safe bombs, incendiary devices, old explosives and certain explosive chemicals.
2. Preliminary and follow-up investigations into bombings and accidental explosives.
3. Bomb threat investigations.
4. Provide explosives security for VIPs as required.
5. Provide technical assistance and training as required.

Activity/Productivity	1/31-12/31/87	1/1/88-3/31/88
Bomb threats	86	24
Found explosives	50	11
Evidence destroyed	310 lbs.	25 lb.
Case reports for possession/ use of explosives	33	7
Arrests	3	2

Schedule:

Call out as needed. For safety reasons, two members are to respond on all calls.

Workload:

Workload varies in response to calls requiring the specialized training of the explosives technicians. However, when not responding to calls, they are involved in training exercises or destroying explosives. Explosive technicians provide public education about the handling of bomb threats and found explosives.

Training Required:

Assigned officer must have completed the FBI Hazardous Devices School. In-service training requirements are that an officer will attend a minimum of four hours training per month with the Department's explosives unit or an outside agency.

Comments:

In addition to its listed duties, the explosives unit maintains safe custody of explosives held in evidence or maintained for training purposes.

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