

**THE BILL BLACKWOOD
LAW ENFORCEMENT MANAGEMENT INSTITUTE OF TEXAS**

**4/10 WORK PLAN:
A FEASIBILITY STUDY FOR THE FRISCO, TEXAS POLICE DEPARTMENT**

A Policy Research Project
Submitted in Partial Fulfillment
of the Requirements for the Professional Designation
Graduate, Management Institute

by
Sergeant Ron O. LaRue

Frisco Police Department
Frisco, Texas
June 1998

*Final Approved
DLW
6/22/98*

ABSTRACT

Frisco, Texas is one of the fastest growing communities in Texas. As the city continues to grow, calls for service and citizens expectations of that service are increasing by an unproportionate factor. This paper examines the possibilities of altering the patrol shift schedule to better account for equal workload while maintaining at minimum, the current level of service. A review of literature and practice show that a 4-10 work schedule would allow for increases in officer morale and productivity. A model shift has been devised and is attached.

TABLE OF CONTENTS

SECTION	PAGE
Abstract	
Introduction	1
Historical and Theoretical Context	2
Review of Literature and Practice	5
Discussion of Relevant Issues	8
Conclusion/Recommendations	11
Appendix A – Trends in Patrol Planning	
Appendix B – A Model 4-10 Work Schedule for the Frisco Police Department	

Introduction

Frisco, Texas is a community located in Collin and Denton Counties. It has an estimated population of 22,500 and is growing at about twenty-three percent per year. The police department has eighteen officers and four sergeants assigned to the patrol division. Patrol currently employs a five-day, eight-hour shift. As the city continues to grow, calls for services and citizens expectations of that service are increasing by an unproportionate factor. The patrol division is challenged with examining alternate shift strategies to sustain the current level of service and hope that the new strategy allows for an increase in the quality and quantity of service delivered.

This research will address an array of problems associated with alternate shift schedules including the willingness of officers to change shift structures, shift coverage during peak and off-peak times, and officers' personal health. Other areas of concern are training, the use of sick time and vacation time, and the scheduling of specialized units. Vehicle maintenance and availability will also be examined.

The purpose of this research is to establish the feasibility of implementing a four-ten hour workday schedule for the Frisco Police Department, which will be known in this study as 4/10. This study will be primarily for the patrol division to alleviate the shortage of patrol personnel to respond to calls for service. Sources of information were gathered from other departments that have adopted the 4/10 and have had success, along with departments who implemented the 4/10 and have gone back to the standard 5/8. Other sources are feasibility studies by other agencies, patrol scheduling methods, survey studies from other departments, and actual schedules from surrounding agencies. The intended outcome is to provide the Frisco Police Administration an unbiased study

covering all aspects of the 4/10 vs. 5/8 work weeks and to recommend the best shift strategy.

Historical and Theoretical Context

Traditionally, patrol resources have been deployed via a platoon system that utilizes equal manning of three shifts. In the mid-1970's, the University City Science Center conducted a survey of 321 police departments to assess the prevailing patterns of patrol resource allocation. The survey showed that almost half of all the police departments contacted assigned the same number of officers to the day, evening, and midnight watches (Gay, 23-24). The equal staffing approach was particularly prevalent in departments with fewer than 100 patrol officers. A three platoon system was instituted 1911 by state law in New York City which provided for equal numbers of officers on patrol in each of three shifts (Levi, 18).

A 1983 study conducted by the Northwestern University Traffic Institute shows some movement away from the practice of equal staffing. Of the 113 departments responding to questions about staffing plans, 85.5 percent said that they vary staffing levels to meet workload demands, and 52.2 percent said they do so by both day of the week and shift (Stenzel, 13-14).

Paradoxically, while most police departments spend well over half their budget on the patrol function and devote over half their manpower to staffing a Patrol Division, they rarely take the time to look for deficiencies or needed improvements in their patrol plan. Chaiken believes this negligence occurs primarily because "patrol is conducted routinely and continuously by the lowest-level officers in the department and is unlikely to be the subject of praise or concern, whether it operates efficiently or not."⁽¹⁾ Other researchers

attribute it to the fact that law enforcement goals are usually stated only in general terms, and, thus, few reliable methods exist for operationalizing and measuring the impact of patrol allocation plans on these goals. (Gill, 8)

As the data processing capabilities of police departments have improved, more agencies are able to conduct routine analyses of patrol operations and regularly prepare monitoring reports for management. Some of these reports demonstrate the temporal pattern of patrol workload, thus giving managers a clear picture of when their resources are most needed. In the past, managers have had to allocate their resources based upon their own perceptions of service demands. Often, these perceptions were guided by a sense of when crimes occur rather than when calls for service occur. This, combined with an administrative concern to always be prepared for an emergency, led to inefficient staffing practices. Nowadays, police departments have the tools to determine when their workload is at its peak, and they can allocate resources accordingly.

The design of a police work schedule involves three phases. The first is the determination of appropriate manning levels for each watch and day of the week. The second is the construction of suitable sequences of watch assignments and of days worked and days off for each officer. The third phase is the development of procedures for dealing with common problems of schedule administration that may arise after the schedule is implemented (National Institute of Law Enforcement and Criminal Justice, 5).

Basic scheduling plans for patrol have included the 8-5 plan, 10-4 plan, and the 12-4 plan. On the 8-5 plan, an officer works five 8-hour days and gets two days off. On

the 10-4 plan, an officer works four 10-hour days and gets three days off. On the 12-4 plan, an officer works four 12-hour days and gets four days off (Lawrence, 1).

The concept of the 4/10 shift was established by numerous agencies according to a work study in 1981 by the Commission on Peace Officer Standards and Training for the State of California (14-15). The study revealed that of responding agencies with 25 to 45 officers, only 23% of the responding agencies are currently using the 4/10. Teams/No Teams means "Teams" are defined as work schedules wherein the supervisor and line-level officers have the same days off. "No Teams" are defined as work schedules in which the supervisors and line-level officers have different days off. No significant differences in the percentage of agencies using teams/no teams are reflected by agency type or location. 84% of agencies with fewer than 100 employees use teams, 62% of agencies with 100-499 use teams, and 60% of agencies with more than 500 employees use teams.(California POST, 2-23)

The Frisco Police Department patrol division operates under the standard five day, eight-hour shift and the concept of an alternative shift is being examined by administration for better coverage during peak times for calls for service. The patrol division personnel consists of eighteen officers assigned to patrol and four Sergeants that make up the entire coverage for a seven day period.

Feasibility studies from other agencies have established the 4/10 concept is adaptable to police departments with adequate staffing and has been implemented with satisfactory results. Other studies conducted have concluded that when the numbers are inadequate the feasibility of the implementation a 4/10 will create a greater burden during the times when calls for service if an emergency situation arises and only a skeleton crew

is assigned to respond. This will cause the city to either have to pay overtime, arrange for time management, or compensate the summoned off- duty personnel in some fashion.

Review of Literature and Practice

Planned resource allocation is not a new approach to managing patrol operations, but it is one that is not widely used. It assumes that the temporal and geographic allocation of patrol personnel and equipment has an important influence on departmental efficiency and effectiveness. Further, it assumes that the patrol manager can reallocate patrol resources in order to achieve specific objectives such as reduced response times, balanced workload, and fixed costs. The exhibit in Appendix A highlights some of the practices that have characterized patrol planning over the years.

Findings indicate that work scheduling continues to be largely an “unmanaged” police function, often ignored until a specific problem or need arises. Staffing levels are not proportional to workload by shift or day of the week, planning is inadequate to manage schedule changes, and schedules are often viewed as unfair and inadequate by patrol officers (Stenzel, 4). Scheduling and allocating police manpower in the nation’s cities has become a complex and tedious task. New work rules, changing patterns of crime, and an increased demand for police services all contribute to the problem of ensuring rational deployment of officers and equipment (Heller, 42).

In 1980, the Phoenix, Arizona Police Department field tested the 4/10 plan for a six month period (Phoenix Annual Report, 1). They identified advantages to include: improved morale, increased arrests, decreased response time, increased citations, fewer accidents, increased training time, and improved recruitment and retention. The

disadvantages that they listed were vehicle availability was a problem during overlap periods and an increase in paperwork caused some problems with support activities.

Phoenix did later implement the 4/10 plan division-wide for patrol citing that the 4/10 was a valuable method for reallocating manpower to focus more directly on peak activity periods, increasing productivity, and for reducing overtime costs.

The Illinois State Police also conducted a six-month pilot study of the 4/10 plan. The implemented the plan in only three of their twenty-one districts (Raub, 1). Each of the three districts selected, worked a different variation of the 4/10 plan. Comparing activity with the same time in a previous year, they found results to be good. The officers involved were satisfied to remain on the 4/10. The major disadvantage that they reported was a reduction in communication among line officers and supervisors above the level of sergeant. Illinois proposed that command supervisors should rotate their schedules to make themselves available on each of the shifts.

A feasibility study conducted by the Tucson, Arizona Police Department in 1989 on the 4/10 concluded the plan would be beneficial to the department as well as the citizens (Tucson Planning and Research, 1). The study compared the five eight shift , the three and four day 12 shift, and the 4/10. Tucson identified the following advantages and disadvantages for the 4/10.

ADVANTAGES

Matches coverage to workload
Improves recruitment & retention
Makes patrol more desirable
More training time

DISADVANTAGES

Increases overtime
Lack of report completion
Inconsistent reviewing of reports
Lack of consistent supervision

4/10 scheduling using current staffing levels were evaluated by Tucson for ability to meet service demands and found to be somewhat superior to their 5/8 counterparts. Two divisions, however, probably do not have sufficient staffing to convert to a 4/10 schedule without a noticeable decrease in response time. Administrative time such as briefings, meal periods, report writing should decrease 20% due to one less day per week of these activities. On duty court availability would increase under the 4/10 shift schedule.

Other police agencies with 4/10 schedules were studied directly or by the reports of other researchers. Their experience answered most of the concerns: generally speaking call response improved, on-sight activity increased, cost changed little, sick leave decreased or remained unchanged, and fatigue factors such as police vehicle accidents and industrial injuries decreased or did not change (California POST, 22).

Other agencies that were reported to have tried and abandoned a 4/10 schedule were contacted to determine their reasons for discontinuing the plan. Generally, the agencies that were unsuccessful were small, and found they had insufficient staff to properly deploy field units. Several of the agencies attributed the failure of the 4/10 to poor planning, scheduling, and management resistance (California POST, 27).

John Lawrence conducted a survey of Texas police agencies in 1995 and learned that seventeen percent of the responding agencies used the 4/10 plan. Sixty-three percent of the agencies reportedly used the 8/5 plan. The remaining agencies used a combination of the plans. Lawrence also discovered that the larger agencies usually used the 8/5 or a combination and that medium size agencies used the 10/4 plan (2).

Discussion of Relevant Issues

While several factors have affected the operations of police departments and other government agencies in the past few years, fiscal constraints have had the greatest impact on police services. As a result of these financial problems, police departments have faced layoffs and hiring freezes at the same time as they have had to deal with attrition, increasing numbers of calls for service, and increasing accountability requirements. To effectively cope under these circumstances, which Charles Levine has called “cutback Management”, police administrators need to reevaluate traditional methods of service delivery. (83)

Studies and the experience of police departments have shown that traditional responses to service calls are both wasteful and ineffective. Procedures whereby a patrol car is dispatched immediately upon receiving a call, whereby officers are equally distributed among shifts and districts, and whereby random patrolling is the rule are characteristic of reactive policing under passive management. They do not take into account the varying priorities of incoming calls, the monotony and futility of patrol time spent awaiting calls, nor the intensified needs for a police presence at different times of the day and in different parts of the city. To overcome these shortcomings, a patrol allocation model needs to examine staffing levels, calls for service trends, patrol initiated activity, and other management patrol objectives. (Davis, 202) Studies have shown improvements both in productivity and officer morale when inequities in workload are minimized and when fluctuations are evened out. (McEwen, 28)

For the Frisco Police Department, Chief Todd Renshaw developed a patrol allocation model using existing records for calls for service (Renshaw, 1994). Time and

motion studies were used to determine the average time associated with issuing documents such as traffic citations, offense reports, accident reports, arrests, and other similar documents. The time required for support duties such as maintenance, meetings, meals, and other miscellaneous paperwork was also determined. With the addition of a computerized dispatch, an examination of trends for calls for service was completed. The calls for service for several months were organized in a computer report showing actual times of calls. This would give an approximate idea of when more officers are needed by calls. This system has enabled the agency to place additional patrol officers where they are most needed and to supply documentation to substantiate requests for additional officers. A model of a 4-10 plan was devised based upon workload distribution and has been included in Appendix 2.

J. L. O'Neill stated that the impact of shift work on individual health could be seen in circadian factors, disturbed sleep patterns, and cardiovascular disease (82). He recommended that improvements for agency shift schedules and police management could also improve officers overall health. Constantly changing supervisors and rotating shifts on a short-term basis leads to officer stress. Training supervisors about stress and reducing the turnover of shifts will greatly reduce stress among officers. Other factors that need to be examined for potential impact on the police department prior to changing shift schedules include court overtime, availability of patrol vehicles, administrative time, leave accounting, training, and support units.

While field testing the 4/10 plan, supervisors with the Tucson Police Department felt that court overtime would increase because the officers would be off an extra day per week. An examination of time spent in court and officer's on-duty time showed that the

4/10 plan provided greater on-duty coverage of court time. This would lead to a decrease in departmental overtime paid for court appearances (30).

Patrol vehicle requirements are identified by almost all agencies as a factor which must be analyzed when considering the implementation of a 4/10 plan. At peak manning, more vehicles are normally required for a 4/10 than a 5/8 plan. The Frisco Police Department would have to purchase at least one additional patrol vehicle prior to the implementation of the 4/10 plan.

One clear benefit of a 4/10 schedule is a decreased percentage of duty time spent in administrative activities such as briefing, vehicle preparation, breaks, meals, and debriefing periods. On a 5/8 schedule, 600 minutes per week is obligated for these activities. On a 4/10, 480 hours is obligated. This is a savings of two hours per week, per officer that becomes available for patrol activity. This additional efficiency is real and useable. It is a measurable benefit of the 4/10 plan.

Vacation and sick leave accounting would not change under a 4/10 plan. Each leave is accrued and used an hour at a time. Holidays are a different matter. The City of Allen, Texas allows police officers to accrue holidays at the same rate of hours that would have been worked (City of Allen Policy and Procedure Manual, 16.21). Since the officers work a 4/10, they would accrue 10 hours for each holiday accrued.

Through this investigative process, the Records Division seems to be the only area of the police department that would incur a negative benefit of a 4/10 plan. Without the addition of Records Personnel, a full scale implementation of a 4/10 schedule in the patrol division should result in an increased Records Division backlog due to an expected increase in patrol activity.

Conclusion/Recommendations

Maintaining quality services with the resources available requires innovation and experimentation and changes in the traditional method of service delivery. The challenge for law enforcement in the 1990's is to continue finding ways to enhance efficiency and effectiveness in the delivery of police services to the community. When increased calls for service and expanded public definitions of the problems that are appropriate for police attention are combined with static or declining local budgets, this challenge becomes even more urgent.

The findings of this research show that the patrol division currently has sufficient personnel and equipment to operate as well, possibly better, with a 4/10 schedule. There is no question, however, that some modifications in the current squad system would be desirable from an efficiency point of view. While this raises some supervision issues, the experience of other departments shows them to be surmountable, and the improved overall morale may contribute to that effort.

As the City grows and the financial climate improves, the department will add personnel. The research and deployment analysis clearly indicate these personnel can be more effectively of deployed using a 4/10 schedule. It is only under extreme shortage (as now exists in the patrol division) that the additional efficiency must be sacrificed for operation necessity.

Another conclusion of importance when discussing the addition of personnel, is that of recruitment, particularly of certified officers from other agencies, is likely to be easier. The 4/10 schedule would be another potential benefit the prospective employee would consider.

The single-most challenging factor the Frisco Police Department faces when considering the implementation of a 4/10 plan today, is the potential increase in records' workload. With the likelihood of no new positions for at least one year, it is important to recognize that virtually all of the agencies implementing a 4/10 plan experienced this increase.

The way for the department to examine and evaluate the operation of a 4/10 schedule with Friscos actual conditions, and not risk overburdening the Records function, is a test program. It is recommended that the patrol division be used to test a 4/10 schedule for at least six months. Thorough monitoring during the test and complete evaluation should be conducted to determine this agency's actual experience with the factors identified by commanders and research as those warranting comparison between the two types of schedules.

BIBLIOGRAPHY

California POST, "A Survey of California Police Agencies on Work Schedules" (1981) pp. 2-27.

Chaiken, Jan. Patrol Allocation Methodology for Police Departments. U. S. Department of Housing and Urban Development. (Santa Monica, Ca: The Rand Corporation, September 1975) p. 1.

City of Allen, Policy and Procedures Manual, Policy 16.21. "Accrual and Usage of Holidays, Vacation, and Sick Leave"

Davis, Edward M., et. al. Police. National Advisory Commission on Criminal Justice Standards and Goals, Police Task Force. (Washington, D. C.: Government Printing Office, 1973) p. 202.

For further information on work scheduling, see: U. S. Department of Housing and Urban Development, *Work Schedule Design Handbook: Methods for Assigning Employees' Work Shifts and Days Off*. (Washington, D.C.: Government Printing Office, 1978).

Gay, William, Theodore Schell, and Stephen Schack. Improving Patrol Productivity, Volume I: Routine Patrol, U. S. Department of Justice, National Institute of Law Enforcement and Criminal Justice, (Washington, D. C., Government Printing Office, July 1977) pp. 23-24.

Gill, Allen D., et.al. How to Set Up Shop for the Use of the Hypercube System. (St. Louis, Mo: The Institute for Public Program Analysis, October 1977) p. 8

Heller, Nelson B. What Law Enforcement can Gain from Computer Designed Work Schedules. (Washington, D. C.: U. S. National Institute of Law Enforcement and Criminal Justice, 1974) p. 42.

Lawrence, John. "Patrol Scheduling Methods in Texas Police Agencies", *Telemasp Bulletin*. (Sam Houston State University, July 1995) pp. 1-2.

Levi, Margaret Anne. And the beat goes on: Patrolmen's Unionism in New York City. (Cambridge, Ma.: Massachusetts Institute of Technology, 1974) p. 18.

Levine, Charles H. Cutback Management in the Criminal Justice System: A Manual of Readings. (Washington, D. C.: University Research Corporation, 1982) p. 83.

McEwen, J. Thomas. An Evaluation Report on the Managing Patrol Operations Field Test. (Alexandria, Va.: Research Management Associates, Inc., 1982) p. 28.

National Institute of Law Enforcement and Criminal Justice. "Computerized Scheduling of Police Manpower" Board of Police Commissioners St. Louis, Missouri. (1973) p. 5.

O'Neill, J. L., and M. A. Cushing. The Impact of Shift Work on Police Officers: A Report to the Chicago Police Lieutenants Association. (1990) p. 7.

Phoenix, Arizona Police Department Planning and Research, Phoenix Annual Report. (Phoenix, Az., 1989) pp. 1-28.

Raub, Richard A. "Evaluation of the Four/Ten Schedule in three Illinois State Police Districts" Journal of Police Science and Administration. (Gaithersburg, Md., 1987) pp.105-109.

Renshaw, Todd, Chief of Police, Frisco Police Department. Unpublished model for patrol allocation of resources. 1997.

Stenzel, William and R. Michael Buren. Issues and Practices in Police Work Scheduling. U. S. Department of Justice, National Institute of Justice. (Washington, D. C., Government Printing Office, June 1977) pp. 13-14.

Tucson, Arizona Police Department Planning and Research Section, 4-10 Work Schedules: Final Report. (Phoenix, Arizona, 1991) pp. 1-48.

Appendix A

TRENDS IN PATROL PLANNING

TRADITIONAL

- Equal staffing on three shifts.
- Little emphasis on scheduling.
- Enough patrol units available to provide an immediate mobile response to all calls for service.
- Time not spent on calls for service largely devoted to unstructured, random patrol (preventive patrol).
- Minimal analysis of patrol operations.

RECENT

- Staffing proportional to workload.
- Overlapping shifts for extra coverage during peak demand periods.
- Development of model to guide scheduling decisions.
- Enough patrol units available to provide an immediate mobile response to emergency calls for service.
- Diverting calls for service to telephone reporting units, queuing calls for delayed response, setting appointments for taking reports, referring calls to other agencies.
- Non-call for service time spent on both routine and directed patrol.
- Directed Patrol assignments planned in response to problems identified through crime analysis.
- Increased use of data processing for analysis.

Appendix B

A Model 4-10 Work Schedule

For the Frisco Police Department

**Frisco Police Department
4 – TEN HOUR SHIFTS**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
6:45 am – 5:00 pm S1 _____ 15 _____ 18 _____ 19 _____ 20 _____	6:45 am – 5:00 pm S1 _____ 14 _____ 15 _____ 19 _____ 20 _____	6:45 am – 5:00 pm S1 _____ 14 _____ 16 _____ 19 _____ 20 _____	6:45 am – 5:00 pm S1 _____ S2 _____ 14 _____ 16 _____ 17 _____ 19 _____	6:45 am – 5:00 pm S2 _____ 14 _____ 16 _____ 17 _____ 18 _____	6:45 am – 5:00 pm S2 _____ 15 _____ 16 _____ 17 _____ 18 _____	6:45 am – 5:00 pm S2 _____ 15 _____ 17 _____ 18 _____ 20 _____
4:45 pm – 3:00 am S3 _____ 8 _____ 9 _____ 10 _____ 13 _____	4:45 pm – 3:00 am S3 _____ 7 _____ 9 _____ 10 _____ 11 _____ 13 _____	4:45 pm – 3:00 am S3 _____ 7 _____ 10 _____ 11 _____ 12 _____	4:45 pm – 3:00 am S3 _____ S4 _____ 7 _____ 11 _____ 12 _____	4:45 pm – 3:00 am S4 _____ 7 _____ 8 _____ 11 _____ 12 _____	4:45 pm – 3:00 am S4 _____ 8 _____ 9 _____ 12 _____ 13 _____	4:45 pm – 3:00 am S4 _____ 8 _____ 9 _____ 10 _____ 13 _____
8:45 pm – 7:00 am 1 _____ 2 _____ 5 _____ 6 _____	8:45 pm – 7:00 am 1 _____ 2 _____ 5 _____	8:45 pm – 7:00 am 1 _____ 2 _____ 3 _____	8:45 pm – 7:00 am 1 _____ 3 _____ 4 _____	8:45 pm – 7:00 am 3 _____ 4 _____ 6 _____	8:45 pm – 7:00 am 3 _____ 4 _____ 5 _____ 6 _____	8:45 pm – 7:00 am 2 _____ 4 _____ 5 _____ 6 _____