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Saturation patrol as a deterrent to crime

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SATURATION PATROL AS A
DETERRENT TO CRIME

A Thesis

Presented to

the Faculty of the Department of Political Science
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Public Administration

By

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May 1978

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TABLE OF CONTENTS

	Page
LIST OF TABLES	v
LIST OF FIGURES	vi
 Chapter	
1. INTRODUCTION	1
Problem	3
Importance of the Problem to Public Administration	7
Review of Literature	7
Research Hypothesis	12
2. RESEARCH METHODOLOGY	13
Research Design	13
Description of Study Samples	14
Description of Statistical Tests	16
Definition of Terms	17
3. DATA ANALYSIS	19
Data Collection	19
Data Presentation	20
Data Analysis	22
4. CONCLUSION	25
BIBLIOGRAPHY	28
APPENDIXES	32

LIST OF TABLES

Table		Page
1.	Method by Which Burglaries were Detected (Percent)	6
2.	Total Criminal Justice Direct Expenditure and Percent Change by Level of Government, Fiscal Years 1971- 1976	10
3.	Summary of Weekly Residential and Select Part I Crimes Best 26 (experimental) and Beat 11 (control), 29 May 1972 - 3 June 1975	21

LIST OF FIGURES

Figures	Page
1. Crime and Population 1970-1975	9
2. Design Paradigm	13
3. Graph of Residential Burglaries, Beat 26 and Beat 11, 29 May 1972 - 3 June 1973	23
4. Graph of Total Select Part I Crimes, Beat 26 and Beat 11, 29 May 1972 - 3 June 1973	24

Chapter 1

INTRODUCTION

In the United States, the rendering of police service is carried out by some of the world's finest forces which operate immediately adjacent to other agencies which have made no earnest move toward improving their methods in field operations since World War II. These deficient agencies seem to cling to tradition and oppose change even when innovations exist which have been shown to be more effective than present methods or when present methods are shown to be ineffective.

It is not surprising, therefore, that only in the last few years has the academician been considered of importance to law enforcement. The modern police administrator must be sensitive to and receptive of current research and analysis in order to recognize problems that may exist within his agency and to know where he may turn for solutions to those problems that do exist. The President's Commission on Law Enforcement and Administration of Justice noted that many departments fail to deploy and utilize personnel efficiently, especially in the patrol division.¹ Manpower deployment in the patrol division is the focus of this thesis.

¹President's Commission on Law Enforcement and the Administration of Justice, Task Force Report: The Police (Washington: Government Printing Office, 1967), p. 44.

The police mission in part is repression of crime; "reducing or eliminating hazards as the principal means of reducing the opportunities for criminal actions."² While this responsibility may be accepted by the police and public as the police mission, there is often sharp disagreement, even within the ranks of line enforcement officers, on the appropriate methods and operations used to fulfill it. It has long been thought that the patrol force is the single most important element of a municipal police agency in fulfilling this mission, all other functional units of a police department having been created because of the inability of the patrol force to deal effectively with crime. Figures produced by the U.S. Government demonstrate that there is a need for imaginative thinking and implementation of new programs "to improve police management and to seek further means of achieving the police mission."³ The complexities of administering a law enforcement agency call for the development of innovative, effective methods of operation, especially in the patrol division, where the battle against crime is won or lost.

To a large degree, police science textbooks still rely heavily on professional opinions, past experience and ad hoc rules-of-thumb to guide today's administrator. For example, the "golden rule" is that 10 percent of the force should be detectives and 2 percent should be assigned to the vice squad--but no

²George D. Eastman, ed., Municipal Police Administration (Washington: International City Management Association, 1969), p. 3.

³Eastman, p. 7.

one really knows why. The textbooks also give little mention to methods for measuring, let alone improving productivity. Today, more police research is being undertaken and harder data are increasingly becoming available. While the police continue to invest less in research than do most profit-making corporations, old traditions are being attacked and the need to increase the present state of knowledge is now seriously felt in management circles. Because police administrators rely on traditional practices rather than well thought-out and researched assessments of alternative solutions, current projects are attempting to expand knowledge about specific methods and tactics.

A Police Foundation study in Kansas City, Missouri, for example, reportedly found that the level of police control had no impact on the crime rate in the experimental areas! Reiss, in a four-city survey, came to similar conclusions about the ineffectiveness of police patrol in preventing crime or apprehending offenders. . . . The aforementioned studies seem to suggest that . . . police ineffectiveness against crime is a fact of life regardless of the style of police service found in a particular community.⁴

Taken together, modern research, along with this thesis, are attempting to build on existing knowledge to assist in modernizing police management practices.

Problem

The prime focus of this study is to determine if large numbers of highly

⁴Thomas A. Reppetto, "The Influence of Police Organizational Style on Crime Control Effectiveness," Journal of Police Science and Administration, 3 (1975), (Northwestern University School of Law), p. 274.

visible patrol cars have any effect on crime rates. A principal objective of the police is to deter crime by impressing would-be criminals with its ability to detect, to respond, to apprehend and to marshal the support of the community against the criminal. The responsibility for the accomplishment of this objective falls mainly on the patrol division. Theorists of a generation ago have postulated that the elimination of the opportunity to commit crime, through police presence, is the principal task of the patrol officer. The police, however, will not likely develop sufficient strength or efficiency to eliminate all opportunity for misconduct. Therefore, the police can only attempt to eliminate the potential offender's belief that the opportunity for successful misconduct exists through adequate patrol activities.

Police departments employ numerous tactics and make manpower allocations in the patrol division to achieve this crime prevention objective. Behind these decisions to attempt certain methods is usually tradition rather than the respective histories of the proven effectiveness of these various methods to reduce crime. Because the job of policing is too important a function of city government to tamper with by constant experimentation, patrol staffing plans have not, until recently, been subjected to the researcher's scrutiny in order to determine their individual and overall levels of effectiveness in preventing crime. Rather, methods and plans are used and re-used because "that's what we've always done." Because research has not been conducted on a large scale, positive results are lacking and no proven system of patrolling to prevent crime can be offered which will operate in every city in

the nation. Because studies test many different variables and methods of patrolling on many different populations, these studies usually lose relevance when duplication is considered in other jurisdictions.

Although there is some current evidence to suggest that traditional police patrolling techniques may not be the most effective method of preventing crime, eight of twenty-four major city police officials polled in 1973 cited "increased police patrols" as the most effective method for combatting crime in their cities.⁵ More and more, however, police administrators are becoming dissatisfied with traditional preventive patrol methods because some very basic assumptions put forth by earlier academicians, about the ability of the police to detect and prevent crime, have been challenged both on the computer and on the streets.

The same uncertainty is felt about the chance of interception during patrol. Interceptions sometimes do occur, but in reality, the randomly patrolling officer has little chance of intercepting a crime in progress.⁶ According to a study in six California cities, less than three percent of the time in the case of burglaries⁷ (see Table 1) and only once in fourteen years

⁵ John Tepper Marlin, "City Crime: Report of the Council on Municipal Performance," Criminal Law Bulletin (September, 1973), p. 603.

⁶ Richard C. Larson, Urban Police Patrol Analysis (Cambridge: M.I.T. Press, 1972), p. 27.

⁷ U.S. Law Enforcement Assistance Administration, Crime Specific Analysis: The Characteristics of Burglary Incidents (Washington: Government Printing Office, 1977), p. 26.

Table 1
Method by Which Burglaries were Detected
(Percent)

Method of detection	Percent	Number
Unknown	0.1	10
Return of victim	57.2	4,656
Other than victim	6.1	498
Next working day	17.5	1,420
Citizen complaint (passing citizen)	4.7	384
Victim returns (burglary in progress)	1.5	119
Victim present during burglary	7.4	600
Passing patrolman	2.1	168
Burglary alarm	3.3	266
All other	0.2	16
Total ^a	100.1	8,137

Source: U.S. Law Enforcement Assistance Administration, p. 26.

^aTotal does not add to 100.0 percent because of rounding.

in the case of robberies.⁸

Modern administrators are concerned about the cost-effectiveness of the traditional concepts and with the desirability of developing more effective strategies. Because government expenditures have reached the point of diminishing returns, both in terms of goal accomplishment and citizen satisfaction, more research is needed into the causes of crime and the role of the

⁸Repetto, p. 274.

police in preventing crime.

Importance of the Problem to Public Administration

The directions police work takes in individual communities, both in defining and carrying out the police mission, will be influenced greatly by the administrative heads of law enforcement agencies who must consider soberly and evaluate fully all appropriate recommendations⁹

in combatting crime. Elected officials and administrative heads must also be interested in assisting the police agency to achieve this mission. It seems that the importance of the police mission is only of import in terms of budget impact but it must also have the active participation of elected and appointed officials to insure the proper and effective use of men and material and also to provide for the satisfaction of the city's taxpayers.

Review of Literature

Common sense has dictated that conspicuously marked autos are well suited for patrol simply because they are very visible to citizens and would-be criminals. It is a common conclusion of most contemporary literature that this type of police patrol should act as a deterrent to crime. Furthermore, citizens should be impressed with the extent and frequency of patrolling which they observe and feel that the police are readily available. As far as point one, this method of patrol has not stemmed the 33 percent increase in crime,

⁹ Eastman, p. 4.

nationwide, from 1970 to 1975¹⁰ (see Figure 1). As for point two, the feeling of security felt by citizens, this patrolling has resulted in decreased ratings of police service to the point that only about one-half of the public felt the police did a good to excellent job in a 1973 survey.¹¹ In terms of cost-effectiveness, these figures are somewhat surprising in light of the fact that nationwide expenditures for local police have risen 87 percent since 1971¹² (see Table 2).

The traditional view is well put by O. W. Wilson in his book, Police Administration. Wilson has suggested that "Patrol officers should emphasize the cultivation of the feeling that the police are everywhere . . ."¹³ in order to boost citizen belief that the police are a capable government agency.

In August of 1972, Carlin and Moodie reported results of computer simulations of several types of patrol tactics.¹⁴ They found that large numbers

¹⁰U.S. Federal Bureau of Investigation, Crime in the United States 1975 (Washington: Government Printing Office, 1976), p. 12.

¹¹Mariam Saxon, "Public Perception of Crime: An Analysis of Public Opinion Polls 1967-1976," Congressional Research Service, Library of Congress (Washington: Government Printing Office, 1976), p. 19.

¹²U.S. Department of Commerce, Bureau of the Census, U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Expenditure and Employment Data for the Criminal Justice System, 1976 (Washington: Government Printing Office, 1978), p. 2.

¹³O. W. Wilson and Roy C. McLaren, Police Administration (New York: McGraw-Hill, 1972), 3rd ed., p. 344.

¹⁴Jerry L. Carlin, and Colin L. Moodie, 'A Comparison of Some Patrol Methods,' Police (August, 1972), p. 31.

Figure 1

Crime and Population 1970-1975

Source: U.S. Federal Bureau of Investigation, p. 12.

Table 2

Total Criminal Justice Direct Expenditure and Percent Change
by Level of Government, Fiscal Years 1971-1976

Level of Govern- ment	Amount (Millions of Dollars)						Percent Increase or Decrease (-)					
	1971	1972	1973	1974	1975	1976	1971	1972	1973	1974	1975	1971
							to	to	to	to	to	to
							1972	1973	1974	1975	1976	1976
Total	10,517	11,732	13,007	14,851	17,249	19,681	11.6	10.9	14.2	16.1	14.1	87.1
Federal	1,215 ¹	1,502	1,651	1,859	2,188	2,450	23.6 ¹	9.9	12.6	17.7	12.0	101.6
State	2,681	2,948	3,304	3,900	4,612	5,204	10.0	12.0	18.0	18.3	12.8	94.1
Local	6,621	7,281	8,052	9,092	10,449	12,027	10.0	10.6	12.9	14.9	15.1	81.6

Note: Detail may not add to total due to rounding.

¹The Federal expenditure amount shown for 1971 does not include data for the Office of Building Security Services of the Federal Reserve System; the Judicial, Prevention and Enforcement Services Division of the Bureau of Indian Affairs; or the Center for Studies of Crime and Delinquency at the National Institute of Mental Health, as these agencies were not included in the 1971 survey.

Source: U.S. Department of Commerce, et al., p. 2.

of highly visible patrol cars did not tend to reduce the crime rate and tended to increase the overall response time to non-priority calls. Another attempt was made to determine just how effective police presence was in the Kansas City, Missouri experiment mentioned in the Reppetto article above. The study itself reported that police presence, or the lack of it, has little effect on the crime rate.¹⁵

Federal funds were available to cover expenses for an anti-burglary project in Oakland, California during 1972 and 1973, which employed large numbers of highly visible patrol cars in a specified area. The data of that project are the subject of this report. A patrol beat in East Oakland was targeted for sole attention by this "saturation patrol" method during November and December of 1972 and January of 1973. Basically, this project can be described as using additional officers in the area of greatest need during the times of greatest occurrence of burglary offenses. The only variable at the control of the Oakland Police was the number of officers on patrol in a specific area; the study did not pretend to increase citizen involvement, the level of street lighting nor any other crime causing variables. In this research, the number of patrol officers assigned to the specific area will be the independent variable, while the resultant crime rate during the project will be the dependent variable.

¹⁵George L. Kelling, et al., The Kansas City Preventive Patrol Experiment and Summary Report (Kansas City: Police Foundation, 1974), p. 19-20.

Research Hypothesis

This thesis will demonstrate that conspicuously marked and patrolling police cars do not act as a deterrent to the potential burglar. Furthermore, other crimes besides burglary will be evaluated in this study to determine if the method of patrolling had any effect on crime generally.

Chapter 2

RESEARCH METHODOLOGY

Research Design

The design paradigm (Figure 2) of this study is longitudinal, using an experimental beat which received a "treatment" (saturation patrol), and a control beat which received no unusual treatment. Crime rates in both areas are studied to determine if the treatment had any effect.

	Experimental With Treatment x	Control No Treatment y
Burglary		
Part I Crimes		

Figure 2

Design Paradigm

This research design is an extremely powerful and practical model.

It assesses the effectiveness of a program by systematically comparing specific changes in two or more carefully separated groups: ¹ ones in which the program is operating and others in which it is not.

¹Harry P. Hatry, Richard E. Winnie and Donald M. Fisk, Practical Program Evaluation for State and Local Government Officials (Washington: The Urban Institute, 1973), p. 56.

The null hypothesis, which is subjected to statistical testing, is that the treatment had no effect on burglary or crime rates in general.

Description of Study Samples

Experimental Beat

Patrol beat 26 was the area selected by the Oakland Police Department to receive the saturation patrol treatment. This beat lies in East Oakland and is bounded by MacArthur Blvd. on the North, San Leandro City limits on the East, San Leandro St. on the South and 90th Ave. on the West.

Control Beat

Patrol beat 11 is the area selected to compare against the experimental beat. This beat lies in North Oakland and is bounded by Alcatraz Blvd. on the North, College Ave. on the East, 42nd St. on the South and Adeline St. on the West.

Selection of the control beat could have been accomplished by randomly selecting one of the twenty-nine patrol beats in existence at the time of the project. It was felt, however, that this might lead to the selection of a dissimilar group which would not have been comparable to the study group.

When comparing sample populations, many variables which should be compared come to mind. When socio-economic variables are considered, perhaps the best available source is the U.S. Census Report. Information on such factors as education level, type of housing, income level and other variables

which are seen by many as relating to the crime rate are recorded in the Census Report in units of city blocks.

Three problems relating to these data and their use were incurred. First, the patrol beats used in this study are composed of census tracts and sub-census tracts. No method exists to easily extract Census Report Information concerning a sole patrol beat. To compare each of those variables considered important in matching the study samples, a manual process of extracting information by city blocks would have to be employed. This was seen as extremely time-consuming and exhaustive work of unknown value because of this second reason.

The Bureau of the Census recently completed an April, 1977 census of the city of Oakland. This off-year census report was conducted because the Bureau of the Census felt that during the 1970 report, it over-looked a large portion of the minority population in Oakland, making the 1970 census data nearly useless for the purposes of the federal government.

Finally, the data which do exist are from the 1970 Census of the city of Oakland. Short of computer manipulation, no formula exists by which to project what any of the 1970 figures would have been during the project period, November 1972 to January 1973. Therefore, this two-year old data might prove worthless in this study.

These three factors make the use of any of the 1970 Census data overwhelmingly difficult to obtain and, if obtained, at best unreliable. Although these short-comings do exist, they have been recognized. Perhaps future

research with all necessary data will someday be conducted. For the present, however, this thesis will answer the important question of whether saturation patrol did decrease the rate of burglary and crime rates generally during the Oakland project.

Description of Statistical Tests

By use of Difference of Means Tests, the experimental beat is compared to itself and to the control beat using residential burglaries and Total Select Part I Crimes as measures of performance.

Data from both beats are tested in Appendix C and D to demonstrate the comparability of the beats over a one-year period.

Data from both beats are tested in Appendix E and F to demonstrate the comparability of the beats over the sixteen weeks which immediately preceded the project period.

In Appendixes G and H, data from both beats are tested to determine if crimes on the experimental beat differed significantly from those on the control beat during the project period.

Finally, in Appendixes I and J, data from the experimental beat during the project are compared to data from that same beat for a one-year period to determine if crime differed significantly from what could normally be expected to occur.

All statistical tests are conducted at the .05 level of significance using small, related sample testing methods. Statistical testing theory says that if

results of the project period on the experimental beat vary significantly from those which we can attribute to chance fluctuations, that the difference can be attributed to the variable being tested, saturation patrol. Conversely, a finding of no significant difference would indicate that the variable tested had no noticeable effect on the experimental group.

Definition of Terms

Saturation Patrol: The addition of extra officers to an assigned area for the purpose of deterring crime.

For purposes of this study, a total of sixteen additional officers were assigned to preventive patrol activities on beat 26, wearing uniforms and driving in two-man, marked patrol cars. Four two-man teams were assigned to the hours of 10 a.m. to 4 p.m. and the remaining four two-man teams were assigned to the hours of 4 p.m. to 10 p.m. These hours of assignment were determined by analysis of the prime hours of burglary occurrence during the three-month period proceeding the project. These officers were in addition to the one patrol officer normally assigned to this beat during each of three eight hour shifts.

Residential Burglary: The unlawful entry into a habitable living quarter, for the purpose of committing a theft.

This is not the description of burglary as used in the California Penal Code, but rather the definition of the offense which the Oakland Police Department reports to the Federal Bureau of Investigation as a residential burglary.

Total Select Part I Crimes: The following crimes only: robbery,

purse-smatch, auto theft, residential and commercial burglaries, theft of auto parts, thefts from unlocked cars, thefts from locked cars.

As reported to and by the Federal Bureau of Investigation, Part I Crimes also include: homicide, assault, (both aggravated and simple), and rape. The Oakland Police Department maintains no record of these crimes by beat as they do for their own version, "Total Select Part I Crimes." The Select Part I Crimes are felt to be amenable to deterrence by police patrolling and are therefore recorded by beats to aid in the re-alignment of patrol beat boundaries and as an aid in the supervision of patrol personnel.

Chapter 3

DATA ANALYSIS

Data Collection

The data to be analyzed are "Weekly Crime Summaries" reported and maintained by the Oakland Police Department. These summaries (see Appendix B) were compiled by and obtained in cooperation with the Research and Development Unit and the Crime Analysis Unit of the Oakland Police Department.

Some police officials believe that the number of crimes committed (reported crime) is the true measure of their department's effectiveness, although sociologists agree that crime is a function of many more variables other than the police attempt to deal with it. Furthermore, crime which citizens bring to the attention of the police is a gross underestimate of the actual volume of crime, a fact long known to scholars and the police. For instance, purse-snatching is reported to the police only 15 percent of the time and residential burglary is reported only 60 percent of the time.¹

There are no altogether satisfactory measures of the success or failure of a patrol force's efforts to deter crime. Whereas apprehensions can be measured directly from the number of arrests made, the number of crimes not committed . . . is impossible to measure directly and can only be

¹U.S. Department of Justice, Law Enforcement Assistance Administration, Criminal Victimization Surveys in the Nation's Five Largest Cities (Washington: Government Printing Office, 1975), p. 48 and 64.

inferred. In fact, no persuasive relationship between overall patrol activities and crime deterrence has been established, as yet.²

Even with all of their problems, existing reported crime rates are still one of the easily quantifiable measures which the police have to measure their activities.

This Commission report goes on to state that "used judiciously . . . reported crime can be a useful tool in evaluating the effects of patrol activities . . ."³ especially when used along with victimization surveys to develop a relationship between actual and reported crime. A study of any such relationship has yet to be published. Until that time, reported crime figures will remain the "best" available indicator of patrol effectiveness.

Data Presentation

Table 3 represents reported weekly residential burglaries and total select Part I crimes for the one-year period of 29 May 1972 to 3 June 1973 for both the experimental and control beats.

The means and standard deviations are calculated for each distribution.

Lastly, the data between weeks 24 and 35, inclusive, represent the anti-burglary project period.

² National Commission on Productivity, "Opportunities for Improving Productivity in Police Services" (Washington: Government Printing Office, 1973), in Effective Police Administration, A Behavioral Approach, Harry W. More, Jr., ed. (San Jose, Calif.: Justice Systems Development, Inc., 1975), p. 413.

³ Ibid., p. 413.

Table 3

Summary of Weekly Residential and Select Part I Crimes
 Beat 26 (experimental) and Beat 11 (control)
 29 May 1972 - 3 June 1973

Week	Beat 26		Beat 11	
	Residential Burglary	Total	Residential Burglary	Total
1	5	11	3	24
2	11	17	5	18
3	7	21	6	23
4	8	18	6	20
5	6	14	7	27
6	3	8	4	25
7	6	13	8	24
8	8	13	9	24
9	6	14	8	28
10	9	21	8	25
11	10	18	8	23
12	19	30	6	18
13	13	27	8	15
14	11	25	5	19
15	16	24	11	23
16	7	19	12	29
17	5	14	10	30
18	12	24	4	26
19	6	19	8	24
20	4	16	8	32
21	7	15	4	23
22	9	19	7	22
23	10	17	7	28
<hr/>				
24	7	18	10	31
25	3	15	7	19
26	5	13	12	28
27	12	16	16	31
28	12	23	14	39
29	16	27	5	19
30	8	11	7	26
31	6	22	15	30
32	6	13	10	19
33	13	18	5	15
34	11	27	10	24
35	18	23	5	15
<hr/>				
36	13	30	9	35
37	13	32	6	27
38	17	32	7	20
39	15	29	12	27
40	11	32	13	26
41	9	27	11	26
42	8	15	19	36
43	8	13	15	32
44	12	17	9	26
45	6	10	18	21
46	7	12	7	23
47	8	23	18	41
48	3	14	6	16
49	10	17	12	23
50	6	14	5	19
51	4	16	5	24
52	9	17	4	24
<hr/>				
Mean	9.12	19.1	8.73	24.85
S. D.	3.93	2.29	2.05	5.64

Figure 3 graphically represents the numbers of residential burglaries for both beats which are reported in Table 3. Similarly, Figure 4 represents total select part I crimes as reported in Table 3.

Data Analysis

Appendix C demonstrates that, although the number of residential burglaries varies between the experimental and control beats over a one-year period, the difference was not statistically significant and the two beats were similar enough on this measure to render the comparison valid.

There was a significant difference between the two beats on measures of Total Select Part I Crimes during the one-year period as demonstrated by appendix D; however, this difference continues through the project period.

Appendixes E and F demonstrate that in the four months immediately preceeding the project period, this relationship was still in tact.

Appendix G points out that the beats did not differ significantly when the number of residential burglaries were tested for the project period.

In Appendix H, the beats were compared on measures of Total Select Part I Crimes during the project period. Testing disclosed that the mean of the experimental beat (18.83) was significantly lower than the mean of the control beat (24.67), where $t = -2.1861$.

Finally, Appendixes I and J demonstrate that the experimental beat during the project period did not differ significantly from its year-long means for either residential burglary or Total Select Part I Crimes.

Figure 3

Graph of Residential Burglaries, Beat 26 and Beat 11
29 May 1972 - 3 June 1973

Figure 4
Graph of Total Select Part I Crimes, Beat 26 and Beat 11,
29 May 1972 - 3 June 1973

Chapter 4

CONCLUSION

In only two statistical tests, the tests conducted between the experimental and control beats during the project and during the one-year period on measures of Total Select Part I Crimes, was a significant finding obtained: During the one-year period, $t = -6.7456$ and during the project period, $t = -2.1861$.

The year-long mean number of Total Select Part I Crimes on the experimental beat was 19.1 crimes per week while the weeks of the project showed a mean of 18.83 (.27 crimes less per week during the project). The year-long mean number of Total Select Part I Crimes on the Control beat was 24.85 crimes per week while the weeks of the project period had a mean of 24.67 (.18 crimes less per week during the project). In light of these statistics, it is clear that not much variation occurred within the beats during the project compared with the year-long mean of Total Select Part I Crimes. Although the two beats were statistically different from each other during the one-year and project periods, they were not significantly different from their own year-long or project means on this measure.

Considering the other statistical tests and resultant crime statistics, it is obvious that the treatment, which was designed to reduce residential burglary, had no marked effect. Furthermore, according to the Crime Analysis

Unit of the Oakland Police Department which established the deployment strategy, hours and locations were assigned to the officers with only residential burglaries in mind. No attempt was made to have officers present during peak hours of auto theft, robbery, or any other Select Part I Crimes.

It has been demonstrated by statistical testing that the treatment, saturation patrol, had little or no effect on the rate of residential burglary. Thus, the null hypothesis can be rejected on the basis of these statistical tests. This study is quite in line with other recent studies on the subject of preventive police patrolling.

Modern police administrators must acknowledge that past practices may not be the only answer to curbing the rising crime rate. Most police chiefs are understandably cautious when it comes to doing something out of the ordinary. Innovation is a luxury many police departments feel they cannot afford because of potential failure. They can, however, no longer afford to allow conditions to remain status quo in the face of budget cutbacks and public demands for more effective operations.

Present estimates are that 70 to 80 percent of a department's budget is earmarked for personnel costs. Undoubtedly, an increase in personnel to implement a saturation patrol plan would greatly increase the portion of the budget spent on personnel.

At present, saturation patrol methods are employed extensively around the country in an attempt to reduce crime. It is not the intention of this thesis to suggest that this method of crime repression will never work in any city,

regardless of the situation or circumstances present at the time of the trial.

Conversely, alternative methods have been tried in some cities and met with success, only to be implemented without success in other cities.

Crime prevention is a very situational commodity. Programs should not be attempted until certain similarities can be shown to exist between the agencies which have successfully completed the program and an agency which would like to implement the same program. It is not the intention of this thesis to point out these qualities that cities should have in common before a program can be transplanted. It seems obvious, however, that socio-economic factors must be considered before such a transplant is attempted.

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APPENDIXES

APPENDIX A
MAP OF OAKLAND

APPENDIX B

OAKLAND POLICE DEPARTMENT WEEKLY CRIME SUMMARY
Reported Select Part 1 OffensesBulletin #
75-2

TF-292 (9/72)

Week Of:
6-12 Jan 75

DISTRICT	211	211	487	459	459	459	484	484	10851	
Beat	ARMED	STRONG	PURSE	COMM	RESID	AUTO	CLOUT	ACCESS	V.C.	TOTAL
1				2	4	4		1	2	13
2	1	1	1		3					6
3	1	3	1	2		17	2	1	2	29
4	1			1	4	2		1	3	12
5	3	1		3			1	2	2	12
Subtotal I	6	5	2	8	11	23	3	5	9	72
6	2			3	3	4		2	1	15
7	3	1		1	8	8		3	2	26
8	5			2	4	2	1			14
9	3			5	4	2		1		15
10	4	1	1	2	6	2		3	2	21
11	6		1	3	11	5	1	2	4	33
12	1			1	3	3	1			9
Subtotal II	24	2	2	17	39	26	3	11	9	133
13	2			3	5	3	2	1	1	17
14	3	4	2	1	11	2		3	2	28
15		1		3		2			1	7
16	1			2	4	4			4	15
17	1	2	1	3	14			3	1	25
Subtotal III	7	7	3	12	34	11	2	7	9	92
18	2			3	2			1	1	9
19					7			5	5	17
20	3			4	8	1			4	20
21			1	3	15	2		1	2	24
22	1	5	1	1	8	9		2	2	29
23	2		1	1	12	3	1	1	2	23
Subtotal IV	8	5	3	12	52	15	1	10	16	122
24	1	1		1	5	6		1	4	19
25	3	1		1	9	3	1	1	3	22
26	3	2		2	12	2			3	24
27				1	3					4
28		2		7	5				2	16
29				1	8	2	1			12
Subtotal V	7	6		13	42	13	2	2	12	97
GRAND TOTAL	52	25	10	62	178	88	11	35	55	516

PART I BAROMETER	Last Year	This Year
Reported Offenses	To Date	To Date
Robbery, Armed	57	99
Robbery, Strongarm	35	44
Pursesnatch	22	25
Burglary	508	507
Burglary, Auto	121	180
Auto Clout	22	23
Auto Accessory	61	65
Auto Theft	145	135
Bicycle Theft	29	38
Other Theft	288	327
Aggravated Assault	45	54
TOTAL	1,333	1,497

SUMMARY OF REPORTED SELECT PART I OFFENSES:

COMMERCIAL BURGLARY decreased 15% last week with 62 reported offenses; District II was the high district with 17; Beat 28 the high beat with 7.

RESIDENTIAL BURGLARY decreased 8% this past week with 17 entries reported. District IV was the high district with 52; Beat 21 the high beat with 15.

ROBBERY (in aggregate) increased 7% over the prior week with 87 incidents. District II was the high district with 28; Beat 14 the high beat with 9.

APPENDIX C

DIFFERENCE OF MEANS TEST
RESIDENTIAL BURGLARY / ONE-YEAR PERIOD
29 MAY 1972 - 3 JUNE 1973

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN:	9.12	8.73
S.D. :	3.93	2.05
n :	52	52

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(3.93)^2}{51} + \frac{(2.05)^2}{51}} \\
 &= \sqrt{.3028 + .0824} \\
 &= \sqrt{.3852} \\
 &= +.6206
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE α : .05 df : 51 t_{CRIT} : -1.675

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{9.12 - 8.73 - 0}{.6206} \\
 &= +.6281
 \end{aligned}$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS

DIFFERENCE OF MEANS TEST
TOTAL SELECT PART I CRIMES / ONE-YEAR PERIOD
29 MAY 1972 - 3 JUNE 1973

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN:	19.1	24.85
S.D. :	2.29	5.64
n :	52	52

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(2.29)^2}{51} + \frac{(5.64)^2}{51}} \\
 &= \sqrt{.1028 + .6237} \\
 &= \sqrt{.7265} \\
 &= .8524
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE

α : .05

d/f : 51

t_{crit} : -1.675

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{19.1 - 24.85 - 0}{.8524} \\
 &= -6.7456
 \end{aligned}$$

CONCLUSION: A SIGNIFICANT DIFFERENCE BETWEEN MEANS.

APPENDIX E

DIFFERENCE OF MEANS TEST RESIDENTIAL BURGLARY / 16 WEEKS PRECEEDING PROJECT

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN:	9.5	7.7
S.D. :	3.91	2.17
n :	16	16

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(3.91)^2}{15} + \frac{(2.17)^2}{15}} \\
 &= \sqrt{1.0192 + .3139} \\
 &= \sqrt{1.3331} \\
 &= +1.1546
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE $\alpha : .05$ $df : 15$ $t_{crit} : -1.753$

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{9.5 - 7.7 - 0}{1.1546} \\
 &= \frac{1.8}{1.1546} \\
 &= 1.5589
 \end{aligned}$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS

APPENDIX F

DIFFERENCE OF MEANS TEST

TOTAL SELECT PART I CRIMES / 16 WEEKS PRECEEDING PROJECT

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN:	19.7	24.3
S.D. :	4.9	4.4
n :	16	16

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(4.9)^2}{15} + \frac{(4.4)^2}{15}} \\
 &= \sqrt{1.6006 + 1.2906} \\
 &= \sqrt{2.8912} \\
 &= 1.7003
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE

$$\alpha : .05$$

$$df : 15$$

$$t_{crit} : -1.753$$

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{4.9 - 4.4 - 0}{1.7003} \\
 &= .2941
 \end{aligned}$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS

DIFFERENCE OF MEANS TEST
RESIDENTIAL BURGLARY DURING PROJECT PERIOD

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN :	9.75	9.67
S.D. :	4.44	3.79
n :	12	12

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(4.44)^2}{11} + \frac{(3.79)^2}{11}} \\
 &= \sqrt{1.7921 + 1.3058} \\
 &= \sqrt{3.0979} \\
 &= 1.76
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE
 α : .05

df: 11

t_{crit} : -1.796

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{9.75 - 9.67 - 0}{1.76} \\
 &= \frac{.08}{1.76} \\
 &= .0454
 \end{aligned}$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS

APPENDIX H

DIFFERENCE OF MEANS TEST
TOTAL SELECT PART I CRIMES DURING PROTECT PERIOD

SAMPLE DATA

	EXPERIMENTAL	CONTROL
MEAN:	18.83	24.67
S.D. :	5.26	7.13
n :	12	12

SOLVING FOR $S_{\bar{x}-\bar{y}}$:

$$\begin{aligned}
 S_{\bar{x}-\bar{y}} &= \sqrt{\frac{(S.D.x)^2}{n-1} + \frac{(S.D.y)^2}{n-1}} \\
 &= \sqrt{\frac{(5.26)^2}{11} + \frac{(7.13)^2}{11}} \\
 &= \sqrt{2.5152 + 4.6215} \\
 &= \sqrt{7.1367} \\
 &= +2.67
 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE α : .05

df: 11

 t_{crit} : -1.796

$$\begin{aligned}
 t &= \frac{m_x - m_y - 0}{S_{\bar{x}-\bar{y}}} \\
 &= \frac{18.83 - 24.67 - 0}{2.67} \\
 &= \frac{-5.84}{2.67} \\
 &= -2.187
 \end{aligned}$$

CONCLUSION: A SIGNIFICANT DIFFERENCE BETWEEN MEANS

APPENDIX I

RESIDENTIAL BURGLARY ON EXPERIMENTAL BEAT
PROJECT PERIOD VS. YEAR-LONG MEAN

$$H_0: \mu = 9.12$$

$$H_A: \mu > 9.12$$

$$\alpha: .05$$

SAMPLE DATA

$$\bar{X} = 9.75$$

$$n = 52$$

CALCULATIONS

$$S_x = \sqrt{\frac{\sum x^2}{n}}$$

$$= \sqrt{\frac{478}{52}}$$

$$= \sqrt{9.19}$$

$$= 3.03$$

$$S_{\bar{x}} = \frac{S_x}{\sqrt{n}}$$

$$= \frac{3.03}{\sqrt{52}}$$

$$= \frac{3.03}{7.21}$$

$$= .420$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE

$$t_{\text{CRIT}}: -1.796$$

ONE-TAILED TEST, $df = 11$

$$t = \frac{\bar{X} - \mu}{S_{\bar{x}}}$$

$$= \frac{9.75 - 9.12}{.420}$$

$$= \frac{.63}{.420}$$

$$= +1.5$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS

APPENDIX J

TOTAL SELECT PART I CRIMES ON EXPERIMENTAL BEAT
PROJECT PERIOD VS. YEAR-LONG MEAN

$$H_0: \mu = 19.1$$

$$H_A: \mu > 19.1$$

$$\alpha: .05$$

SAMPLE DATA

$$\bar{X} = 18.83$$

$$n = 52$$

CALCULATIONS

$$\begin{aligned} S_x &= \sqrt{\frac{\sum x^2}{n}} \\ &= \sqrt{\frac{2001}{52}} \\ &= \sqrt{38.48} \\ &= 6.2 \end{aligned}$$

$$\begin{aligned} S_{\bar{x}} &= \frac{S_x}{\sqrt{n}} \\ &= \frac{6.2}{\sqrt{52}} \\ &= \frac{6.2}{7.21} \\ &= .8599 \end{aligned}$$

SOLVING FOR t : DIFFERENCE OF MEANS, SMALL SAMPLE

$$t_{\text{CRIT}}: -1.796$$

ONE-TAILED TEST, $df = 11$

$$\begin{aligned} t &= \frac{\bar{X} - \mu}{S_{\bar{x}}} \\ &= \frac{18.83 - 19.1}{.8599} \\ &= \frac{-.27}{.8599} \\ &= -.3139 \end{aligned}$$

CONCLUSION: NO SIGNIFICANT DIFFERENCE BETWEEN MEANS