PROJECT ACE
(AERIAL CRIME ENFORCEMENT)
RIVERSIDE POLICE DEPARTMENT

FINAL REPORT

SUBMITTED TO THE
RIVERSIDE POLICE DEPARTMENT
RIVERSIDE, CALIFORNIA

PRESENTED BY
MR. PAUL M. WHISENAND, PH.D., PROJECT DIRECTOR
MR. REVIS O. ROBINSON, II, ASSISTANT PROJECT DIRECTOR
MR. ROBERT E. HOFFMAN, CONSULTANT
INSTITUTE FOR POLICE STUDIES
CALIFORNIA STATE UNIVERSITY, LONG BEACH

June, 1972

PREFACE

The Institute for Police Studies extends their appreciation to the following persons who contributed time and energy to the project:

Ms. Judith Chadd, Statistician, Project ACE, Institute for Police Studies

Mr. Bill Crosby, Systems Analyst, Digital Resources Corporation

Captain Gene Fagan, Project Director, Project ACE, Riverside Police Department

Sergeant Mervin Feinstein, former administrative assistant and Project ACE liaison officer, Riverside Police Department.

Mr. R. Frederick Ferguson, Police Chief, Riverside Police Department

Mr. L. T. Kinkead, retired Police Chief, Riverside Police Department

Mr. Matt Lanza, Systems Analyst, Riverside Data Processing Department

Mr. Roy Musser, former Systems Analyst, Riverside Data Processing Department.

A special word of appreciation is extended to: Dr. George T. Felkenes, Institute for Police Studies legal consultant, whose expertise produced two Project ACE legal studies, The Legal Aspects of Police Helicopter Usage and Right of Privacy and Police Surveillance by Aircraft. And, Ms. Olivia McHale for final typing and reproduction of the report.

Paul M. Whisenand
Revis O. Robinson, II
Robert E. Hoffman

Long Beach, California
June, 1972

TABLE OF CONTENTS

Section One

SUMMARY

The Riverside Police Department (RPD) selected the Institute for Police Studies (IPS), California State University, Long Beach, to serve as evaluators, consultants, and trainers to their police helicopter patrol program, Project Aerial Crime Enforcement (ACE). This report contains the the results and recommendations emanating from the twelve month study. While all three phases of the research study are considered important, the crux of the findings are contained in Section Three.

The research data indicates that the ACE helicopters spend the major portion of their airborne time on patrol. Further, of the major crimes, the greatest amount of time was devoted to the handling of burglaries. Also of significance was the finding that the average response time per called for service was under two minutes. The capability for a rapid response caused the helicopter to arrive first at the location of the call in nearly one-half of the incidents. In turn, this capability caused the helicopter to be assessed as improving RPD response in nine out of ten calls.

The analysis of actual and predicted criminal activity showed that crime decreased in the target areas thought to be most vulnerable to helicopter patrol---robbery, burglary, and auto theft. This finding is especially meaningful, in that the three offenses typically account for sixty-five percent of the total Part I Crimes. A cost/benefit analysis of the police helicopter compared to radio car(s) further validated the effectiveness and utility of Project ACE. Finally, a community attitude survey was conducted at the beginning and end of the evaluation period. The results in both instances were overwhelmingly in favor of ACE. And,

those indicating a positive attitude toward ACE increased from eighty to eighty-six percent. In general, Project ACE was evaluated as being cost/effective when compared to the equivalent number of patrol cars which could be fielded with equivalent funds.

As far as could be determined, the observed changes in the crime rates were due to the presence of ACE helicopter patrol. Although it is impossible to completely control all the possible causal variables affecting the outcome of a study of this type, it was felt that the Riverside Police Department made a valiant effort not to initiate any new crime control programs during the ACE test period.

Section Two

INTRODUCTION

The Institute for Police Studies (IPS), California State University, Long Beach, was selected early 1971 by the City of Riverside Police Department (RPD) to participate in the planning, development, implementation, and evaluation of their federally funded police helicopter patrol program, Project Aerial Crime Enforcement (ACE). The primary mission of the operational research program was to asses the impact and use of police helicopters as a technological adjunct for combatting crime in Riverside, California.

TASKS OF STUDY

More specifically, the study involved three tasks which were performed concurrently throughout the duration of the Project. They were:

Task 1: Project Evaluation

Task 2: Monitoring and Consulting

Task 3: Training and Orientation.

It is believed that these tasks are mutually compatible despite the argument that the researcher who "goes beyond his data" in consulting and making recommendations for action loses his scientific objectivity. The IPS staff contends the researcher is probably in the most advantageous position to understand the implications of his findings and, by ascertaining that he is making recommendations and not presenting results, he can separate his role as researcher from that of consultant.

The findings of the study, in order to have any meaning at all, must have been analyzed and translated into judgments concerning the level of Project ACE effectiveness. The more revealing the evaluation is in terms of Project components and activities and the more analytical it is of why these activities succeeded or failed in attaining their objectives, the more unavoidable is a discussion of possible changes to correct deficiencies in the Project. Ongoing evaluation thus provided invaluable insight and opportunity to improve the Project during its test period.

REPORT FORMAT

The three major tasks of the study are presented in three sections: evaluation, consultation, and training and orientation. Each section depicts narratively, and at times graphically, the findings of the research Project. Recommendations for action are included within each appropriate section (Section One contains a condensed version of the findings and recommendations).

Section Three

EVALUATION

Evaluation can be defined as the determination of operational results attained by an activity designed to accomplish a particular objective(s). More specifically, the evaluation portion of Project ACE has at least six separate purposes:

- To discover whether or how well Project objectives have been fulfilled.
- To measure the degree and direction of change which occurs.
- To determine whether the noted changes are due to the implementation of helicopter patrol or some other causes.
- To determine the meaning of the changes found through intensive analysis and data interpretation.
- To determine the reason for specific successes and failures.
- To uncover the principles or requirements underlying a successful program of aerial crime enforcement.

To accomplish the purposes, two criteria of evaluation were employed. First, there was an assessment of <u>effort</u>, that is, what was the quantity of activity which occurred? This represents a measurement of input regardless of the resultant output. Essentially, it addresses these questions:

- What is the nature and extent of the helicopter's involvement in police operations?
- How are the helicopter's activities dispersed by time of day? By geographical area?
- How does the helicopter patrol interface with regular ground patrol operations?
- How many arrests were effected by the helicopter? How many arrest assists were made?

The second evaluation criteria concerns measurement of the effects (impact) of helicopter patrol on criminal activities. Unlike an assessment of effort, which can generally be computed by simple mathematical percentages and averages, the evaluation of the effect of helicopter patrol involves entanglement with cause and effect relationships. Did the use of helicopter patrol actually cause the decrease (or increase) in crime? Would the decrease (or increase) have occurred without the implementation of aerial patrol? Was the decrease (or increase) caused by some extraneous factor either within or without the control of the police? These questions can be best answered through a scientific research study which utilizes inferential statistical methods.

This evaluation section also describes selected research methods for assessing both effort and effect, and reports-in detail the evaluation findings.

ANALYSIS OF HELICOPTER ACTIVITIES

To properly evaluate the quality and quantity of imput activities, it was necessary to collect pertinent data on helicopter operations using forms designed by IPS staff personnel. One form, the ACE Daily Field Activities Report, is essentially a chronological listing of activities completed by the helicopter observer each shift. (See Appendix C) This form was jointly designed by RPD and IPS personnel and served a two-fold purpose. It was first used as a source document by the RPD for its management information system, and second, by the IPS for our input to the evaluation data base. IPS staff personnel collected copies of the reports weekly from February 1, 1971, through August 31, 1971, transfered

them to machine readable form, and processed them through the Riverside Data Processing Department. The significant data elements that were captured included:

- Time in air - number of airborne flight hours.
- Time on called-for services.
- Time on patrol.
- Time of suspected incidents handled.
- Reporting district wherein incident occurred.
- Source of activity, i.e., call, observation, etc.
- Hour activity was received.
- Response time.
- Type of disposition.

The final computer-processed output reports provided the basic statistics for evaluating the nature and extent of aerial operations. Moreover, the computer programs used to generate the ACE reports also can be used in the future by RPD management personnel to produce reports useful for planning and controlling helicopter operations - a valuable spin-off benefit. (Copies of the actual print-out reports have been delivered to RPD administrators, since they were too bulky to include in this report.) The findings presented below are a distillation and compilation of the data contained in the more voluminous computer print-outs.

Helicopter Availability vs. Usage

For the most part, the helicopter was deployed in two eight-hour shifts or watches, based on calls for service and peak crime hours. The A.M. shift begins at 1000 and concludes at 1800. The P.M. watch commences at 1800 and extends to 0200. During the eight hour shift, the air crews

aim at five hours actual in-flight time, the balance being utilized for briefing, refueling, and rest periods.

For the entire seven month period, there was a total of 2120 hours of possible flight time (212 days x 5 hrs/day x 2 shifts/day). The helicopter actually registered 1610 hours in the air, or 75.9% of the total possible time. The A.M. shift was airborne 70.6% of the available time, whereas the P.M. shift was in flight 79.4% of the targeted time.

The total time not in the air (510 hours, 24.1%) can be attributed to several factors, some of which were measured and referred to as abort time. Figure 3.1 depicts the reasons for abortive shifts and the time lost to each. The greatest single cause of "down" time was inclement weather (fog, haze, smog, wind) which accounted for 80.5% of all abort time and an average of twenty hours per month lost. Maintenance, both scheduled and unscheduled, including equipment repair, caused the loss of twenty-eight hours or four hours per month. The remaining time lost was not documented for statistical purposes, but was mainly due to unavailability of personnel or the preemption of administrative and other ground duties common to aerial police operations.

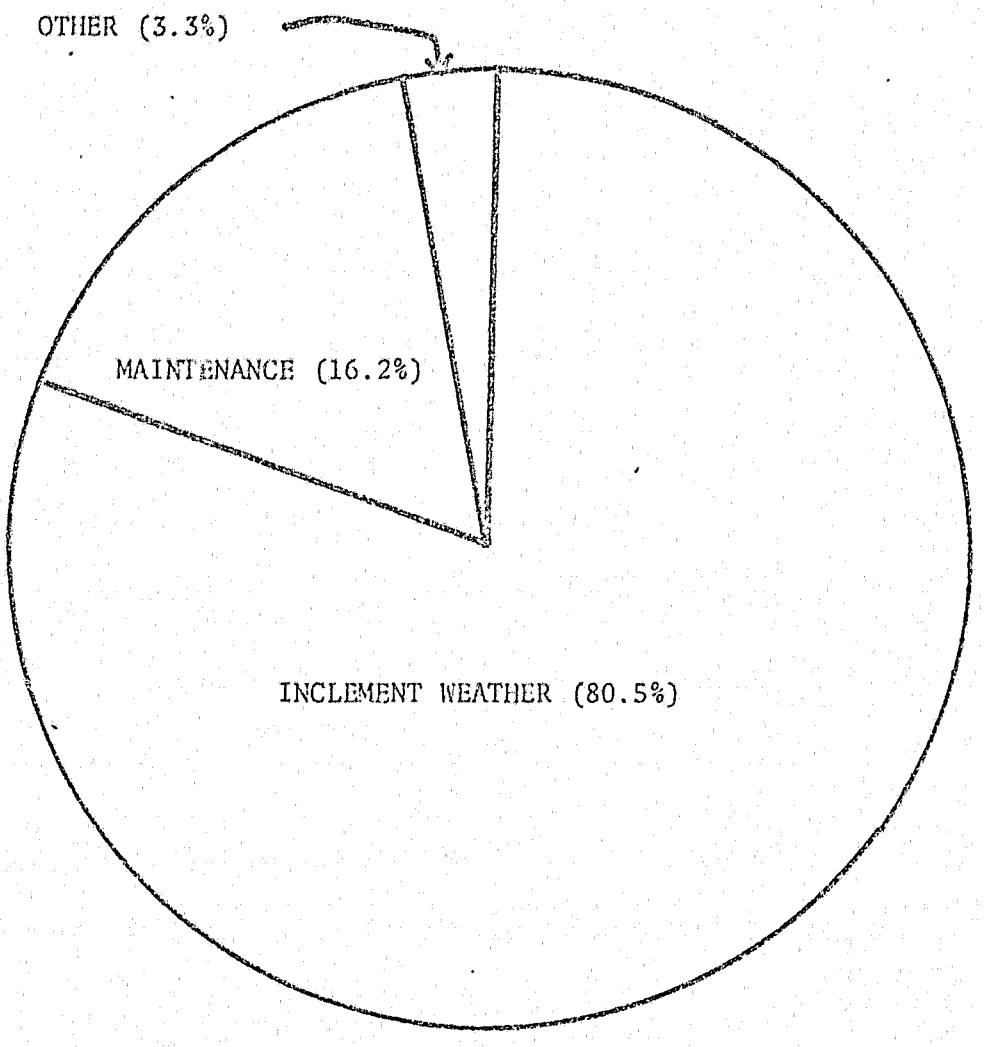
RECOMMENDATION: Establish availability and dependability records of helicopter operations, an accurate recording of abort time, and the reasons therefor. Whenever a helicopter shift attains less than the minimum five-hour flight time, the time lost and reason should be recorded on the flight log for future analysis.

Flight Time Distribution

Flight time or time in the air is divided in two categories: (1) Time on activities, that is, the time spent answering calls, backing up

Figure 3.1

PROJECT ACE: ABORT TIME DISTRIBUTION
(February-August, 1971)



HOURS AND RELATIVE PERCENTAGES, ALL SHIFTS, BY MONTH

	WEATHER HOURS	MAINTENANCE HOURS	OTHER HOURS	TOTAL HOURS
FEBRUARY	36.0	4.0	0.0	40.0
MARCH	46.2	0.0	0.0	46.2
APRIL	22.8	10.8	0.0	33.6
MAY	11.4	5.4	0.0	16.8
JUNE	13.5	0.5	0.0	14.0
JULY	9.3	5.1	0.0	13.4
AUGUST	3.0	2.6	5.8	11.4
TOTAL	141.2	28.4	5.8	175.4
PERCENTAGE OF TOTAL	80.5	16.2	3.3	100.0

ground units, and following through on observations, and (2) Time on patrol where the helicopter inspects known police hazards such as schools and businesses and special crime areas. For the seven months studied, ACE spent 72.1% of all flight time on patrol, and 27.9% of the time on air activities. Flight time distribution by month is contained in Figure 3.2.

When contrasted to RPD ground patrol units, which normally expend twenty percent of total time on patrol, it can be seen that the helicopter is capable of providing more patrol time per unit of time available. And, this does not take into account the increased observational capability of the aerial patrol vehicle, which has been estimated to be eight to ten times greater than the conventional ground patrol unit.

ACE Activity Distribution

Activities initiated by or performed with helicopter assistance are divided into four major types (These activity types are defined in Figures 3.5 through 3.9):

1. Criminal
    A. Part I Offenses
    B. Part II Offenses
2. Order Maintenance
3. Traffic Safety
4. Administrative.

Since these activities were extracted from flight logs, they indicate the types of suspected incidents as defined by the initial radio communications to the aircraft or ground unit. On many occasions, the patrol is not involved long enough for the crew to determine if and what crime was committed, or generally, if the incident was the same as dispatched.

Figure 3.2

PROJECT ACE: FLIGHT TIME DISTRIBUTION
Hours and Relative Percentages, By Month

	TIME IN AIR		TIME ON AIR ACTIVITIES		TIME ON PATROL	
	hrs.	%	*hrs.*	%	*hrs.*	%
FEBRUARY	141.1	100.0	48.5	34.4	92.6	65.6
MARCH	213.9	100.0	60.4	28.2	153.5	71.8
APRIL	230.5	100.0	64.0	27.8	166.5	72.2
MAY	262.6	100.0	81.2	30.9	181.4	69.1
JUNE	247.0	100.0	60.5	24.5	186.5	75.5
JULY	259.6	100.0	59.0	22.7	200.6	77.3
AUGUST	255.3	100.0	75.0	29.4	180.3	70.6
TOTAL	1610.0	100.0	448.6	27.9	1161.4	72.1

The type of activities handled and their relative percentages are presented in Figures 3.3 through 3.9. Figure 3.3 portrays the general distribution among the four activity types and further indicates that the largest proportion of activities handled were administrative tasks such as briefing, refueling, and rest breaks. This is not unusual due to approximately three hours of every eight-hour shift being assigned to the performance of such functions.

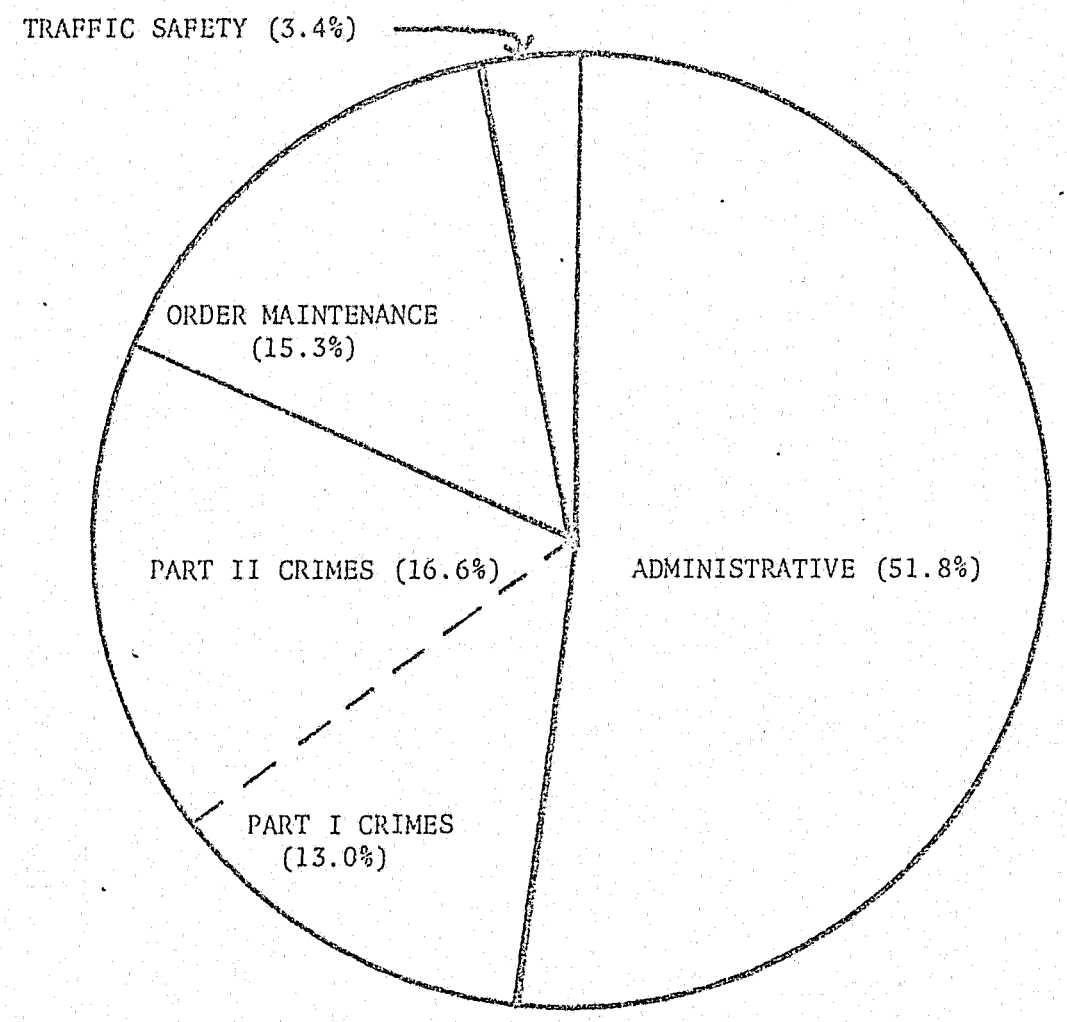
Criminal activities accounted for 29.6 percent of all activities performed. Part II Crimes slightly outnumbered Part I Crimes, 685 to 536 respectively. Order maintenance activities totaled 633 and comprised approximately fifteen percent of all activities. The fewest activities performed involved traffic safety, 139 incidents or only 3 4 percent of all activities and 7.0 percent of all air activities. Considering the amount of time consumed by the air activities (excluding administrative activities), Figure 3.4 indicates that order maintenance activities consumed the largest proportion of time, both in terms of total time spent on air activities and in average time per activity. Figure 3.4 also indicates that each air activity consumed, on an average 11.5 minutes.

Part I Crimes

The numerical and percentage distribution of Part I Crimes is shown in Figure 3.5. The largest and second largest number of activities handled were burglary and robbery, respectively. Over half of all Part I Crimes handled were burglary alarm responses -- a total of 277 or fourteen percent of all air activities conducted.

Figure 3.3

ACE ACTIVITY DISTRIBUTION - TOTAL
Percent of Total Activities Handled

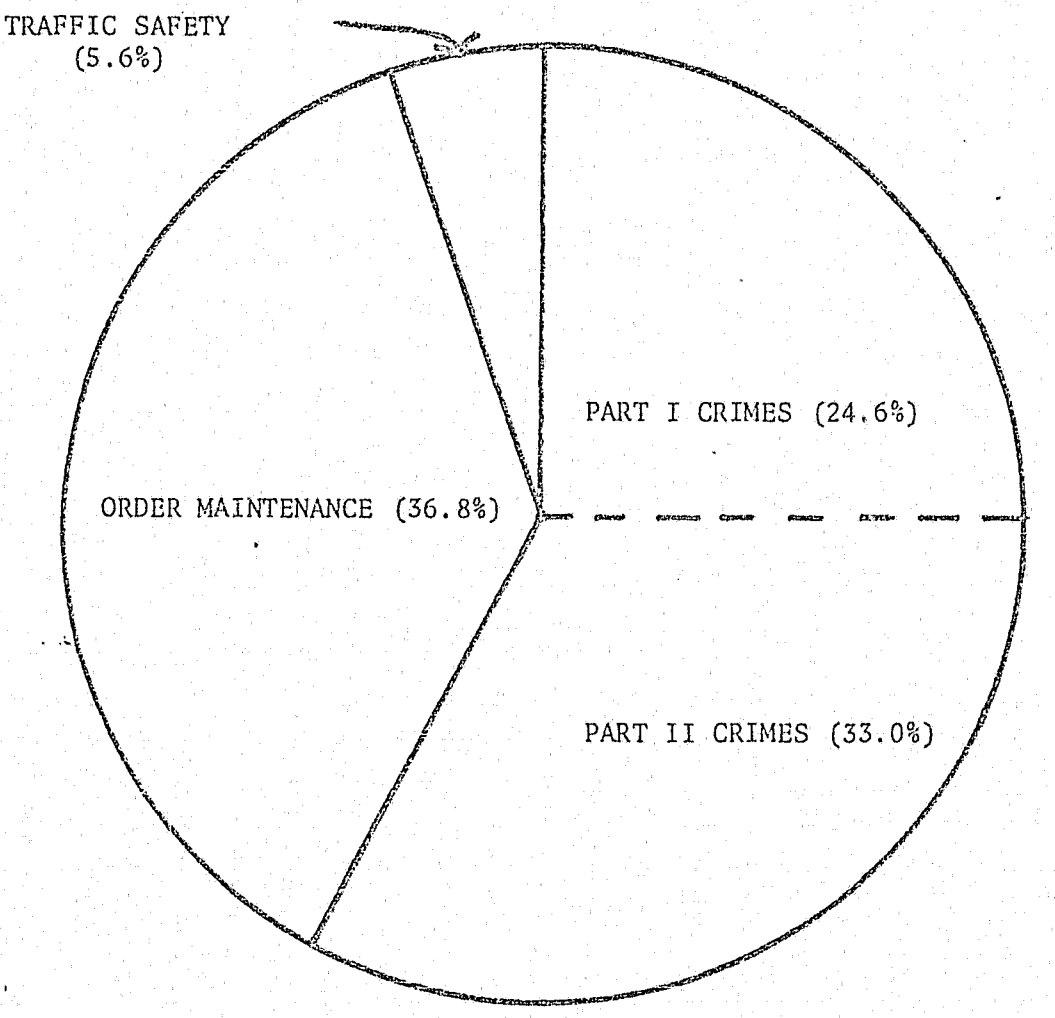


ACTIVITY	NUMBER OF ACTIVITIES HANDLED	PERCENTAGE OF ALL ACTIVITIES	PERCENTAGE OF AIR ACTIVITIES*
CRIMINAL-TOTAL	1221	29.6	61.3
PART I	536	13.0	26.9
PART II	685		34.4
ORDER MAINTENANCE	633	15.3	31.8
TRAFFIC SAFETY	139	3.4	7.0
ADMINISTRATIVE	2138	51.8	---
TOTAL	4131	100.1	100.1

*Excludes Administrative Activities.

Figure 3.4

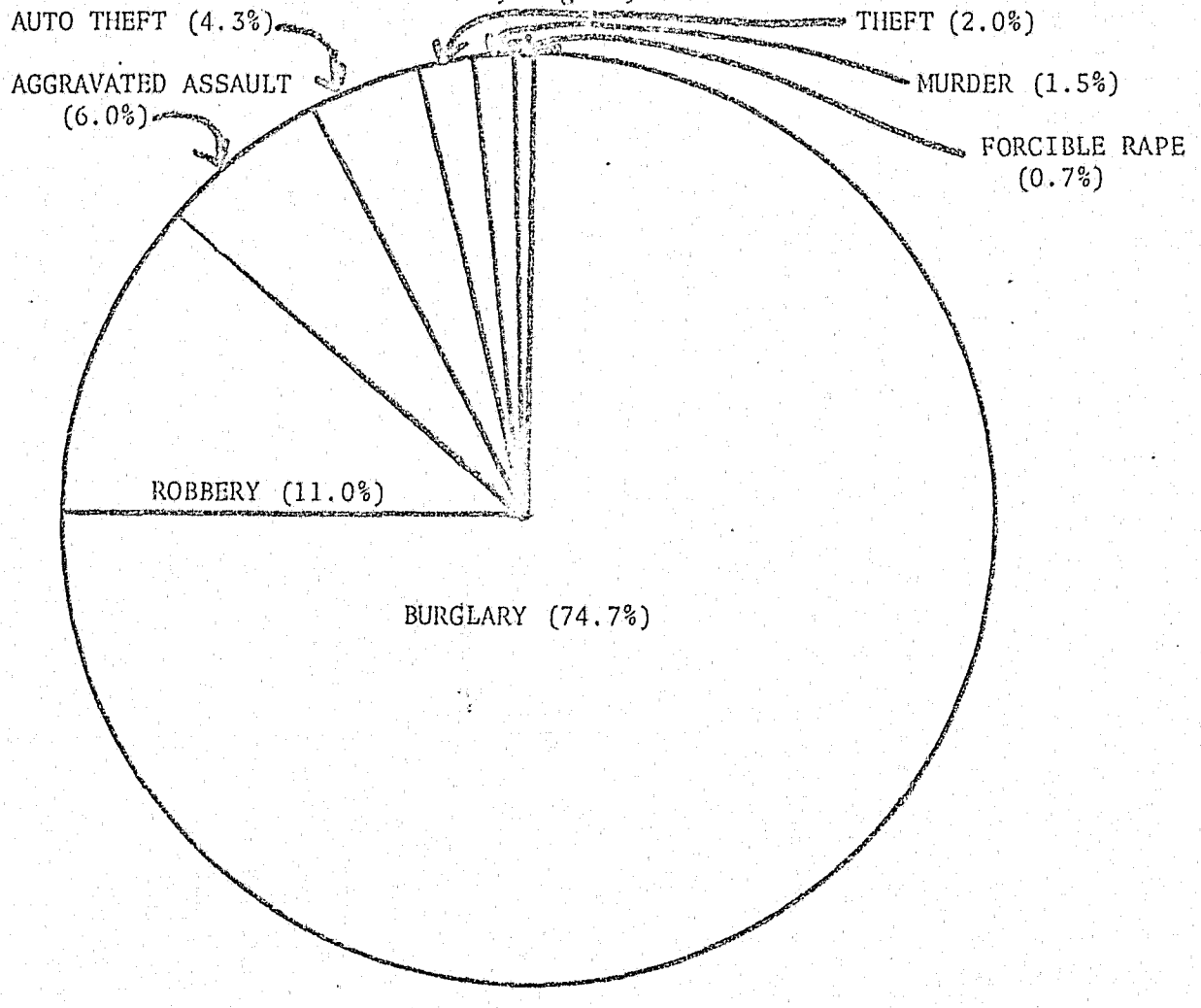
ACE ACTIVITY DISTRIBUTION - TIME SPENT ON AIR ACTIVITIES
Percent of Time Spent, Seven Months Total
February-August, 1971



ACTIVITY	TOTAL TIME CONSUMED (Minutes)	PERCENT OF TOTAL TIME SPENT ON ACTIVITY	AVERAGE TIME PER ACTIVITY (Minutes)
CRIMINAL-TOTAL	13,217	57.6	10.8
PART I	5,641	24.6	10.5
PART II	7,576	33.0	11.0
ORDER MAINTENANCE	8,455	36.8	13.3
TRAFFIC SAFETY	1,281	5.6	9.2
TOTAL	22,953	100.0	11.5

Figure 3.5

ACE ACTIVITY DISTRIBUTION - PART I CRIMES
Percent of Part I Crimes Handled, Seven Months Total
February-August, 1971



PART I CRIME	NUMBER OF ACTIVITIES	PERCENT OF ALL PART I CRIMES	PERCENT OF ALL AIR ACTIVITIES
MURDER	8	1.5	0.4
AGGRAVATED ASSAULT	32	6.0	
FORCIBLE RAPE	4	0.7	0.2
ROBBERY-OTHER	49	9.1	2.4
ROBBERY- ALARM	10	1.9	0.5
BURGLARY-OTHER	122	23.0	6.1
BURGLARY-ALARM	277	51.7	13.9
THEFT (OVER $200)	11	2.0	0.6
AUTO THEFT	23	4.3	1.2
TOTAL	536	100.2*	26.9

*Percentage does not total 100.0 because of rounding of numbers.

Part II Crimes

Figure 3.6 is a tabulation of the number and types of Part II Crimes initiated or assisted with. Two activities occurred more frequently than any other Part II Crime, illegal riding of motorcycles (21.4%) and peace disturbances (21.8%).

Order Maintenance Activities

Nearly one-half of all order maintenance activities consisted of identifying or assisting ground units in investigating suspicious persons and vehicles. Interestingly, over fifteen percent of all air activities engaged in involved this single activity. Additionally, seventeen percent of order maintenance activities involved activities dispatched as suspicious circumstances. Data for all order maintenance activities are listed in Figure 3.7.

Traffic Safety Activities

ACE was actively involved in 139 total traffic safety incidents as illustrated in Figure 3.8. Most of these incidents (47%) entailed aerial support at the scene of traffic collisions, that is, checking for injuries, illuminating nighttime collision scenes, and sometimes transporting the injured. Traffic enforcement, although not a primary objective of Project ACE, resulted in the helicopter handling twenty-nine vehicle law violations, twenty-eight of which were hazardous violations. This does not necessarily indicate that the helicopter crews issued actual citations; it means in most cases that the aerial vehicle provided back-up support for ground patrol units who were issuing traffic citations. Further, the helicopter patrol located and recovered seven stolen vehicles and assisted ground units in recovering another seven stolen vehicles.

Figure 3.6

ACE ACTIVITY DISTRIBUTION - PART II CRIMES

PART II CRIME	NUMBER OF ACTIVITIES	PERCENT OF ALL PART II CRIMES	PERCENT OF ALL AIR ACTIVITIES
ASSAULT-BATTERY	9	1.3	0.4
SEX OFFENSES (other than forcible rape)	9	1.3	0.4
WEAPONS LAWS	53	7.7	2.6
PETTY THEFT (under $200)	31	4.5	1.6
CAR TAMPERING	12	1.8	0.6
MALICIOUS MISCHIEF	43	6.3	2.2
TRESSPASSING	14	2.0	0.7
ILLEGAL MOTORCYCLE RIDING	147	21.4	7.4
UNLAWFUL ASSEMBLY/ RIOT	10	1.4	0.5
PEACE DISTURBANCES	149	21.8	7.5
PROWLER	88	12.8	4.4
DRUNKENESS	11	1.6	0.6
NARCOTICS AND DRUG LAWS	21	3.1	1.0
ESCAPEE/RUNAWAY	69	10.1	3.5
TOTAL	685	99.9 *	34.4

*Total does not equal 100.0% because of rounding of numbers.

Figure 3.7

ACE ACTIVITY DISTRIBUTION - ORDER MAINTENANCE

ORDER MAINTENANCE ACTIVITY	NUMBER OF ACTIVITIES	PERCENT OF ALL ORDER MAINTENANCE	PERCENT OF ALL AIR ACTIVITIES
FIRE	50	7.9	2.5
INJURED PERSON	11	1.7	0.6
MISSING/LOST PERSON	25	3.9	1.2
SUSPICIOUS PERSON/ VEHICLE	305	48.2	15.3
SUSPICIOUS CIRCUMSTANCES	107	16.9	5.4
STAKE-OUT/ SURVEILLANCE	22	3.5	1.1
AREA/VEHICLE CHECK UNKNOWN DETAILS	42	6.6	2.1
OTHER	.71	11.2	3.6
TOTAL	633	99.9*	31.8

*Total does not equal 100.0% because of rounding of numbers.

Figure 3.8

ACE ACTIVITY TIME DISTRIBUTION - TRAFFIC SAFETY

TRAFFIC SAFETY ACTIVITY	NUMBER OF ACTIVITIES	PERCENT OF ALL TRAFFIC SAFETY ACTIVITIES	PERCENT OF ALL AIR ACTIVITIES
ABANDONED VEHICLE	17	12.2	0.8
RECOVERED STOLEN VEHICLE	14	10.1	0.7
VEHICLE LAWS-HAZARDOUS	28	20.1	1.4
VEHICLE LAWS-NON-HAZARDOUS	1	0.7	.05
TRAFFIC CONTROL	14	10.1	0.7
TRAFFIC COLLISION	65	46.8	3.3
TOTAL	139	100.0	7.0

Administrative Activities

Component administrative activities and their respective percentages are contained in Figure 3.9. The greatest proportion of administrative activities involved preflight inspection of aircraft, refuelings, and rest periods (59.5%).

Activity Response Times

Response times to called-for services refers to the elapsed time from the moment the call is communicated to the helicopter to the time the helicopter arrives at the scene of the incident. Rapidity of response is generally acknowledged to be an important factor in the apprehension of offenders and a basic contributor to positive public attitudes toward the police. The response times were collected by type of activity and crime and are presented in Figure 3.10. Activities included in the analysis are radio calls directed to ACE only, directed to both ACE and ground patrol units, and directed to ground units and "overheard" by ACE. Observations made by ACE are specifically excluded. Further, activities may include both "in-progress" calls and follow-up investigations. (Comparison response times for ground patrol units will be reported in a subsequent study.)

Source of Activities

Helicopter activities can originate from one of five sources:

1. Radio. A call received by the helicopter crew via the radio specifically requesting them to take action.

2. Radio Intelligence. A call heard by the crew while monitoring the police radio frequency and on which the crew decided to take action.

3. Observation. An activity that originates from the helicopter crew observing a situation requiring possible police action.

4. Detail. An activity received by the helicopter crew at the beginning of the watch or prior to being "airborne."

5. Other. Requests from ground patrol officers for helicopter assistance on specific activities. Also, routine administrative activities performed on a regular basis.

Figure 3.11 illustrates the number and relative distribution of activities by source.

Time of Day Analysis

Activities performed by hour of day are presented in graphic form in Figures 3.12 and 3.13. The peak hours for criminal activities (Part I and Part II Crimes) are 1900 to 2300. Part I and Part II Crimes, and order maintenance activities peaked at 2100. The largest percentage of total air activities (13.8%) also occurred at 2100.

Location Analysis

Activities distributed by the police reporting district (R.D.) in which they occurred are shown in Figure 3.14. As indicated, Part I criminal activities were heaviest in R.D. 403, Part II and order maintenance activities in R.D. 426, and traffic safety activities in R.D.'s 406 and 417. The greatest proportion of total incidents (10.3%) were concentrated in R.D. 426, followed by 9.6% in R.D. 406. Interestingly, R.D. 426 roughly corresponds to zip code area 92507, Canyon Crest, which, as reported in the second community attitude survey, expressed the largest degree of disfavor towards continuation of the Project.

This suggests an intriguing possibility and also deserves further analysis. The Canyon Crest area, characterized by rolling hills, is predominately undeveloped but contains an increasing number of upper-middle and upper-class residential developments. The most frequently performed

Figure 3.9

ACE ACTIVITY DISTRIBUTION - ADMINISTRATIVE

ADMINISTRATIVE ACTIVITY	NUMBER OF ACTIVITIES	PERCENTAGE OF ALL ADMINISTRATIVE ACTIVITIES
BRIEFING/ROLL CALL	424*	19.8
TRAINING/ORIENTATION	85	4.0
ADMINISTRATIVE DUTIES	171	8.0
REPORT WRITING	7	0.3
PUBLIC RELATIONS	60	2.8
MEETING WITH PROJECT PERSONNEL	25	1.2
TRANSPORT TO/FROM MAINTENANCE FACILITY	43	2.0
PREFLIGHT, REFUEL, REST	1272**	59.5
MAINTENANCE/REPAIR	29	1.4
OTHER	22	1.0
TOTAL	2138	100.0

*Based upon one per shift since activities were not counted from air crew's activity logs.

**Based upon three per shift since activities were not counted from air crew's activity logs.

Figure 3.10

PROJECT ACE: AVERAGE RESPONSE TIMES
By Activity Type

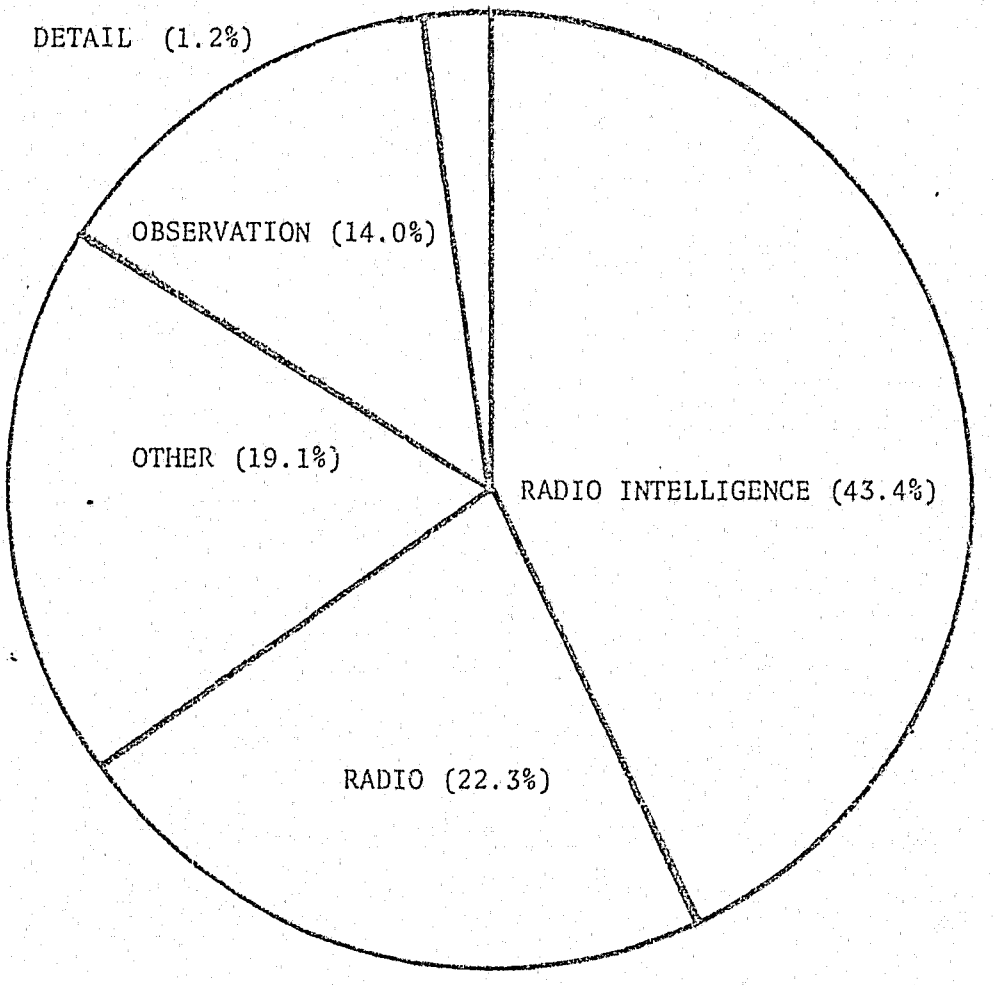
	Average (Minutes)
PART I CRIMES - TOTAL	1.7
Crimes Against Person - Total	2.6
Homicide	4.0*
Forcible Rape	1.3
Robbery	1.8
Aggravated Assault	2.2
Crimes Against Property - Total	1.7
Burglary	1.8
Theft (over $200)	2.0
Auto Theft	1.8
PART II CRIMES - TOTAL	1.5
ORDER MAINTENANCE - TOTAL	1.3
TRAFFIC SAFETY - TOTAL	1.2
GRAND TOTAL -	1.2

---

*Based on only eight (8) incidents, one of which had a 15 minute response time.

Figure 3.11

PROJECT ACE: SOURCE OF ACTIVITIES
(February-August, 1971)



ACTIVITY TYPE	RADIO	RADIO INTELLIGENCE	OBSERVATION	DETAIL	OTHER
PART I CRIMES	113	418	4	0	1
PART II CRIMES	216	340	116	10	3
ORDER MAINTENANCE	186	233	194	10	10
TRAFFIC SAFETY	26	81	32	0	0
ADMINISTRATIVE	12	2	0	11	459
TOTAL	553	107	346	31	473
PERCENT OF TOTAL	22.3	43.4	14.0	1.2	19.1

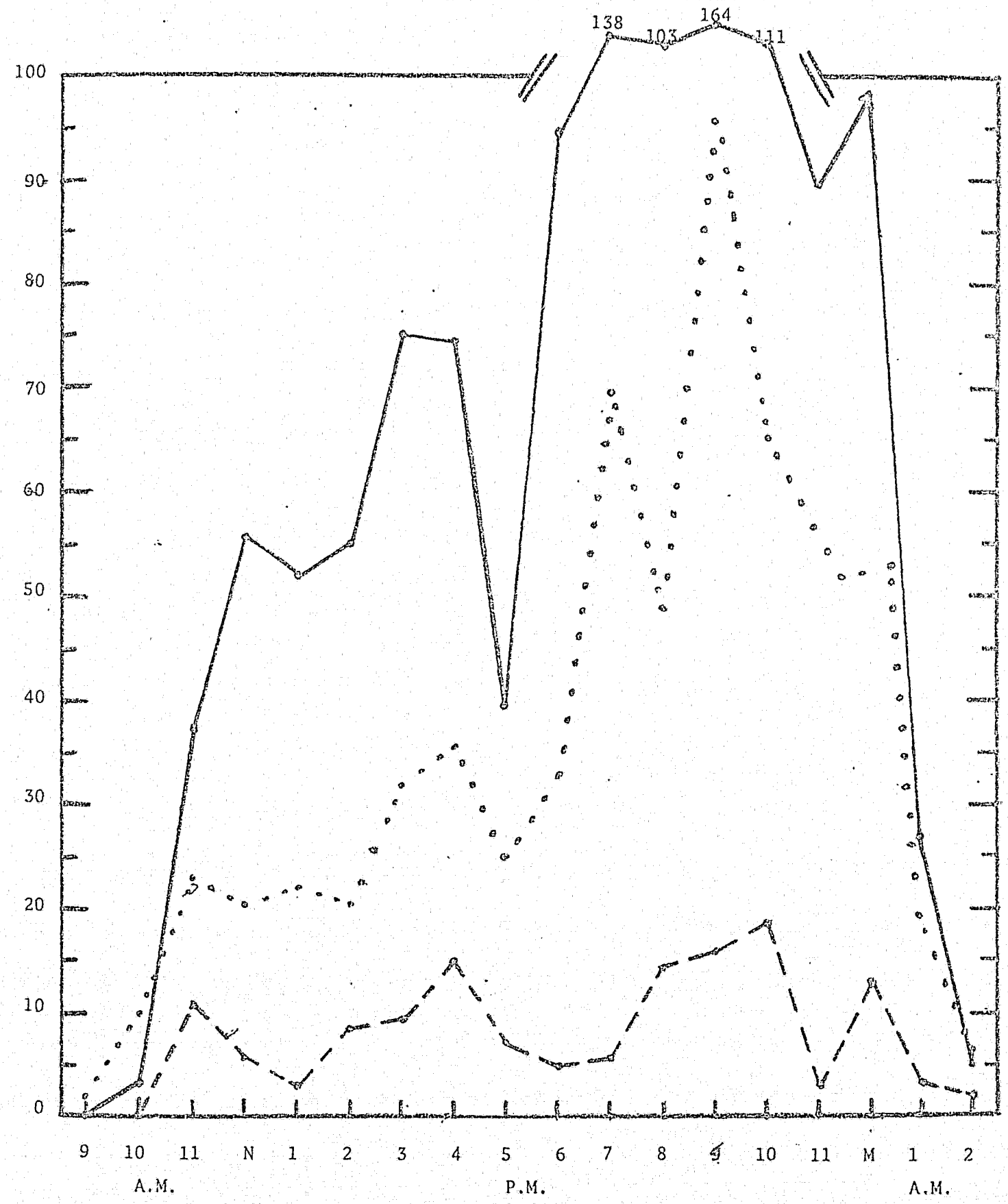
Figure 3.12

PROJECT ACE: TYPE OF AIR ACTIVITY BY HOUR RECEIVED

TYPE ACTIVITY	PART I CRIMES	PART II CRIMES	ORDER MAINTENANCE	TRAFFIC SAFETY	TOTAL	PERCENT - HOURLY
2400 (MIDNIGHT)	49	48	53	13	163	8.2
0100	8	19	19	3	49	2.4
0200	4	1	6	2	13	0.6
0300	--	--	--	--	--	---
0400	--	--	--	--	--	---
0500	--	1	--	--	1	.05
0600	--	--	--	--	--	---
0700	--	--	--	--	--	---
0800	--	1	--	--	1	.05
0900	--	--	2	--	2	0.1
1000	--	3	10	--	13	0.6
1100	10	27	23	11	71	3.6
1200 (NOON)	26	30	21	6	83	4.2
1300	14	38	2	3	77	3.9
1400	16	39	21	8	84	4.2
1500	22	53	32	9	116	5.8
1600	29	45	26	15	125	6.3
1700	12	27	25	7	71	3.6
1800	47	47	33	5	132	6.6
1900	72	66	69	6	213	10.7
2000	49	54	48	14	165	8.3
2100	93	71	96	16	276	13.8
2200	50	61	65	18	194	9.7
2300	35	54	52	3	144	7.2
TOTAL	536	685	633	139	1993	100.

Figure 3.13

PROJECT ACE: TYPE OF ACTIVITY BY HOUR RECEIVED



LEGEND:

Criminal Activities (Part I & II)

Order Maintenance

Traffic Safety

Figure 3.14

PROJECT ACE
TYPE OF ACTIVITY BY POLICE REPORTING DISTRICT
Seven Months Total

REPORTING DISTRICT	PART I CRIMES	PART II CRIMES	ORDER MAINTENANCE	TRAFFIC SAFETY	TOTAL	PERCENT OF TOTAL
401	24	12	20	4	60	4.1
402	10	17	22	2	51	3.5
403	53	30	24	4	111	7.6
404	32	22	15	--	69	4.7
405	26	16	24	4	70	4.8
406	32	55	42	12	141	9.6
407	3	12	13	2	30	2.0
408	8	14	8	1	31	2.1
409	6	17	14	3	31	2.1
410	9	15	13	1	38	2.6
411	25	19	19	2	65	4.4
412	11	11	9	5	36	2.4
413	12	17	12	1	42	2.8
414	15	24	14	3	56	3.8
415	14	25	19	4	62	4.2
416	11	19	11	4	45	3.1
417	17	42	31	12	102	6.9
418	--	--	1	--	1	0.1
419	6	22	8	1	37	2.5
420	9	8	14	5	36	2.4
421	11	14	7	--	32	2.2
422	14	15	12	4	45	3.1
423	15	9	6	2	22	1.5
424	13	18	23	4	58	3.9
425	--	2	3	1	6	0.4
426	23	62	56	10	151	10.3
427	--	--	--	--	--	---
498	--	3	4	1	8	0.5
499	9	10	8	7	34	2.3

helicopter activities were illegal motorcycle riding and suspicious persons and/or automobiles. Perhaps the relative frequency of helicopter fly-overs necessitated by the performance of these activities together with the relatively low altitude reached during these incidents caused the larger number of residents to object to the helicopter patrol.

RECOMMENDATION: Citizen complaints of helicopter operations should be analyzed for common characteristics such as geographic distribution throughout the city. The criticality of certain police operations must then be weighted against the probability of community disturbance caused by those flights.

Activity Dispositions

Figure 3.15 contains dispositions or outcomes of activities ACE was involved in. When an apprehension was effected a determination was made as to whether the helicopter was responsible for, or instrumental in making the apprehension. If the helicopter provided aerial back-up for a ground patrol unit making an arrest, or if during an incident a ground unit spots and apprehends the suspect(s) and ACE is present, the apprehension is scored as an apprehension assist. Undoubtedly, some of these latter apprehensions would not have been made without the involvement of ACE; however, because the helicopter crews involved made the determinations in most cases, it was felt that the decisions to attribute an apprehension to either the car or the helicopter were made with reasonable accuracy. "Apprehension" as used here is not entirely synonymous with arrest although it refers to those incidents where suspects are arrested. In addition, it applies where suspects are located, captured, counseled or released; or where suspects were located but escaped. It does not include instances where possible suspects were located by ACE, but proved not to be the right suspects.

Figure 3.15

PROJECT ACE
DISPOSITION OF CRIMINAL ACTIVITIES
Part I and II Crimes

	APPREHENSION BY ACE	APPREHENSION ASSISTANCE	NO APPREHENSION	OTHER	NO CRIME OCCURRED
PART I TOTAL	22	21	140	23	330
% OF TOTAL	10.6	10.2	67.9	11.1	---
Murder	2	2	4	--	--
Rape		--	4	--	--
Robbery	1	4	41	2	11
Agg. Assault	3	5	18	6	--
Burglary	14	7	58	11	309
Theft	--	2	7	2	--
Auto Theft	2	1	8	2	10
PART II TOTAL	152	29	338	76	82
% OF TOTAL	25.6	4.9	56.8	12.7	
Assault	1	--	--	8	--
Sex Crimes	1	--	6	2	--
Weapons Law	20	2	22	2	7
Petty Theft	5	--	24	2	--
Car Tampering	--	--	7	--	5
Malicious Mischief	3	1	27	5	7
Trespassing	2	--	8	1	3
Illegal Motorcycle	85	--	52	10	--
Prowler	4	--	57	3	24
Unlawful Assembly/Riot	--	3	5	1	1
Peace Disturbance	8	8	72	24	37
Drunkeness	4	2	3	2	--
Narcotics & Drug Laws	3	5	8	3	2
Escapee/Runaway	2	3	14	--	--
Other	14	5	33	13	4
GRAND TOTAL	174	50	478	109	412
% OF TOTAL	21.4	6.2	58.9	13.5	

CRITICAL INCIDENT ANALYSIS

To permit a more detailed analysis of effectiveness in handling what are considered critical incidents, aerial and ground field personnel were provided with a data collection instrument known as the ACE Evaluation Report. Personnel were instructed to complete the form after involvement in what they deemed were critical incidents, that is, incidents where crimes were reported in progress, where arrests were made or where suspects escaped apprehension, or when any other major criminal operation or service activity was performed. An exhibit of the ACE Evaluation Report is contained in Appendix C.

During the seven months of data collection, February through August, 1971, a total of 449 incidents were collected and evaluated. The great majority (ninty-two percent) were completed by ACE personnel, five percent by Riverside police ground field personnel, and two percent by personnel from the agencies who utilized the helicopter.

One of the data elements captured was intended to measure the general response capability of helicopter patrol as compared to normal field patrol response capability. The findings shown in Figure 3.16 indicate that in all 449 incidents where an Evaluation Report was completed, ACE patrol arrived first at the scene in slightly less than half (forty-five percent) of all incidents. When broken down by type of activity, ACE arrived first in 40.5 percent of all criminal activities, 36.4 percent of all order maintenance activities, 52.4 percent of all traffic safety incidents, and most important, 52.8 percent of all "in-progress" calls involving crimes or potential crimes. This latter statistic indicates that in-service calls where an imminent

Figure 3.16

Project ACE
Responses to Critical Incidents

TYPE OF INCIDENT	*WHO ARRIVED FIRST AT SCENE?* ACE *Number*	*Percent*	GROUND UNITS *Number*	*Percent*	BOTH (TIE) *Number*	*Percent*	*N/A**
Criminal - Total	45	40.5	36	32.4	30	27.0	5
In-Progress Calls**	67	52.8	34	26.8	26	20.4	8
Order Maintenance	24	36.4	33	50.0	9	13.6	76
Traffic Safety	11	45.2	113	34.8	65	20.0	109

*Not applicable or unknown. Not applicable if activity was observed directly by ACE, or if radio call was directed solely to the helicopter.

**This includes radio calls of crimes and order maintenance activities "in progress" at the time of dispatch to police units.

apprehension is possible, the helicopter was able to arrive at the scene faster than the ground field unit in over half of all incidents, and at least simultaneously with the ground unit in another twenty-six incidents. Undoubtedly, if there was no ACE patrol, the response time of the first unit on the scene would have been longer in fifty-two percent of the activities. However, there is no indication as to how much longer it would have taken for the first unit to arrive. Nevertheless, this measure does positively show that response capability is enhanced when police helicopters are employed as an aerial patrol vehicle.

Perhaps the best illustration of the improvement in response capabilities is a verbatim quote of a helicopter pilot taken from a submitted Evaluation Report of an injury traffic collision:

> . . . Upon arriving, we observed that there was a vehicle resting on its right side in the center of the intersection. By using the P.A. system, we were able to obtain from an unidentified citizen that there was in fact an injured person, and that an ambulance was needed. The ground unit that was sent to the traffic collision was a good distance away, and because of this, we landed. We aided the injured person, also requested the ambulance and tow.

Another factor upon which to evaluate aerial patrol is its capability to detect and handle incidents which could not be realistically performed by conventional patrol vehicles. Of the 449 critical incidents studied, thirty-one percent reportedly could not have been handled without the helicopter's involvement. Generally, these activities were of two types: (1) observations of criminal, suspected criminal, or hazardous activities and (2) aerial searches. In all probability, these activities would have gone undetected, suspects would not have been apprehended, or vital emergency services would not have been performed without the helicopter. There were numerous examples of these types of situations throughout the ACE test period. Several typical examples extracted from the Evaluation Reports follow:

> Received call from a ground unit that a suspect had run from him into an orange grove. Upon arrival this unit (ACE) located the subject some distance from the location.

> A deputy sheriff making a routine vehicle check was nearly run over by a passing car. The deputy pursued the vehicle which lost control and drove off the road. The suspect fled on foot into a nearby ravine. Four police units checked the immediate area, however, it was impossible to check the ravine on foot because of darkness and obstacles in the field. The ACE helicopter was summoned and it illuminated the ravine permitting deputies on the ground to see the entire area.

> Observed a brush fire and had fire department notified. Also observed subject under nearby railroad bridge---appeared to be a transient. Used P.A. system to advise fire department supervision of location of subject. Contact made. . . . Due to height able to spot smoke at a distance and advise radio dispatcher. Also able to observe suspect hidden from roadway.

The third evaluation criteria applied was whether or not activities were handled more effectively as a result of helicopter assistence. In more than nine out of every ten activities studied (92.9 percent) effectiveness was increased according to the involved personnel. In only four percent (18 incidents) was effectiveness not improved. Again, illustrations seem appropriate:

> Used as an aerial platform during a major disturbance. Checked on reported situation---rock-throwing at vehicles, arson to dwellings, and fire bombings---before sending in ground units. Used P.A. system and night-sun (light) to issue dispersal command of unlawful assembly. . . . The many different capabilities of the helicopter (light, P.A. system, visual coverage, quick response) were utilized effectively in coordination with ground supervision.

> Responded to a report of a burglary in progress. Upon arrival, which was less than a minute of receipt of call, this unit (ACE) immediately illuminated the building and the surrounding area. One suspect was trapped inside of the building and a second suspect was trapped in the bushes immediately outside. Both suspects remained in hiding until found by ground units. . . . The quick response and illumination of the area forced the suspects into hiding and prevented flight prior to arrival of the ground units.

It should be noted that the above accounts, statements, and conclusions may not be representative of <u>all</u> activities performed with the assistance of

ACE for several reasons. First, involved officers determine when to complete the Evaulation Report, although they have been given decisional guidelines as discussed previously. Consequently, they may have submitted reports only for those incidents which they perceived as demonstrating the effectiveness of aerial patrol. Hopefully, however, the orientation provided to all police personnel successfully countered this possibility by stressing that all critical incidents, whether effectively or ineffectively performed, should be recorded on the Evaluation Report.

A second constraint results from the fact that nearly all of the Evaluation Reports were submitted by the ACE crews themselves. Therefore, the question arises as to whether the opinions stated truly represent the bulk of the ground field units involved in aerially assisted operations. It is assumed, however, that there was a general consensus of opinion formed between ground and air crews which formally was expressed on the Evaluation Reports by ACE crews only.

RESPONSE TIME STUDY

To scientifically test the hypothesis that helicopter patrol reduces response time to called-for services, IPS plans to compare response times for ground field units and helicopter patrol.

Helicopter response times have already been captured and processed. However, response time data for ground field units has not been totally gathered. To provide data collection capabilities, IPS sent members of the technical staff of the Digital Resources Corporation to Riverside where, in conjunction with Riverside data processing personnel, they developed a computerized information reporting and retrieval system. The system

is designed to provide needed information as to patrol and response and cue time. As a spin-off benefit to the RPD, ancillary applications include monthly crime reporting operations and incident analysis reports.

Because of time constraints imposed by the deadline date of this report and the highly restrictive schedule of Riverside data processing personnel, response time data for ground field units has not been processed. It is anticipated that the analysis of response time will be conducted subsequent to the submission of this report and will be delivered to Riverside police officials in August, 1972.

ANALYSIS OF CRIMINAL ACTIVITIES

To accurately gauge the effect of aerial police patrol on the number of criminal occurrences and arrests in Riverside, three separate but interrelated statistical tests were employed:

1. A prediction analysis exploring what level of crime and arrests would exist in the City of Riverside during the Project Period if there was no aerial police patrol.
2. An analysis of the crime rate trends in Riverside during the Project period compared to crime rate trends in the City during previous years.
3. An analysis of the crime patterns in areas surrounding the City of Riverside.

Prediction Analysis

Part I Offenses individually and collectively, and adult and juvenile arrests were computed on a per capita basis for the period, March through December, 1961 through 1970. Using this historical data together with annual population and square mileage statistics, an IPS employed statistician then statistically predicted the number of crimes and arrests for the same period

in 1971.* These predictions were compared subsequently to the number of crimes and arrests actually observed during this period and tests of statistical significance were applied.

The findings detailed in Figures 3.19 and 3.20 indicate statistically significant "reductions" in the offenses of robbery, burglary, auto theft, and Total Part I Offenses. Of all crimes, burglaries were "reduced" the greatest amount. Auto thefts and robberies were also "reduced," although to a lesser degree than burglary. Part I Offenses as a group also showed a significant "decrease" because of the collective influence of the decreases in the three specific crimes. There is less than one chance out of two thousand that these changes would have occurred without the implementation of helicopter patrol. (Level of significance = .0005)

It is interesting to note, on the other hand, that thefts between $50 and $200 "increased" during the helicopter's test period. Apparently, while the helicopter "reduced" robberies, burglaries, and auto thefts, it "increased" thefts in that loss range. This appears to be one of the trade-offs that had to be made, although it appears that it is better to reduce the violent crimes of robbery, and the potentially dangerous crimes of burglary at the expense of increasing a relatively innocuous crime against property such as theft.

The volume of arrests did not seem to be significantly affected in either direction by the use of helicopter patrol. Consequently, the observed reduction in certain crime categories and total Part I Offenses is

---

*See Appendix B for detailed methodology. Also, February was purposely excluded from study because this was considered a start-up and break-in period of personnel involved.

not attributable mainly to increased apprehensions, but to the deterrent effect engendered by helicopter patrol operations. This is not, of course, tantamount to negating the helicopter's values in enhancing apprehension capability, for the helicopter has accounted for significant felony and misdemeanor arrests.

Analysis of Crime Rate in Riverside

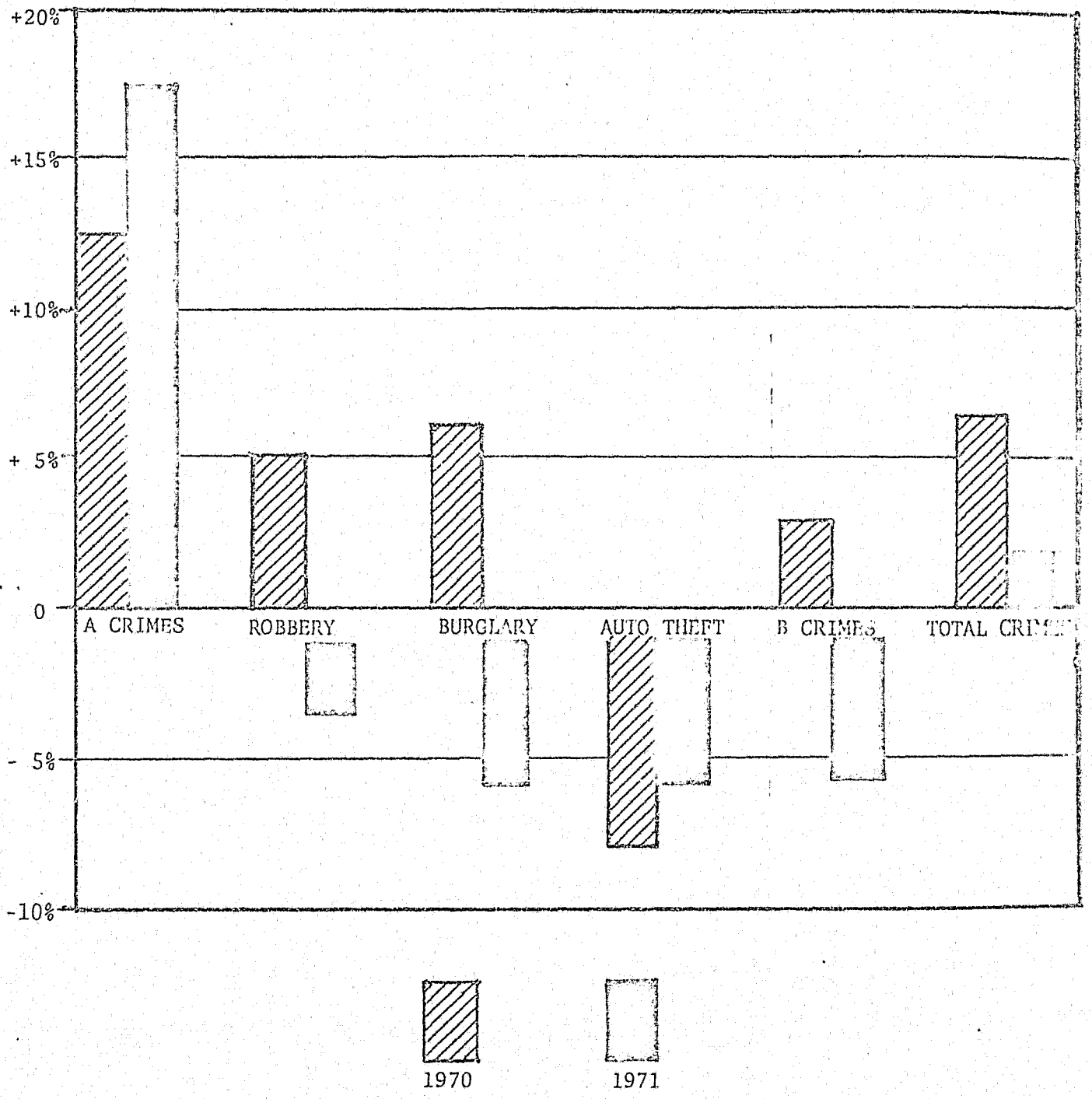
It was hypothesized that helicopter patrol operations in the City of Riverside would substantially affect the incidence of major crimes. Further, based on previous helicopter research and on the nature of certain crimes, only three of the seven Part I Offenses would be materially reduced. Since these three---Robbery, Burglary, and Auto Theft---generally comprise approximately sixty-five percent of Total Part I Offenses, a reduction would cause a commensurate reduction in total Part I Crimes. For this study, these three crimes have been grouped and labeled as Category B. Conversely, the remaining Part I Offenses---Murder, Forcible Rape, Aggravated Assault, and Theft over $50---are grouped and labeled as Category A.

To test the hypothesis, crime statistics for Riverside were gathered for the statistical test period (March through December) from 1960 through 1971. Annual population statistics were also collected for the same period and a per capita crime rate was established by year.

Once all data were collected and organized, rates of increase and decrease from one year to the next were calculated. This calculation was done for Total Part I Offenses, Category A, Category B, and individually for Robbery, Burglary, and Auto Theft. These findings are presented in Figure 3.17 which represents the data used to test the hypothesis.

Figure 3.17

CRIME RATE COMPARISON*
City of Riverside



*March 1, 1971 through December 31, 1971, Crime Rates (compared to March 1, 1970 through December 31, 1970.

Figure 3.18

Crime Rate Comparison Percent Increase/Decrease
City of Riverside
1961-1971*

YEAR	"A" CRIME**	ROBBERY	BURGLARY	THEFT	"B" CRIME**	TOTAL
1971	17.3	*(2.9)*	*(5.8)*	*(5.8)*	*(5.7)*	2.8
1970	12.4	5.1	6.0	*(8.2)*	3.4	6.6
1969	20.3	51.4	15.6	6.2	15.0	16.8
1968	16.8	68.9	17.6	38.6	22.6	20.5
1967	2.2	40.3	22.5	*(4.6)*	17.1	11.4
1966	27.7	*(27.0)*	13.5	18.3	13.2	18.3
1965	11.1	*(5.0)*	*(2.6)*[a]	20 5	1.3	4.6
1964	*(1.6)*	1.2	17.5	*(2.0)*	13.0	7.7
1963	0.5	47.8	36.1	24.9	34.1	19.5
1962	19.5	263.1	2.2	*(7.5)*	2.5	9.3
1961	0.1	60.3	*(5.6)*[a]	1.6	*(5.3)*	3.2

*March through December only.

**A CRIME = Total of Murder, Rape, Aggravated Assault, and Theft.
B CRIME = Total of Robbery, Burglary, and Auto Theft.

[a]These years also exhibited a significant decrease due mainly to a Burglary Task Force that was in operation, but limited funds precluded continuance as a regular police operation.

Figure 3.19

Prediction Study
Predicted vs. Observed Occurrences
(March-December, 1971)

	PREDICTED	OBSERVED
PART I OFFENSES		
Murder & Non-Negligent Manslaughter	8	12
Manslaughter by Negligence	16	12
Forcible Rape	51	53
Aggravated Assault	380	409
Robbery	250	197
Burglary	5142	3950
Theft over $200	362	337
Theft $50 - $200	1412	1851
Grand Theft Auto	930	671
TOTAL PART 1 OFFENSES	8551	7492
ARRESTS		
Adult Felony Arrests	776	812
Adult Misdemeanor Arrests	1877	1986
Arrests of Youths under 18	2630	2626

Figure 3.20

Prediction Study: Tests of Significance
(March-December, 1971)

	PREDICTED		OBSERVED		
	mean per month	*standard deviation*	*mean per month*	*standard deviation*	*t*
PART I OFFENSES					
Murder and Non-Negligent Manslaughter	.76	0.00	1.20	1.08	*+1.30*
Manslaughter by Negligence	1.56	.06	1.20	.98	*-1.17*
Forcible Rape	5.12	.16	5.30	2.10	*.26*
Aggravated Assault	38.04	1.21	40.90	10.47	*+ .85*
Robbery	24.97	1.04	19.70	5.78	*-2.82*
Burglary	514.16	18.82	395.00	21.36	*-13.15*
Theft: Over $200	36.17	.67	33.70	5.75	*-1.33*
Theft: $50-$200	141.18	1.68	185.10	31.52	*+4.37*
Grand Theft Auto	92.96	2.16	67.10	11.87	*-6.74*
TOTAL PART I OFFENSES	854.96	25.74	749.20	57.67	*-5.26*

Figure 3.20 - Continued

	PREDICTED		OBSERVED		
	mean per month	*standard deviation*	*mean per month*	*standard deviation*	*t*
ARRESTS					
Adult Felony Arrests	77.55	2.27	81.20	15.54	+ .73
Adult Misdemeanor Arrests	187.68	1.30	198.60	36.95	+ .93
Arrests of Youth under 18	263.00	8.15	262.60	49.78	- .02

LEVELS OF SIGNIFICANCE
18 DEGREES OF FREEDOM

.05	*1.734*
.01	*2.552*
.0005	*3.922*

Test of Hypothesis

As previously stated, the hypothesis indicates that Category B Crimes would be reduced with the introduction of helicopter patrol, thereby reducing the overall crime rate. Category A offenses, on the other hand, would not decrease because it appears unlikely that they would be affected by police helicopter patrol.

To test this hypothesis, attention was given to the latest ten month reporting period in Figure 3.17. Robbery, burglary, and auto theft did decrease in the ten month test period, while Category A crimes showed an increase. However, are these decreases statistically significant or are they due to chance variation, that is, what is the probability that similar reductions would have occurred without the implementation of helicopter patrol?

To answer these questions, a basic method of statistical analysis was employed. This method consisted of calculating the MEAN, or average rate of crime increase by category over an eleven year period. Therefore, a norm was established from which all deviations could be measured and evaluated. STANDARD DEVIATIONS, which are commonly used in statistical analysis to determine the significance of deviation from the mean, were then calculated. Figure 3.21 illustrates these calculations.

It is easily seen that the decrease in the crime rate for Category B offenses for the test period is considerably greater than one standard deviation from the ten year average. (Standard Deviation-Unit Column) The hypothesis predicted that each of the three Category B offenses would be significantly affected, while Category A crimes would not. Therefore, the hypothesis was correct in two out of four predictions. Such results could

Figure 3.21

Standard Deviations
Riverside

	MEAN *(10 year average increase per 100,000 populations)*	PERCENT CHANGE *1970-1971*	DEVIATION FROM THE MEAN *1970-1971*	STANDARD DEVIATION *measured*	*unit*
A CRIMES	10.9	+17.3	- 6.4	9.7	0.66
ROBBERY	50.6	- 2.9	-52.5	77.0	0.69
BURGLARY	12.3	- 5.8	-18.1	11.9	1.52*
AUTO THEFT	8.8	- 5.8	-14.6	15.1	0.97
B CRIMES	11.7	- 5.7	-17.4	11.0	1.58*
TOTAL PART I CRIMES	11.8	+ 2.8	- 9.0	6.1	1.48*

*Statistically significant

occur by chance less than five times out of one hundred and, accordingly, the .05 level of statistical significance was obtained.

Even though robbery and auto theft did decrease during the test period, they did not decrease to a significant enough degree so it could be attributable to helicopter patrol. On the other hand, burglary decreased to such an extent, and comprises such a large percentage of B crimes and Part I Crimes, that both B crimes and Total Part I Crimes were reduced to a statistically significant degree.

Analysis of Surrounding Area

To further determine if the noted decrease in burglaries, Category B Crimes and Total Part I Crimes was specifically caused by the helicopter patrol, crime rates were studied for the areas surrounding the City of Riverside. All police jurisdictions within a ten mile radius from Riverside city boundaries---Redlands, Colton, Fontana, San Bernardino, and Corona Police Departments and the Riverside Station Area of the Riverside County Sheriff's Department---were requested to submit statistics for the same crimes and time periods used in the previously discussed study of Riverside proper.

The statistics submitted were for the most part, as requested; however, several agencies had difficulty retreiving all the data requested. Annual population statistics for each area also were collected and per capita rates were calculated. The data were analyzed utilizing the same methodology as applied to Riverside itself. Findings are presented by individual area in Figures 3.22 and 3.23.

Collectively, the statistics demonstrate that the noted crime decreases in the City of Riverside did not simply displace crime into the surrounding areas.

Clearly, the crimes of robbery, burglary, and auto theft did not increase a statistically significant degree in any of the surrounding areas studied. In fact, several significant decreases resulted were noted which may be partially attributable to the effect of helicopter fly-overs, i.e., the presence or apparent presence of helicopter flights over surrounding jurisdictions. Notably, these decreases were for auto thefts in the two contiguous areas of Corona and Riverside County.

Only one significant increase was observed in any of the surrounding areas: Redlands showed a rise in A crimes (homicide, rape, aggravated assault, and theft). However, because these crimes are not generally affected by helicopter patrol, it is not plausible to assert that this was caused by Project ACE.

RECOMMENDATIONS

To determine if the observable reductions in the crimes of robbery, burglary, and auto theft in the City of Riverside are of a temporary or lasting nature, it is recommended that, if helicopter patrol is adopted as a regular police program, a continuing evaluation component be built into the program. Evaluation of effects on criminal patterns and trends should be conducted yearly for a minimum of two successive years.

Figure 3.22

Standard Deviations
San Bernardino

	MEAN *(10 year average increase per 100,000 populations)*	PERCENT CHANGE *1970-1971*	DEVIATION FROM THE MEAN *1970-1971*	STANDARD DEVIATION *measured*	*unit*
A CRIMES	9.8	+11.6	+ 1.8	22.7	0.08
ROBBERY	18.3	+46.2	+27.9	34.9	0.80
BURGLARY	9.7	+14.9	+ 5.2	17.1	0.30
AUTO THEFT	9.5	+ 6.8	- 1.7	16.8	0.10
B CRIMES	9.3	+14.8	+ 5.5	11.6	0.47
TOTAL PART I CRIMES	9.0	+13.6	+ 4.6	13.1	0.35
		Redlands			
A CRIMES	11.0	+30.4	+19.4	16.9	1.15*
ROBBERY	93.4	+21.0	-72.4	217.2	0.33
BURGLARY	17.2	+ 8.3	- 8.9	25.3	0.35
AUTO THEFT	11.5	- 9.5	-21.0	21.8	0.96
B CRIMES	14.7	+ 5.6	- 9.1	21.8	0.42
TOTAL PART I CRIMES	12.4	+17.1	+ 4.7	16.4	0.29

*Statistically Significant

Figure 3.22 - Continued

Fontana

	MEAN *(10 year average increase per 100,000 populations)*	PERCENT CHANGE *1907-1971*	DEVIATION FROM THE MEAN *1970-1971*	STANDARD DEVIATION *measured*	*unit*
A CRIMES	32.6	-27.8	-60.4	42.7	1.41*
ROBBERY	31.2	+12.2	-19.0	78.2	0.24
BURGLARY	14.7	- 9.3	-24.0	16.4	1.46*
AUTO THEFT	19.6	-19.4	-39.0	28.7	1.36*
B CRIMES	13.4	-10.5	-23.9	15.8	1.51*
TOTAL PART I CRIMES	19.3	-15.3	-34.6	14.6	2.37*

Corona

A CRIMES**	N/A	N/A	N/A	N/A	N/A
ROBBERY	70.7	+131.3	+60.6	190.6	0.32
BURGLARY	30.8	+ 57.9	+27.1	77.5	0.35
AUTO THEFT	10.9	- 23.0	-33.9	17.2	2.00*
B CRIMES	19.0	+ 35.4	+16.4	41.9	0.39
TOTAL PART I CRIMES**	N/A	N/A	N/A	N/A	N/A

*Statistically significant
**Statistics Not Available

Figure 3.22 - Continued

Riverside County
(Riverside Sheriff's Station Area)

	MEAN** *(6 year average increase per 100,000 populations)*	PERCENT CHANGE *1970-1971*	DEVIATION FROM THE MEAN	STANDARD DEVIATION *measured*	*unit*
A CRIMES***	N/A	N/A	N/A	N/A	N/A
ROBBERY	25.8	- 6.9	-32.7	55.7	0.59
BURGLARY	13.0	6.3	- 6.7	19.5	0.34
AUTO THEFT	21.0	-25.7	-46.7	17.6	2.65*
B CRIMES	14.2	0.1	-14.1	16.8	0.84
TOTAL PART I CRIMES**	N/A	N/A	N/A	N/A	N/A

*Statistically significant
**Ten year data unavailable
***Incomplete data received on theft offenses

Figure 3.23

Detailed Statistics
Part I Crimes per 100,000 Population
City of Colton

YEAR	MURDER-RAPE ASSAULT-THEFT		ROBBERY		BURGLARY		AUTO THEFT		TOTALS	
	no.	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*
1971	679.94	10.2	101.99	36.6	1005.34	4.7	237.98	*(36.2)*	2025.25	0
1970	617.01	*(5.1)*	74.64	51.3	960.34	*(5.2)*	373.19	17.2	2025.18	*(0.2)*
1969	650.22	62.5	49.32	*(50.7)*	1013.45	21.6	318.39	45.2	2031.39	30.8
1968	400.19	3.8	100.05	110.3	833.73	13.8	219.15	*(14.7)*	1553.12	9.2
1967	385.35	*(14.6)*	47.57	9.0	732.64	3.5	256.90	*(7.1)*	1422.45	*(3.8)*
1966	451.02	23.2	43.65	12.4	708.05	*(5.9)*	276.43	13.9	1479.15	*(8.8)*
1965	587.38	2.3	38.83	*(1.9)*	752.43	34.5	242.72	29.0	1621.36	19.1
1964	574.26	15.6	39.60	56.3	559.40	34.6	188.12	*(4.8)*	1361.39	19.9
1963	496.00	4.8	25.34	*(30.5)*	415.61	*(34.6)*	197.67	*(34.6)*	1135.33	*(21.6)*
1962	473.96	*(13.9)*	36.46	*(50.3)*	635.42	*(7.5)*	302.08	121.6	1447.92	0
1961	550.57	---	73.41	---	686.91	---	136.33	---	1447.22	---

City of Fontana

1971	1023.47	*(27.8)*	173.71	12.2	2469.48	*(9.3)*	596.24	*(19.4)*	4262.91	*(15.3)*
1970	1417.31	12.2	154.79	21.0	2723.36	13.8	740.10	26.9	5035.55	15.3
1969	1263.43	110.6	127.88	*(4.5)*	2393.86	2.7	583.12	41.4	4368.29	25.7
1968	599.89	*(0.8)*	133.90	90.8	2329.94	5.0	4 2.43	*(5.7)*	3476.16	4.3
1967	604.75	*(32.5)*	70.19	*(7.1)*	2219.22	2.0	437.36	*(1.2)*	3331.53	*(7.2)*
1966	896.33	57.3	75.59	0	2176.02	30.0	442.76	26.1	3590.71	23.0
1965	569.77	38.7	75.58	217.4	1674.42	50.4	598.84	24.2	2918.60	43.8
1964	410.71	69.5	23.81	*(72.6)*	1113.10	23.6	482.14	46.5	2029.76	30.2
1963	242.24	6.2	86.96	48.3	900.62	10.6	329.19	57.9	1559.01	19.1
1962	228.01	N/A	58.63	*(12.1)*	814.33	*(5.4)*	208.47	*(39.9)*	1309.45	N/A
1961	N/A	---	66.72	---	860.63	---	346.92	---	N/A	---

Figure 3.23 -.Continued

City of San Bernardino

YEAR	MURDER-RAPE ASSAULT-THEFT		ROBBERY		BURGLARY		AUTO THEFT		TOTALS	
	no.	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*
1971	2135.78	11.6	311.93	46.2	2349.54	14.9	849.54	6.8	5646.79	13.6
1970	1913.00	*(12.2)*	213.28	0.8	2050.51	17.2	795.14	18.5	4971.94	3.4
1969	2177.63	3.7	211.47	56.4	1750.00	*(16.7)*	671.05	*(7.7)*	4810.15	*(5.0)*
1968	2099.24	14.7	135.16	*(10.0)*	2101.13	*(4.9)*	726.84	46.6	5062.38	8.2
1967	1830.61	70.3	150.14	1.9	2202.12	37.1	495.67	16.8	4678.54	42.8
1966	1075.12	*(2.9)*	147.32	90.6	1605.85	17.4	424.39	1.6	3252.68	9.5
1965	1107.63	4.2	77.30	*(18.5)*	1367.91	13.4	417.81	*(1.6)*	2970.64	6.5
1964	1062.94	11.9	94.90	42.8	1205.79	1.5	424.58	*(2.2)*	2788.21	5.7
1963	950.16	1.4	66.46	*(12.1)*	1187.95	30.8	434.06	*(7.4)*	2368.63	10.4
1962	937.17	*(2.7)*	75.61	12.8	908.41	*(8.8)*	468.06	21.1	2389.78	*(1.0)*
1961	963.24	---	67.03	---	995.68	---	387.03	---	2412.97	---

City of Redlands

1971	1735.55	30.4	29.97	21.0	1367.74	8.3	231.59	*(9.5)*	3364.85	17.1
1970	1331.32	*(0.3)*	94.76	*(47.8)*	1]62.55	2.9	255.81	*(13.4)*	2874.43	*(1.0)*
1969	1335.34	32.3	47.39	52.3	1226.62	16.3	295.50	10.7	2904.85	19.7
1968	1009.33	11.6	31.10	*(54.7)*	1054.57	14.4	330.79	25.6	2425.78	12.4
1967	904.54	16.2	68.70	295.5	921.71	6.1	263.35	*(8.1)*	2158.29	10.6
1966	778.58	*(13.8)*	17.37	*(89.1)*	868.31	5.6	286.54	3.4	1950.80	*(9.8)*
1965	903.61	*(17.1)*	159.64	629.6	822.29	*(66.0)*	277.11	15.2	2162.65	*(2.9)*
1964	1090.62	31.6	21.88	32.6	875.00	85.4	240.62	40.2	2228.12	49.7
1963	828.38	19.2	16.50	*(22.0)*	471.95	21.6	171.62	*(20.2)*	1480.45	12.8
1962	694.88	19.0	21.16	44.0	338.01	8.9	215.17	50.2	1319.22	20.1
1961	583.91	---	14.69	---	356.22	---	143.22	---	1098.05	---

Figure 3.23 - Continued

City of Corona

YEAR	MURDER-RAPE ASSAULT-THEFT		ROBBERY		BURGLARY		AUTO THEFT		TOTALS	
	no.	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*	*no.*	*% chg.*
1971			67.26	131.3	1366.37	57.9	2938.80	*(23.0)*		
1970		A	29.08	*(34.7)*	865.08	*(12.4)*	381.65	22.4		A
1969		V	44.53	94.1	987.01	*(2.2)*	311.69	25.4		V
1968	N	A	22.94	*(56.1)*	1009.56	33.0	248.56	*(0.2)*	N	A
1967	O	I	52.21	38.8	759.04	*(13.7)*	249.00	*(7.6)*	O	I
1966	T	L	37.89	57.5	880.0	*(26.7)*	269.47	18.4	T	L
1965		A	24.21	103.4	1200.97	*(15.9)*	227.60	23.3		A
1964		B	11.90	*(74.2)*	1428.57	58.5	184.52	*(13.9)*		B
1963		L	46.05	577.2	901.32	19.4	230.26	35.4		L
1962		E	6.80	*(67.6)*	755.10	237.4	170.07	1.3		E
1961			20.98	---	223.78	---	167.83	---		

County of Riverside
Riverside Sheriff's Station Area (Approximately ten mile radius from Riverside)

1971	1252.66	*(38.6)*	82.44	*(6.9)*	1507.98	6.3	234.04	*(25.7)*	3077.13	*(20.3)*
1970	2039.14	31.5	88.54	16.4	1418.45	*(2.7)*	315.00	23.6	3861.14	16.9
1969	1550.79	---	76.04	0.5	1457.22	5.1	254.75	48.2	3303.82	---
1968		A	75.64	133.1	964.64	1.2	171.90	1.5		A
1967		V	32.45	7.1	953.35	9.0	169.37	2.3		V
1966	N	A	30.30	*(28.3)*	874.46	6.2	165.58	29.5	N	A
1965	O	I	4.242	---	823.06	---	116.44	---	O	I
1964	T	L							T	L
1963		A			*N O T A V A I L A B L E*					A
1962		B								B
1961		L								L
		E								E

EFFECT OF VANDALISM

A misunderstanding between the RPD and IPS precludes the measurement of the helicopter's effect on vandalism occurrences. At the inauguration of the Project, IPS was led to believe that the RPD statistical system could generate a detailed tabulation of all vandalism offenses by time period and type of premise. Since then, it has been learned that this capability does not exist. As an alternate and last minute data source, IPS contacted the Riverside School District for school vandalism statistics. However, their statistical records system was incapable of providing the needed data in a reliable and usable manner.

RECOMMENDATION: The Riverside Police Department should explore the feasibility of instituting a police reporting system capable of producing monthly totals of vandalism offenses by type of prenise, i.e., schools, churches, residences, businesses, industries, etc.

COST-BENEFIT ANALYSIS

A comparative assessment of the various advantages and disadvantages, capabilities and limitations of the police helicopter vis-a-vis a conventional patrol car requires a custom-fitted tool for evaluation. The following evaluation of the costs and benefits of the two police vehicles utilizes a method for systematically determining, in quantified terms, the rating of factors which normally could not be expressed in tangible numerical values, but only in relative, abstract terms. Most important, the final product of the evaluation comparison is a basic letter grade (A, B, C, or D) which is easily understood, even to those without statistical training.

Methodology

First, a cost analysis was performed to determine the cost equivalents of the helicopter patrol in terms of ground patrol cars. Simultaneously, a number of evaluation factors were generated in order to provide a basis for comparison. After a fairly comprehensive list was produced, they were put in relative order of importance, from minor importance to most important.

As far as possible, evaluation criteria were developed for each evaluation factor and pertinent criteria data were collected. Where hard data was unavailable, a reasonable assessment was made according to the researcher's personal knowledge or intuitive judgment. Thus, an alphabetic grade of A, B, C, or D was assigned to both the helicopters and the equivalent number of ground patrol units in accord to how they fulfilled the evaluation criteria. Based upon the source of the grading decision (hard data, personal knowledge, or intuitive judgment) a confidence score was also assigned to each rating---low confidence, confident, or very confident. Numerical values were then assigned to the alphabetic scores (A=8, B=6, C=4, D=2) and to the importance attached to the evaluation factor groupings (Most Important = 20, Very Important = 15, Important = 10, Average Importance = 8, Minor Importance = 5).

The total ratings were then placed in matrix format and total numerical scores were determined for both the helicopters and patrol cars. Scores were then examined for their sensitivity in changing the total score if there may have been an error in evaluating the factors. The final step, once the numerical grades had been tested for sensitivity, was to evaluate the overall findings for their reasonableness---an intuitive

decision, but one that is most important if the findings are to be defensible.

Background Data: Costs

To provide for a helicopter in service eighteen hours a day (time in air and administrative time) requires: two helicopters, three pilots, three observers, and one chief pilot.

The cost for the program, including allocations for equipment replacement, all fixed and variable costs, per year is $216,812 per the ACE 1972-73 budget request. Costs do not include the initial costs of implementing the program. These costs are "sunk costs" and are irrelevant to the cost of continuing the program. It is understood that if the program was discontinued and the equipment was no longer used in the law enforcement work, the equipment or the funds received from the sale of the equipment would have to be returned to the funding agency, L.E.A.A.

To staff one patrol car for one shift (eight and one-half hours a day, seven days a week) requires 1.5 men. To staff one car seventeen hours a day (approximately the same number of hours the helicopter is in service) requires 3.0 men.

Cost of three men = $915 (average patrolman salary) x 12 months x 3 men = $32,940

Cost of supervision for three men = $14,400 x .08 (sgt)
15,600 x .06 (lt)
x 3 = $ 6,288

Cost of one patrol vehicle = $3,300 (purchase price) - $1500 (resale) ÷ 18 mo. (service time) = $ 100 mo.

Vehicle equipment (radio, emergency lights, etc.) = $1,800 ÷ 48 mo. (life expect.) = $ 37.50 mo.

Vehicle maintenance = $.07 per mile x 3500 mi/mo. = $ 345 mo.

And, the supervision costs are computed as follows:

If there are: 88 patrol officers

11 sergeants

5 lieutenants, then the

supervision requirements are:

one patrolman requires 11/88 sergeants (.08), and

one patrolman requires 5/88 lieutenants (.06).

Sergeants earn $14,400 and lieutenants earn $15,600. The cost requirements are:

each patrolman $14,400 x .08 sergeants = $1,160, and

each patrolman $15,600 x .06 lieutenants = $ 936

$2,096 total.

Total cost for one vehicle per month = $ 4,590

System cost for three men = $32,940 + $6,288 + $4,590 =

$43,818

Two helicopters ÷ one patrol unit seventeen hours a day =

$216,812 ÷ $43,818 = 4.9 patrol cars available

Therefore, for the $216,812 cost of continuing the ACE program for one year, the Department could implement and maintain 4.9 patrol cars, seventeen hours a day, seven days a week.

Evaluation Factors

The following list shows the evaluation factors and the relative importance attached to each. The importance level assigned was based on the researcher's estimate of value as seen by the prime decision-makers who will determine if the helicopter program is continued intact or replaced by additional patrol units; namely, the Riverside City Council, City

Manager, and Police Chief.

1.0 MOST IMPORTANT

- 1.1 Crime Deterrence
- 1.2 Apprehensions
- 1.3 Officers' Safety (Actual)

2.0 VERY IMPORTANT

- 2.1 Response Time
- 2.2 Community Safety from Operations

3.0 IMPORTANT

- 3.1 Officers' Safety (Perceived)
- 3.2 Provision of Public Services

4.0 AVERAGE IMPORTANCE

- 4.1 Community's Perception of Security
- 4.2 Ecological Concern

5.0 MINOR IMPORTANCE

- 5.1 Person-to-Person Contact

Evaluation Criteria and Ratings

1. Crime deterrence rests upon the visibility theory: the greater the visibility capability of a conspicuous police patrol vehicle, the greater the perceived threat of detection and apprehension. The helicopter in flight is ten times more visible to persons on the ground than a conventional patrol unit. In addition, its capability to be seen is much greater because of its greater patrol speed---60 miles per hour as contrasted to 20-25 miles per hour for the ground unit. Another factor contributing to increased visibility is the fact that the helicopter spends a larger proportion of its flight time on patrol, 72% as compared to a meager 20% for the ground unit. Such helicopter capabilities contribute to a significant

deterrent effect: robberies, burglaries, and auto thefts decreased significantly in Riverside without measurable displacement of these crimes to surrounding areas.

1.2. Apprehensions for Part I Crimes were tallied utilizing available data for the helicopter patrol, however, since data for arrests made by ground units was not extractable from total departmental arrests, approximations were made as follows. Helicopter made twenty-two Part I arrests for seven months or three per month or 1.5 per helicopter per month. With 58.8 possible patrol beats (88 patrol officers ÷ 1.5), there would be 1.1 arrests per beat per month. Therefore, with 9.8 additional beats over a seventeen hour period (4.9 x 2 shifts) the ground units would make approximately 10.8 arrests per month to three per month for the two helicopters. If data were available, it would be possible to objectively compare the arrest success rates for both the helicopter and the patrol cars. Since it was not, ratings given were given low confidence rates.

1.3. Officers' Safety: Actual is measurable is several ways, including the number of assaults on police officers and the number of injuries suffered by officers involved in collisions or crashes of their patrol vehicles. As far as is known, the officers in the police helicopters are very seldom assaulted, simply because they are an airborne target, difficult and inaccessible. Further, the air safety records per hours flown is much better than the collision rate for motor vehicles.

2.1. Response times were specifically measured for the helicopter patrol at an average of 1.7 minutes for Part I Crimes. A RPD police patrol administrator estimated that a ground patrol unit takes an average of six

minutes to arrive at Part I Crime scenes. The helicopter's response time capabilities are inherent in the nature of aerial patrol. First, the helicopter can travel faster (up to 90-100 miles per hour) without being confined to city streets with its attendant problems. Second, because of the greater available patrol time, it is able to respond faster because it is not busy handling a large number of calls as are the patrol units.

2.2. Community safety from operations relates to the degree of hazard presented by the operations of helicopter patrol versus an additional 4.9 patrol units. As stated earlier, the helicopter has an excellent safety record compared to that of the patrol car. This is due to the close mechanical inspections given to the aircraft before and during each shift, the fact that there is less traffic in the air with which to collide, plus the fact that helicopters do not usually make "code three" (emergency) runs which are notorious causes of police vehicle collisions. However, if a helicopter was to crash in a populated area, it could result in property damage and personal loss of life. The possibility of this occurring is so remote as to be extremely improbable. Incidents of previous helicopter crashes known to the researcher occurred in uninhabited areas or in the streets of residential areas, with no one injured except on occasion the helicopter crews.

3.1. Officers' Safety: perceived was gauged through the police personnel attitude questionnaire administered as part of the project evaluation. Findings indicate that officers did feel more secure with the addition of helicopters. The aerial back-up capabilities rest upon the rapidity of response time and the deterrent effect of the orbiting aircraft,

each of which would probably not be achieved through the addition of 4.9 additional patrol units.

3.2. Provision of public services can only be evaluated by the types and number of services performed by the helicopter versus the patrol car. It was felt that if an exhaustive listing of activities was developed the most advantageous vehicle to perform them would not be readily apparent. Thus, it was decided that the helicopter patrol can perform certain service activities that cars cannot, and in turn, patrol cars can perform certain service activities that the helicopter cannot.

4.1. Community's perception of security was assessed through the community attitude surveys mailed to Riverside residents. With over seventy-six percent of all respondents stating they feel more secure because of the helicopter patrol, it is felt that this response would not be received if an additional 4.9 patrol cars were added. Again, the key to community security is the awareness potential of the helicopter patrol which cannot be matched by the patrol unit. A study of the Los Angeles Police Department's helicopter project (ASTRO) by the Jet Propulsion Laboratory revealed that the most comm community reaction when a helicopter is heard is that it is the police. Thus, the police department may be getting credit for helicopter fly-overs from other military and private helicopters.

4.2. Ecological concerns center on the noise and air pollution created by the helicopter versus what could be anticipated from an additional 4.9 patrol cars. Lacking hard data on decibel and pollutant emissions, it was decided that, if the engine combustion emissions were equal, the helicopter would certainly score higher than the patrol cars for noise emissions.

5.1. Person-to-Person contacts and the related public relations impact is absent in helicopter operations which, for the most part, are impersonal and not practically achievable as with patrol cars.

Evaluation Findings and Conclusions

Figure 3.24 is a summary of the evaluations and confidence levels assigned to each evaluation factor, and the resulting numerical scores.

A total of the values by category of importance shows that the helicopter scores higher in every one of the highest four categories, but scores below the patrol units on the person-to-person evaluation factor which was given minor importance. The findings, when tested for sensitivity, stand up quite well. The "average importance" items were determined to be sensitive, that is, errors or mistaken determinations of advantages of the helicopters and patrol cars could mean that the latter could have received the higher rating. In the most important class, if the low confidence scores on the apprehensions were completely wrong, that is, if the helicopter was graded D and the patrol car A, the helicopter would still achieve the higher rating.

Figure 3.24

COST-BENEFIT ANALYSIS FINDINGS

EVALUATION FACTORS	HELICOPTER RATING *Grade*	HELICOPTER RATING *Value*	HELICOPTER CONFIDENCE LEVEL	PATROL CARS RATING *Grade*	PATROL CARS RATING *Value*	PATROL CARS CONFIDENCE LEVEL
1. MOST IMPORTANT (20 points)						
1.1. Crime Deterrence	A	160	VC	C	80	C
1.2. Apprehensions	C	80	LC	B	120	LC
1.3. Officers Safety (Actual)	A	160	VC	D	40	VC
		400			240	
2. VERY IMPORTANT (15 points)						
2.1. Response Time	A	120	VC	D	30	C
2.2. Community Safety from Operations	A	120	VC	B	90	C
		240			120	
3. IMPORTANT (10 points)						
3.1. Officers Safety (Perceived)	A	80	C	C	40	C
3.2. Provision of Services	B	60	LC	B	60	LC
		140			100	
4. AVERAGE IMPORTANCE (8 points)						
4.1. Community Perception of Security	A	64	VC	C	32	VC
4.2. Ecological Concern	D	16	C	C	32	C
		80			64	
5. MINOR IMPORTANCE (5 points)						
5.1. Person-to-Person Contact	C	20	C	C	30	C
TOTAL		880			554	

COMMUNITY ATTITUDE SURVEYS

Attitudes of Riverside residents were measured in two iterations of a mail-out survey utilizing questionnaires distributed via the City's utility billing. The survey mailings were structured so that the first questionnaire reached residents before ACE patrol flights were initiated, during December, 1970, and January, 1971. The second, or follow-up, questionnaires were mailed after the Project was operational for eight to ten months. Consequently, the difference in responses received can be calculated and will reveal any opinion changes resulting from exposure to helicopter patrol operations.

First Survey

The first questionnaire, distributed to 35,000 residents, was returned by 19,331 or fifty-five percent of the residents. This is a significantly high return rate for any mail-out type of survey and is certainly indicative of the importance attached to the project by community residents.

Of those responding, fifty-four percent were previously aware of the program. An even greater number, eighty percent, were in favor of the program, where seventeen and one-half percent were not in favor of it, and a little more than one percent had not formed an opinion. Nearly three-forths (seventy-two percent) of all respondents felt more secure as a result of the project, twenty-three percent did not, and a little less than two percent were uncertain.

The following Table details the study's major findings.

Figure 3.25

PROJECT ACE: FIRST COMMUNITY SURVEY

	NUMBER	PERCENT
QUESTIONNAIRES MAILED	35,000	55.2
QUESTIONNAIRES RETURNED	19,331	55.2
AWARE OF PROJECT?		
Yes	10,355	53.5
No	7,841	40.6
No Response	1,117	5.8
IN FAVOR OF PROJECT		
Yes	15,318	79.2
Qualified Yes	158	0.8
No	3,389	17.5
Qualified No	17	0.1
Don't Know	217	1.1
No Response	195	1.0
FEEL MORE SECURE AS RESULT OF PROJECT		
Yes	13,922	72.0
Qualified Yes	121	0.6
No	4,422	22.9
Qualified No	46	0.2
Don't Know	374	1.9
No Response	408	2.1
SEX OF RESPONDENT (OPTIONAL)		
Male	8,233	42.6
Female	7,711	39.9
Both Listed	1,564	8.1
Not Given	1,776	9.2

Findings were further tabulated by the respondents' zip codes in order to permit a geographical analysis of responses (Figure 3.26). distribution of responses among the various zip code areas ranged from eight questionnaires (0.04%) from 92508 (MAFB) to 4,023 (21%) from 92506 (Magnolia district). Figure 3.26 gives the responses by zip code area.

In six of the eight identified zip code areas, over half of the respondents were aware of the project. In the remaining two zip code areas, La Sierra (92505) and March Air Force Base (92508) more were unaware of the project than were aware of it. The greatest awareness of the project was expressed by residents in the Magnolia district (92506).

At least three out of every four respondents giving their zip codes were in favor of the project. Whereas two out of three respondents not listing their zip code were in favor of it. The largest percentage of respondents in favor of the project were as follows:

Arlington (92503) = 85%

Hardman (92504) = 84%

La Sierra (92505) = 86%

Rubidoux (92509) = 85%

On the other hand, the largest percentage of respondents opposed to the project were in the following areas:

Main (92501) = 20.0%

Canyon Crest (92507)= 19.0%

Unidentified = 27.5%

The residents of these areas also felt the least secure as a result of the project. In contrast, in nearly every other zip code area, more than seven out of ten respondents stated they would feel more secure as a result of the project.

Figure 3.26

PROJECT ACE: FIRST COMMUNITY ATTITUDE SURVEY
Responses by Zip Code Area

	92501 Main	92502 Arlington	92504 Hardman	92505 La Sierra	92506 Magnolia	92507 Canyon Crest	92508 March AFB	92509 Rubidoux	Unidentified	TOTALS
QUESTIONNAIRES RETURNED:	1794	2512	3416	1494	4023	2579	0008	0033	3471	19,3311
	9.3%	13.0%	17.7	7.7	20.8%	13.3%	0.04%	0.2%	18.0%	
AWARE OF PROJECT?										
Yes	54.4	52.9	56.6	42.6	62.7	52.1	25.0	54.5	45.8	53.6
No	40.5	41.8	37.1	52.8	31.3	43.6	62.5	38.4	46.3	40.6
IN FAVOR OF PROJECT:										
Yes	76.8	84.6	83.4	85.9	81.2	78.4	75.0	84.8	67.9	79.2
Yes & Q. Yes	77.9	85.1	84.0	86.9	82.3	79.1	75.0	87.9	68.7	80.0
No	19.6	12.8	14.1	11.8	15.4	18.6	12.5	12.1	27.5	17.5
No & Q. No	19.7	12.9	14.1	11.9	15.5	18.7	12.5	12.1	27.5	17.6
Do Not Know	1.5	1.0	1.1	0.7	1.1	1.3	12.5	0	1.0	1.9
FEEL MORE SECURE:										
Yes	71.3	78.1	75.5	78.8	7 .1	69.4	52.5	78.8	60.0	72.0
Yes & Q. Yes	72.0	78.6	76.1	79.4	75.8	70.0	62.5	78.8	60.7	72.6
No	23.2	18.0	19.7	17.6	20.2	25.9	25.0	15.2	32.5	22.9
No & Q. No	23.4	18.2	19.8	17.9	20.6	26.2	25.0	18.2	32.7	23.1
Do Not Know	2.2	1.5	2.3	1.7	1.9	2.0	12.5	0	1.8	1.9
SEX:										
Male	44.6	45.4	46.4	48.5	46.3	49.9	75.0	39.4	23.5	42.6
Female	47.3	45.1	44.0	41.6	42.6	42.7	0	54.5	22.2	39.9
Both Listed	7.7	9.2	9.4	9.3	10.5	7.1	25.0	6.1	3.6	8.1
NAME:										
Listed	89.1	89.1	88.6	86.8	88.0	84.9	87.5	87.9	23.8	76.3
Not Listed	10.9	10.9	11.4	13.2	12.0	15.1	12.5	12.1	76.2	23.7

Second Survey

Again, 35,000 questionnaires were distributed and again, an extremely large number, fifty-four percent, were returned. Figure 3.27 illustrates the major findings. The overwhelming majority of the respondents, ninety-seven out of one hundred, were aware of the Project. A similarly large number (85.5%) were in favor of the project, whereas slightly more than ten percent were not in favor of it. More than three-quarters of the respondents actually felt more secure as a result of the project.

Over two-thirds of all residents responding to the questionnaire stated that they are more aware of the Police Department since the initiation of helicopter patrol flights. This, therefore, gives credence to the fact that helicopter patrol increases the visibility of police presence and enhances the consequent criminal deterrent effect.

Because of a printing error on some of the questionnaires which omitted the "yes" and "no" check boxes on the question regarding police presence and the question regarding favor of continuing the helicopter patrol, there were a relatively large number of "no response" answers.

The next question contained on the questionnaire, "Do you have a better Police Department since the addition of helicopters?" drew a seventy-two percent "yes" vote. The fifteen percent stating "no" generally acknowledged that it took more than a piece of machinery to make a better department.

When asked the critical question of whether they favored continuation of the helicopter patrol, nearly eighty percent indicated approval. And additional 1.8 percent approved on a conditional basis; for example, if the noise is reduced, if taxes aren't raised, if the helicopter is not used to invade privacy, and if it is used only for emergencies. The following

Figure 3.27

PROJECT ACE: SECOND COMMUNITY ATTITUDE SURVEY
Total Responses

	NUMBER	PERCENT
QUESTIONNAIRES MAILED	35,000	
QUESTIONNAIRES RETURNED	19,331	54.0
AWARE OF PROJECT:		
Yes	18,218	96.8
No	224	1.2
No Response	383	2.0
IN FAVOR OF PROJECT:		
Yes	16,102	85.5
Qualified Yes	109	0.6
No	1,920	10.2
Don't Know	176	0.9
No Response	487	2.6
FEEL MORE SECURE AS A RESULT OF PROJECT:		
Yes	14,405	76.5
No	3,377	17.9
Don't Know	320	1.7
No Response	697	3.7
MORE AWARE OF POLICE DEPARTMENT:		
Yes	12,772	67.8
Qualified Yes	1,001	5.3
No	2,536	13.5
Don't Know	143	0.8
No Response	2,126	11.3
BETTER POLICE DEPARTMENT BECAUSE OF PROJECT:		
Yes	13,456	71.5
No	2,827	15.0
Don't Know	1,063	5.6
No Response	1,276	6.8

Figure 3.27 - Continued

	NUMBER	PERCENT
FAVOR CONTINUING THE HELICOPTER PATROL:		
Yes	14,308	76.0
Emphatic Yes	491	2.6
Qualified Yes	336	1.8
No	1,644	8.7
Emphatic No	92	0.5
Qualified No	107	0.6
Don't Know	131	0.7
No Response	1,665	8.8
SEX:		
Male	7,767	41.2
Female	9,220	49.0
Both (e.g., husband and wife)	1,201	6.4
Not Given	637	3.4
ZIP CODE:		
92501 (Main)	502	2.7
92502	79	0.4
92503 (Arlington)	3,662	19.4
92504 (Hardman)	4,402	23.4
92505 (La Sierra)	2,364	12.6
92506 (Magnolia)	3,427	18.2
92507 (Canyon Crest)	3,553	18.9
92508 (March AF)	12	0.1
92509 (Rubidoux)	31	0.2
Not Given or Outside Zip Code Area	793	4.2
NAME:		
Listed	17,606	93.5
Not Listed	1,219	6.5

quotations are presented to further illustrate some of the qualifications attached:

- I can see the feasibility of using the helicopter WHEN IT HAS BEEN DISPATCHED FROM THE GROUND to a specific trouble area . . . Or, to cover a large event when trouble is expected.

  BUT I do not approve of the constant patrolling day and night, any more than I would think it appropriate for the fire dept. to have its engines patrol (sic.) the streets night and day looking for a fire . . .

  I believe the money could be better spent to benefit both the Police Dept. and the City of Riverside, paying to have a standby crew at the Helicopter base---the same as with the fire dept. . . . Then it could get a plane in the air and to the designated spot in short order . . .

- Only with addition of mufflers.

- Only if it shows a crime reduction.

- Yes, providing it can be continued under the present available funding system.

- Yes . . . But it interferes with my T.V. reception!

- Only if we can also have more patrolmen.

- That "yes" is qualified. The copter crew should be under strict rules against random invasion of privacy---which I have seen a few times.

Approximately ten percent of all respondents did not want the project to continue for various reasons. The comments given, as illustrated by the quotes below, center on noise, cost, alternative methods of policing, and the invasion of privacy issue.

- No, because of reports of extreme annoyance of noise and the search light, both of which bother too many people. Also, use of the light seems arbitrary and too frequent, as in park patrols, etc.

- No. It's an invasion of Privacy. Big Brotherism.

- No. They should use the money on more policemen and patrol cars.

- No, as I do not feel that is by any means a service. It is a needless waste of money which your department could use in more intelligent ways.

- No. I'd rather see more manpower and patrols on the ground for the same money. I believe this would be more efficient and, in the long run, would build better interpersonal relations between citizens and police . . .

Analyzing the overall results by the sex of the respondent reveals that nearly one-half of the total responses were from females, forty-one percent from males, and six percent were signed by both a male and female, typically husband and wife. Slightly over three percent did not write in their sex. Figure 3.28 contains findings by sex of respondent.

This percentage distribution by sex of the total responses was not evidenced in every question, however. For example, in answering whether they are in favor of the project, a greater percentage of males compared to females qualified their "yes" responses (fifty-five percent) or said "no" (fifty-eight percent). Also, in responding to the question if they feel more secure as a result of the project, a large proportion of males than females said they felt no more secure (fifty-six percent versus thirty-five percent, respectively). Further, the same trend was evident in the final three questions. A proportionately larger share of males were not made more aware of the Police Department because of the presence of helicopters (or were made more aware in a pejorative sense). A proportionately larger number of males did not believe that Riverside had a better Police Department since the addition of helicopters. And, of these not favoring continuation of the helicopter patrol, nearly twice as many were male respondents.

Data was further collected by postal zip code of the respondents to permit a general geographical analysis of responses. The detailed findings by question are exhibited in Figure 3.29. Responses were received from a total of nine separate zip code areas, plus 4.2 percent which did not have a zip code entered or were outside the Riverside zip code area, 925XX.

Figure 3.28

PROJECT ACE: SECOND COMMUNITY ATTITUDE SURVEY
Percent of Responses by Sex of Respondents

	MALE %	FEMALE %	BOTH %	NONE %
AWARE OF PROJECT:				
Yes	41.5	48.7	6.4	3.3
No	41.1	50.9	1.8	6.2
No Response	29.0	58.7	6.5	5.7
IN FAVOR OF PROJECT:				
Yes	34.9	50.8	6.5	3.2
Qualified Yes	55.0	34.9	6.4	3.7
No	58.2	32.2	5.4	4.2
Don't Know	44.9	43.8	6.8	4.5
No Response	29.8	58.7	5.5	6.0
FEEL MORE SECURE AS RESULT OF PROJECT:				
Yes	38.1	52.0	6.8	3.1
No	56.1	35.2	4.7	3.9
Don't Know	44.7	46.2	5.0	4.1
No Response	33.8	54.2	5.2	6.7
MORE AWARE OF POLICE DEPARTMENT:				
Yes	39.5	52.2	7.0	1.3
Qualified Yes	54.0	35.2	8.3	2.5
No	46.0	34.0	3.9	1.2
Don't Know	34.3	58.0	7.7	0.7
No Response	31.0	46.0	3.8	19.1
BETTER POLICE DEPARTMENT BECAUSE OF PROJECT:				
Yes	40.4	51.3	7.0	1.3
No	55.0	38.0	5.0	2.0
Don't Know	37.2	56.2	5.3	2.1
No Response	24.4	21.6	3.9	30.0

Figure 3.28 - Continued

	MALE %	FEMALE %	BOTH %	NONE %
FAVOR CONTINUING THE HELICOPTER PROJECT				
Yes	40.0	52.2	6.5	1.3
Emphatic Yes	35.4	47.0	16.9	0.6
Qualified Yes	57.4	35.7	5.0	1.8
No	60.3	32.6	5.0	2.1
Emphatic No	43.5	38.0	15.2	3.3
Qualified No	54.2	36.4	9.3	0
Don't Know	51.9	42.0	4.6	1.5
No Response	29.9	42.7	3.5	23.9

Of all responses received, the largest single group came from Hardman, 92504 (23.4%); the smallest from March AFB, 92508 (0.1%). Acceptance of the project was equally high in all but two areas: Canyon Crest, 92507, and the unknown zip code group. This area contained the largest number of persons not in favor of the project, 15.8% for Canyon Crest and 22.7% for the unknown zip area.

The areas expressing the greatest amount of increased security as a result of the project were zips 92502 and 92503. Conversely, the zip codes expressing the least amount of increased security were Canyon Crest, March AFB, and unidentified.

The same two zip code areas reported the largest percentage of "no" responses to the question, "Has presence of the helicopter made you more aware of your department?" Again, zip codes 92507 and 92508 (Crest Canyon and March AFB), comprising a total of nineteen percent of all questionnaires returned, contained the largest percentage of persons who did not believe Riverside has a better police department since the addition of helicopters.

On the crucial question of favoring continuation of the project, zip codes 92403, 92503, and 92505 (Arlington, Hardman, and La Sierra, respectively) reported the largest percentage of persons in favor. On the contrary, areas 92507 and 92508 ranked as the lowest two areas in terms of favoring continuation.

Comparison of First and Second Surveys

In each of the three questions that were nearly identical in both surveys, the second survey revealed (1) that many more people have become aware of the project, (2) more people are in favor of the project, and

Figure 3.29

PROJECT ACE: SECOND COMMUNITY ATTITUDE SURVEY
Percent of Responses by Zip Code Area of Respondents

	92501 Main	92502 Arlington	92504 Hardman	92505 La Sierra	92506 Magnolia	92507 Canyon Crest	92508 March AFB	92509 Rubidoux	Unidentified	TOTALS
TOTAL QUESTIONNAIRES RECEIVED	2.7	0.4	19.4	23.4	12.6	18.2	18.9	0.1	0.2	4.2
AWARE OF PROJECT:										
Yes	97.4	97.5	96.7	97.2	96.4	97.4	97.0	100.0	93.5	91.7
No	0.8	1.3	0.9	0.9	1.3	0.6	1.8	0	3.2	4.0
IN FAVOR OF PROJECT:										
Yes	85.2	86.1	88.9	87.0	88.4	86.0	79.4	83.3	90.3	78.2
Qualified Yes	0.2	0	0.4	0.5	0.5	0.7	0.9	0	0	0
No	12.0	8.9	7.5	9.3	7.2	9.4	15.8	8.3	3.2	22.7
Qualified No	0.6	2.5	5.7	0.7	0.8	1.1	1.4	8.3	0	2.4
FEEL MORE SECURE AS RESULT OF PROJECT:										
Yes	77.5	82.3	80.1	78.2	79.1	78.8	68.6	58.3	77.4	67.0
No	18.3	11.4	14.4	16.4	14.5	15.9	26.8	33.3	3.2	22.7
Don't Know .	1.8	1.3	1.8	1.5	1.7	1.7	1.5	0	9.7	2.4

Figure 3.29 - Continued

	92501 %	92502 %	92503 %	92504 %	92505 %	92506 %	92507 %	92508 %	92509 %	OTHER %
MORE AWARE OF POLICE DEPARTMENT:										
Yes	73.5	65.8	76.4	74.7	76.7	76.1	78.8	75.0	61.3	33.5
No	12.5	13.9	11.8	14.1	12.3	13.0	16.9	25.0	12.9	7.9
Don't Know .	0.6	0	0.8	0.7	1.0	0.8	0.7	0	3.2	0.2
BETTER POLICE DEPARTMENT BECAUSE OF PROJECT:										
Yes	72.3	75.9	77.5	74.0	76.5	73.7	65.0	58.3	77.4	32.5
No	15.3	16.4	12.3	14.4	12.0	13.9	22.0	25.0	12.9	13.1
Don't Know .	5.6	3.8	5.0	5.2	5.5	6.1	7.2	8.3	3.2	3.0
FAVOR CONTINUING PROJCE :										
Yes	77.9	77.2	83.6	82.1	83.4	81.7	73.0	66.7	80.6	34.2*
Qualified Yes	1.6	0	1.5	1.4	1.5	2.1	2.6	0	0	1.5
No	10.8	7.6	7.4	9.1	7.2	9.1	15.6	8.3	6.4	8.8
Don't Know .	0.8	3.8	0.6	0.6	0.6	0.6	1.1	0	0	0.5

*54.6 percent of the respondents not listing their zip codes also did not respond to this particular question.

(3) more people feel more secure as a result of the project. Figure 3.30 contains this comparison data.

It is impossible to categorically state that these changes reflect the beneficial effects of actual exposure to helicopter operations since it cannot be shown that both survey questionnaires were completed by the same persons each time. Nevertheless, considering the nature of the mailings via the utility billing system, the vast majority of persons receiving the first questionnaire probably also received the second. It can also be assumed that if they participated in the first survey, they did so again in the second. Consequently, one can state with a relative degree of certainty that certain persons changed their initial opinions of the police helicopter after being exposed to operations either directly by observing and hearing and/or indirectly by reading and hearing accounts and descriptions of the helicopter project. Undoubtedly, some specific persons changed their opinions from favorable to adverse, but most important, the largest group of persons changed from unfavorable or uncertain attitudes to favorable and supportive ones.

Comparison of responses by zip code areas in Figure 3.31 shows that every single zip code area exhibited an increase in the percentage of persons in favor of the project. The biggest percentage increase was in areas 92501 (Main), 92508 (March AFB), and unknown or other.

Six of the nine zip code areas also showed an increase in the number of persons who feel more secure as a result of the project, 92501 through 92506 and unknown or other. Areas 92501 and unknown/other reported the greatest percentage of increase between the two surveys on this question. However, areas 92407, 92508, and 92509 (Canyon Crest, March AFB, and Rubidoux) reported a decrease in the number of respondents feeling more secure.

Figure 3.30

PROJECT ACE: COMMUNITY ATTITUDE SURVEYS
Percentages, First Survey Compared to Second Survey

	FIRST SURVEY %	SECOND SURVEY %	DIFFERENCE %
QUESTIONNAIRES RETURNED	55	54	- 1
AWARE OF PROJECT:			
Yes	53.5	96.8	+43.2
No	40.6	1.2	-39.4
No Response	5.8	2.0	- 3.8
IN FAVOR OF PROJECT:			
Yes	80.0	86.1	+ 6.1
No	17.6	10.2	- 7.4
Don't Know	1.1	0.9	- 0.2
No Response	1.0	2.6	+ 1.6
FEEL MORE SECURE AS RESULT OF PROJECT:			
Yes	72.6	76.5	+ 3.9
No	23.1	17.9	- 5.2
Don't Know	1.9	1.7	- 0.2
No Response	2.1	3.7	+ 1.6
Male	42.6	41.2	- 1.4
Female	39.9	49.0	+ 9.1
Both Listed	8.1	6.4	- 1.7
Not Given	9.2	3.4	- 5.8
ZIP CODE			
92501 (Main)	9.3	2.7	- 6.6
92502	0	0.4	+ 0.4
92503 (Arlington)	13.0	19.4	+ 6.4
92504 (Hardman)	17.7	23.4	+ 5.7
92505 (La Sierra)	7.7	12.6	+ 4.9
92506 (Magnolia)	20.8	18.2	- 2.6
92507 (Canyon Crest)	13.3	18.9	+ 5.6
92508 (March AFB)	*nil*	*nil*	---
90509 (Rubidoux)	0.2	0.2	N/C

Figure 3.30 - Continued

	FIRST SURVEY %	SECOND SURVEY %	DIFFERENCE %
Not Given/Outside Zip Code Area . . .	18.0	4.2	-14.0
NAME			
Listed	76.3	93.5	+17.2
Not Listed	23.7	6.5	-17.2

Figure 3.31

PROJECT ACE: COMMUNITY ATTITUDE SURVEYS
First Survey Compared to Second Survey
By Zip Code Area

	PERCENTAGE INCREASE (DECREASE)								
	92501 (Main)	92503 (Arlington)	92504 (Hardman)	92505 (La Sierra)	92506 (Magnolia)	92507 (Canyon Crest)	92508 (March AFB)	92509 (Rubidoux)	Unknown/Other
IN FAVOR OF PROJECT:	8.4	4.3	3.6	2.5	4.8	1.0	8.3	6.5	10.3
FEEL MORE SECURE:	6.2	2.0	2.7	0.3	3.7	*0.8*	*4.2*	*1.4*	7.0

This is understandable for March AFB and Rubidoux, since these areas are not regularly patrolled by the helicopter for jurisdictional reasons.

Section Four

CONSULTATION

The second, concurrently performed major task of the IPS was an on-going monitoring of Project operations. It was felt that close monitoring facilitated the identification of Project deficiencies in sufficient time to make meaningful changes, and also to provide consultive expertise in areas where it was most needed. The evaluators/consultants provided their problem solving expertise through the techniques of: (1) participant observation whereby actual operations were witnessed and assessed, and (2) through periodic consultations with project personnel and police managers. Also, two legal research studies were conducted by an IPS consultant: (1) Legal Aspects of Police Helicopter Usage and (2) Right of Privacy and Police Surveillance by Aircraft. Both of these studies were previously submitted to RPD as separate reports.

OPERATIONAL PLANNING

Initial consultation efforts focused on assisting RPD in planning for the implementation of aerial patrol. Of utmost importance to the success of the new patrol was the fact that field officers must be aware of the presence and purpose of the helicopter patrol, and utilize it as effectively as possible. Administrators, supervisors, and line personnel were continually reminded of this and were encouraged to maintain a working rapport between air and ground patrol units. To this end, it was strongly urged that air crews maintain contact with field units through daily meetings with line personnel at regular roll-call sessions.

Department administrators were "geared" to respond to expected complaints from citizens concerning noise, application, cost, "invasion of privacy," etc. Because a good measure of the success potential of new concepts depends on citizen cooperation, or at least understanding, methods were devised wherein personal "follow-up" contacts were to be made whenever possible in answer to complaints. Every measure was taken to keep local media informed at all times. Consultants strongly urged RPD to utilize helicopters and air-crews in a program of "fly-ins" to local schools, thus developing a healthy image with young people and, through them, with the parents who represent the adult community. This has been an on-going program which is proving to be highly successful as an aid to police-community relations. Personal exposure to the concept and the helicopter promotes citizen understanding and is very probably an additional factor in enhancing the repressive value of the patrol to some extent. The success of preparation for public relations and proper follow-through was manifest in Riverside by the fact that complaints, which were relatively noticable in the beginning of the operational period, soon tapered off to occasional inquiries and infrequent "chronic" complaints.

Training of field personnel was designed to acquaint "the man on the beat" with his new tool. Training of air crews involved a much deeper and more concerted effort. The RPD employed pre-trained police pilots. This system will be discussed briefly since it is a method that can be used by communities who wish to implement an aerial patrol program and are restricted by a time frame or funding for training of their own personnel.

The RPD did not hire commercial pilots per se, but located a high time commercial pilot with an instructor's rating who had many years of

police experience. This first man was given the title of "Chief Pilot" and reimbursed in an amount about equivalent to that of lieutenant in the Department. The second pilot hired was recruited from the ranks of another Southern California police department and had a fair amount of flying time as helicopter pilot in command of police patrol helicopters. This pilot required training to transition him from the make and type of helicopter he had been flying into the type used in the ACE program. The Chief Pilot encountered very little difficulty in assisting the second man in this transition. Both of the newly acquired pilots had adequate amounts of police experience but still had to be indoctrinated into the RPD. Further, both were well accepted by the line function officers and were able, through their experience, to be of great value in the initial phases of the program preparation. Departmental balance of pilots was maintained through the addition of a third pilot who had been with Riverside for a number of years as a radio-car patrolman and motor officer. This third pilot, through his own effort and financing, had received a nominal amount of helicopter time and was FAA rated. The Chief Pilot continued the training, concentrating enough on the third pilot so that he was ready for patrol duties. This occurred in sufficient time to use him on a regular basis from the onset of the actual patrol. While pilots were being prepared, equal training consideration had to be given to observers. From the very beginning of the Project, the consultants advised, and the RPD agreed, that the key to the efficiency of aerial patrol was the police observer.

Observer selection was based on the individual officer's ability in the field, attitude toward the helicopter patrol concept (Did he really see it as a good police tool?), willingness to participate, past performance ratings (the opinions of his immediate supervisors), adaptibility in new situations, and

(very important) ability to work consistently and well with a minimum amount of supervision. After selection, and using these criteria, the next most important step was taken, air orientation. This preceeds "on-the-job" type training and from the orientation more is learned of the candidate-observer's adaptability and, quite soon, it will be discovered if the officer is prone to airsickness. This is most important to learn as quickly as possible. Too much depends on the observer to risk the efficiency loss due to flight discomfort while on duty. The RPD is to be commended on the quality of the observers they selected. Their daily activity logs and Critical Incident Reports contributed greatly in the gathering of accurate and meaningful data throughout the Project.

Maintenance

The Project was designed to supply two shifts of aerial patrol (day and evening) seven days a week. Two helicopters were utilized. The air-time goal was five hours per shift. This goal calls for ten air hours per day and three hundred plus hours per month. The actual daily average throughout the Project was 3.8 hours. Evaluators and consultants stressed the need to space accumulated hours on the helicopters to forestall the probability of both aircraft becoming due for major, long-time-on-ground maintenance at or near the same time. Some initial difficulty was encountered in this control as accessory equipment and "de-bugging" requirements usually encountered in new aircraft interfered with availability and air crews were reluctant to miss shifts. This means that whatever machine was available to fly was used to cover a shift. Close monitoring by the IPS consultants and concerned Departmental administrators, however, caught flight time problems early enough to prevent serious time loss at a later date. This early episode did, however,

point out a need for accelerated major overhaul processes. IPS personnel recommended that serious and immediate consideration be given to the purchase of an additional aircraft (helicopter) engine which would be ready for the first major engine overhaul time. As both helicopters utilize the same engine type, the following system can be employed: The new (extra) engine can be quickly placed into the first helicopter due for overhaul, the engine removed from the first overhaul may then be rebuild and be ready for the second overhauled helicopter. Similarly, the engine from the second overhaul may be rebuild and be ready for the next overhaul. The system is then perpetuated and many hours of aircraft availability are preserved each year. Department administrators saw the value of the system and, after equating it with flying time goals set, purchased the third engine in ample time to meet requirements of the first overhaul. This has worked so well at Riverside and other communities and agencies, that it must be considered as an important recommendation to any agency planning to mount an aerial patrol.

Maintenance programs utilized by the RPD will be dealt with after briefly discussing methods which have been employed by other law enforcement agencies and city governments. To begin, larger agencies employing up to five or more helicopters and some smaller agencies have found that employing one or more helicopter mechanics (preferably with an FAA rating of "Inspection Authorized") and performing all routine type maintenance in-house, is very efficient and economical; yet, there are advantages in this system which go beyond economy. One principal advantage is that the mechanic and pilot being, in effect, a team which keeps equipment in the best possible condition and highly available. Under such circumstances, pilots develop a great deal of confidence in condition of the equipment because they know and have confidence

in the mechanic(s). Economical advantages include availability of parts at a discount rate, avaition gasoline and oil purchases at cheaper bulk rates, and technical knowledge immediately available to recommend savings in many other areas. Efficiency is provided through the constant and immediate availability of professional mechanical personnel to handle unscheduled maintenance and thus, provide higher degrees of helicopter availability. (Even under this system, most agencies arrange to have engines overhauled by specialist shops which are certified repair stations.)

Equally important is the system wherein all maintenance of the helicopter, including major overhauls, routine work, replacement of retirement life items, repairs in unscheduled maintenance, all necessary parts, aviation fuel and oil are provided by a certified repair station at a mutually agreed upon hourly rate (i.e., hourly as related to hours flown by the helicopter, example: $28.00 per hour contracted would cost the agency $280.00 for ten actual hours in the air.). The main advantage here is that a community may obtain the necessary equipment, provide the pilots and observers, and commence immediate operation secure in the knowledge that they must concern themselves with operations only and not with maintenance. This system has been and is being used by many communities who have one or two helicopters and should be considered a viable system for the agency beginning a new program, as it permits the principal amount of energy to be directed toward the police function as it relates to the helicopter instead of toward worries concerning an innovative patrol machine which may be quite foreign to them.

After consultation and consideration, RPD officials, in effect, combined the best of the two systems described. The combination system has been of enough success and satisfaction and is certainly worthy of description in this report. Beyond that, it is worthy of recommendation to agencies able

to avail themselves of a similar system. The RPD helicopter maintenance system has worked well and is still operating practically unchanged at this time.

Because of the time frame involved in the Project, and more importantly, because there were only two helicopters involved, RPD administrators gave cursory consideration to acquiring a helicopter mechanic as permanent personnel. They then explored contract maintenance in some depth and conducted cost studies of various offers. During the course of their studies, they found that as an agency of government, they were entitled to discount on parts for the helicopter and manufacturer-furnished (built) accessories. Such discount is not necessarily available when contracting on a flat hourly basis. The search for proper maintenance led them to Western Helicopters in nearby Rialto, California (very few flying minutes from Riverside) where the following arrangements were made:

- Western's management would supply high grade mechanical manhours on an "as needed" basis at pre-agreed upon hourly rates.
- Priority would be given to needed service on the police helicopters at Western's facility. (At all hours, day or night.)
- Riverside would purchase all parts necessary for routine, major, and unscheduled maintenance. (At discount from the manufacturer.)
- Adequate supplies of needed parts were immediately acquired to build a minimum parts stock.
- Riverside would purchase all aviation fuel and oil in amounts necessary to maintain flight schedule goals. Fuel is being purchased from the airport at an inter-agency discount (currently $.44 per gallon for 100 octane aviation gasoline), a savings of $.06 per gallon. Oil is bought in bulk at bulk rates.

In effect then, Riverside entered partly into the maintenance business without having to develop a facility and without having to hire full time mechanics. The mechanics contracted through the maintenance facility would be paid for only as they actually spent manhours on the police helicopters.

The relationship between the police department and maintenance facility has been a very successful one, as both parties have kept a good liaison through which has developed mutual understanding, trust, and respect. While unique, this type of helicopter maintenance need not be singular. However, it must be mentioned that not every community and area has all of the requirements to come up with the same amount of success experienced in Projece ACE's maintenance. Each situation requires that consideration be given to the many methods available, some of which as yet may be unexplored.

RPD chose the Riverside Municipal Airport as a base of operation, offices, helicopter storage, and fueling. The Riverside Municipal Airport has an FAA controlled tower which means that all air traffic must operate by aural direction from the control tower and remain under their control within the range of legal control (five mile radius). Operation within the control area presents minimal inconvenience and is being done in a majority of communities utilizing helicopter patrol. Ingress and egress to the airport proper can often present an inconvenience which is capable of interfering with the efficiency of an emergency operation under marginal weather conditions in particular. Often, when visibilities are well within the half-mile limit ordinarily observed by patrol helicopters, air crews must wait on the ground for tower clearance or must wait in the air to be fitted into traffic when returning to the airport for fuel or reports. Because of these factors, consultants recommended that the RPD and the FAA tower operators enter into negotiation to establish a "Letter of Agreement" for operations in "exceptional" or "controlled" marginal weather conditions. At the same time, the Letter would work out flight paths (landing and take-off patterns) for the helicopters. This would facilitate their arrivals and departures in good, as well as marginal, weather. FAA tower supervisors were cooperative and an agreement which provided

as much latitude as possible for the operation of "emergency" equipment was eventually reached. So there has been no great efficiency loss due to airport operation, but total freedom has not been possible.

There is within Riverside an unused heliport away from the airport which is recommended as a more efficient area from which to operate a program. It is quite close to the Civic Center and RPD Headquarters which makes it an area much more conducive to daily (hourly if needed) interaction between air and ground crews. Although helicopters would be under obligation of FAA Rule to remain in radio contact with the airport tower when within the five mile control radius, crews would be free to take off and land with no delays caused by other traffic or circumstances at the field requiring delays by the tower. The RPD would be able to realize additional fuel savings (at least another $.10 per gallon) by obtaining their own fuel storage tank and pump at the facility. Such an installation can soon pay for itself when consideration is given to the fact that the helicopters used burn sixteen gallons of fuel an hour and fly over three hundred hours per month. One month's fuel savings over present cost would be $48.00. There is the possibility of additional economy: fewer hours in fight time used flying back and forth for gas, less time in transit for administrators and supervisors going to and from the air unit, no inter-agency rental fees, less time spent on the ground waiting for fueling, and many other savings. Additionally, acquisition of the already certified landing area would be the initial step toward eventual complete independence of operation, including routine maintenance facilities. Most important, of course, would be the facilitation of interaction between crews made possible by the centralized location. Geography has a great deal to do with operational efficiency of an aerial police unit. It can become so far decentralized that it does not receive

the supervision and guidance it deserves, and in turn, becomes less than efficient in reporting to and understanding the total policy of the department heads.

Unit Organization

As was stated, the RPD hired a capable police-oriented commercial pilot with an Instructor's Rating and placed him into the position of Chief Pilot. This, by the way, is ordinarily a title given to the number one or first pilot in charge of operations and/or training in a commercial helicopter operation. Most police agencies employ established rank structure. The unit was designed for the Chief Pilot to report directly to the Patrol Division Commander. It appeared, at first, that this could be a workable structure as there was, during the test period, an administrative sergeant working liaison between the unit, patrol commander, the grantor, and the evaluators. He also handled a good deal of the extra-financial problems connected with the manufacturer, maintenance, city airport, and others including budget, reporting, and form development. When this liaison was transferred, all of his efforts were assumed by the Chief Pilot. This is not to be construed as a criticism of the primary structure of the aerial unit nor of its initial place in the organizational structure of the RPD. Some time will be spent in an analysis of this method and in recommendations concerning it, because it has been distinctive with RPD and is important when considering the project and continuation of the aerial patrol.

The Chief Pilot, initially assigned a large area of responsibility, was given additional duties. There are over thirty specific duties, mostly of administrative or supervisory level, for which the Chief Pilot is responsible. Some of them include: training, evaluating, investigating,

inspecting (personnel and equipment), developing programs, performing public relations, controlling time for maintenance, conducting business with vendors, budgeting, and reporting to his superiors. Performance of these functions, most of them, are the rule for most unit Commanders, but in addition to all of this, the Chief Pilot must fly a full shift as a line-function pilot to enable the unit to fly two shifts per day on a seven day week basis. The evaluators felt that was too much to be expected of the position and recommended an additional pilot be obtained to enable the Chief Pilot to properly attend his many administrative duties and, at most, fly as relief pilot when necessary. A fourth pilot was obtained, however, he was used more as a "relief" pilot than as a line pilot. This, of course, still left the Chief Pilot with a great deal of responsibility in performing his line duties.

At this juncture, the question may well be asked: Did this in any way affect the efficiency of the aerial patrol? The patrol was quite effective on all shifts, but there are some statistics concerning available "in-the-air" time which may partially answer that inquiry. The A.M. shift wherein the Chief Pilot served as the line pilot was airborne 70.6 percent of the time available. Whereas, the P.M. shift was in flight 79.4 percent of the targeted time. Part of the problem with the Chief Pilot performing line function flights on a daily basis was that a very important link of the unit with its command was stretched so exceedingly thin that it affected the manner in which aerial unit personnel identified with the Patrol Division. To quote an air crewman, ". . . We sometimes feel like orphans." An additional pilot is being prepared to fly as pilot in command of a regular patrol and this problem, basically described as a "personnel shortage," will be considerably aided. The current addition of another pilot is not related to the increase

CONTINUED

1 OF 2

of pilots mentioned earlier, but is rather, to replace the fourth pilot who resigned to accept another police flying assignment. It is the voiced intention of the RPD to use the next pilot in a full time capacity, thus vastly increasing retention probabilities, as well as bringing the unit to full operational strength.

It is recommended that the air unit, even though it will now have a Chief Pilot better able to give proper amount of attention to training, supervision, and administrative duties, be positioned organizationally wherein reporting follows a chain of command parallel to other performing field units. Rather than reporting directly to a Division Commander, the air unit should report through a Patrol Lieutenant and be functionally responsible to Watch Commanders on the various shifts. The unit would then be completely integrated, subject to all necessary controls, aided by broadened administrative expertise, and have no question concerning their identity in the total picture.

Pilot Proficiency

Primary pilot training of helicopter pilots is fairly standard and the FAA has provided a number of requisites for varying classes of license: Private, Commercial, Air Transport, and Certified Flight Instructor. These standards, of course, must be met and proficiency must be demonstrated prior to FAA issuing a license of any type. The proficiency of pilots flying police missions four to five hours daily over highly populated areas in varying types of weather, both day and night, must exceed those minimums or standards required by the FAA. Police pilot training must include emergency procedures wherein pilots demonstrate routine ability to perform autorotations (power-off landings) full to the ground in small areas with a high degree of accuracy. Equally important, they must be completely proficient in all phases

of night operations, including "power recovery" and "touch down" (full power-off landings) at night. Extrordinary proficiency of police pilots is required as individual programs and, in fact, the entire concept of aerial patrol can be eliminated or badly set back by an accident (machine failure) which results in any more than the least possible damage to persons or property on the ground. This type of proficiency is not a "one shot" demonstration, but must be a continuing part of the units on-going training procedure.

RPD administrators were quick to agree with the recurrent training principle and utilize a Pilot Evaluation Report on a regular basis. It is, in effect, a "Performance Evaluation" designed to meet specific items of flight performance as observed by and demonstrated to the Chief Pilot. All manuevers including even the thoroughness of the pre-flight inspection of the helicopter are demonstrated to and graded by the Chief Pilot on an unscheduled but frequent basis. Finally, the RPD is to be congratulated on the demonstrated ability and proficiency of their pilots and their fine air safety record. It is recommended that the pilot proficiency checks be continued with no decrease in frequency and that they be applied to all pilots. An Instructor Pilot actually increases his proficiency, and in effect, rechecks himself when checking others and demonstrating to them. Additionally, the Instructor must demonstrate his proficiency to the FAA inspectors on an annual basis.

Summary of Recommendations

- Continue utilizing Daily Field Activity Reports which meet needs of the Department yet which are not complex for observers to maintain.
- Employ methods such as Daily Bulletins and briefing information sheets to continually remind all units and personnel that air support is available.

- Actively encourage memorandums containing suggestions for improvement in aerial patrol or support methods from all personnel. (These should include memorandums of critique or compliment on successful operations.)

- Continue with the program of prime selection and training methods for aerial observers.

- As long as satisfactory, continue with current maintenance methods but do not use them to the exclusion of being open minded to other possibilities including that of complete independent maintenance.

- Expand efforts to establish an operating heliport complete with fueling facilities away from a controlled airport and closer to RPD operations.

- Encourage more daily contact between air and ground crew personnel through joint briefings, periodic exchange of observers with ground unit personnel and joint training methods.

- Continue and expand the police and community relations efforts of the air units through schools, service clubs, scouts, little league, and the mass media.

- Continue efforts and planning to maintain the number of working pilots at a minimum of four.

- Give serious consideration to placing the air unit in a position within the organizational structure which permits reporting through channels to the Patrol Commander, thus giving it the advantage of additional administrative aid and expertise.

- Continue frequent pilot proficiency rechecks and the use of Pilot Evaluation Reports as records of such checks.

Section Five

TRAINING AND ORIENTATION

The third task of the tripartite research project involved the training and orientation of concerned Riverside City and Police personnel. The importance of conveying pertinent and timely information, skills, and knowledge to new users of police helicopter patrol cannot be overemphasized. Police personnel at every level of the organization must be trained in the proper purposes, uses, and operations of the adopted police tool so they cna achieve optimal utility and effectiveness in the shortest time possible and with minimal developmental costs. Further, City officials must be apprised of the potential benefits and limitations of the police helicopter in order that they will realistically assess the cost versus performance thereby facilitating appropriate funding decisions. For these reasons, the project staff conducted a series of training and orientation sessions for RPD field personnel, helicopter crews, and the Riverside City Council.

FIELD PERSONNEL

Prior to actual helicopter operational flights, patrol and detective personnel were shown a short orientation film, "No Place to Hide," in order to acquaint them with basic helicopter capabilities and uses. Three training sessions were also conducted for this group at preshift briefings. During the forty-five minute sessions, principal stress was placed on the fact that the helicopter was a supportive "tool" for law enforcement and would perform no better than the people who utilized it, i.e., police field personnel. Similarly, the specific ways that patrol and detective personnel could apply

the tool to improve their particular function were revealed. These meetings also provided an opportunity to introduce and explain the various data collection instruments that they would be requested to complete during the course of the project.

Upon request of project staff, during the start-up weeks all RPD communications operators, supervisory, and command personnel were given orientation rides in the helicopter. Thus, within the first few months of the program, nearly every field officer also was given an orientation flight.

ACE PILOTS AND OBSERVERS

A three-hour session was held at the beginning of the project's operation wherein nearly every possible aspect of helicopter operations were explained and discussed with the ACE crews, and especially the observers.

CITY COUNCIL

On two occasions, the project staff made presentations to the Riverside City Council and the City Manager. The first meeting on January 19, 1971, was to afford Councilmen an opportunity to query the researchers on the evaluation plan and methodology. Another salient issue at that time was the anticipated number of complaints to be received when the project became operational.

The second meeting attended on August 3, 1971, was for the purpose of presenting the findings of the first mailing of the community attitude survey. The detailed findings of both the first and second iteration of the study are contained in a separate section of the report.

ACE OPERATIONS MANUAL

As a part of the training effort, the staff selected one of its consultants to develop an operations manual aimed at increasing aerial-ground field personnel coordination. The manual, as submitted to the RPD, is intended to be both a training guide and an immediate reference to operational techniques for handling various types of police activities.

SIMULATED FIELD TRAINING EXERCISES

In early December, 1971, with ten months of operational experience accrued, the project staff and the RPD mutually agreed to conduct simulated field training exercises involving the helicopter and ground-field units. The purpose of these exercises was to determine how proficiently certain incidents were or could be handled as well as to provide a means for determining personnel training needs and other program improvements. Three outside police helicopter specialists were selected as impartial observors and evaluators. They were:

(a) Lieutenant R. Morrison, Huntington Beach Police Department, Helicopter Unit;

(b) S. Everett, Coordinator, Department of Police Science, Riverside City College; and,

(c) Assistant Chief B. Cocke, San Bernardino Police Department.

In addition, project staff monitored the exercises.

The exercises were first explained to participating personnel in a briefing session conducted immediately prior to the actual exercises. The first exercise was a simulated armed robbery of a liquor store. Two Riverside detectives were choses to play the role of the suspects. They were given an unmarked police unit and told to select the exact time and location of the

robbery. The only restriction was that they were not to go into the county area surrounding Riverside, andnot to employ any particularly devious escape plans that are not typically used by actual robbery offenders. They were instructed to initiate the exercise by making a telephone call to the police station as if they were the victims of the robbery. The burden of eliciting the appropriate information was on the telephone operator; the "victims" were not to supply any additional information unless it was requested. Finally, two staff evaluators were assigned to ride in the suspect vehicle, two in a field supervisor's vehicle, one in an observer helicopter, and one in the police communications center.

The exercise was initiated as planned at 1538 hours by a telephone call to the RPD. The police telephone operator inquired as to the location of the robbery which the "victims" gave. In their haste to depart the scene, the "victims" inadvertantly volunteered car description and partial license plate numbers. They then hung-up despite the fact that the police operator asked the "victim" to remain on the line for further information while the dispatcher broadcasted the call. The called-for service was broadcast to all units within a few seconds of receipt of the phone call. A ground unit arrived first at the scene within slightly more than sixty-five seconds after the initial broadcast. At least four ground units, two motorcycles, and the air-borne helicopter began the search for the suspect vehicle. Within five minutes the helicopter spotted a possible suspect vehicle, however, he immediately cancelled it, as it was not the suspects' vehicle. Fourteen minutes after the call was broadcast a motorcycle officer spotted the suspects' car, thus ending the first tactical exercise.

Evaluation of Exercise Number One: Simulated Robbery

To assist in the evaluation of the exercise, a structured questionnaire was administered by the project staff. (See the Appendices for a copy of the questionnaire) The evaluation reports submitted by the observers were analyzed and are reviewed here in summary fashion. When the initial telephone call was received the police operator expressed functional competence by trying to discover appropriate information. As soon as the operator learned the nature and location of the call, the dispatcher was notified and immediately made an emergency radio broadcast. As indicated, the "victim" did not wait on the telephone line as requested, instead, he voluntarily gave a brief description of the vehicle and then hung up before the police operator could ascertain a suspect description and direction of travel. Even though the "victim" did digress from the instructions, there is always the possibility that the victim in an actual crime situation, under real emotional strain might hang up the phone before giving complete information.

The response time for the first unit to arrive was excelent---slightly more than one minute. However, it was not until the unit arrived at the scene that the dispatcher broadcast the vehicle description. Apparently this was the first opportunity to broadcast this information because the dispatcher was previously occupied assigning units to the search. Further, the radio communications between the station and the involved units and among the units themselves was sparse, thus making it extremely difficult to know which units were searching in what areas. The helicopter, however, did state over the radio that it would be searching a specific thoroughfare in the area.

In the interim, the suspect vehicle left the scene, proceeded at a

normal rate of speed into a residential area, and then on to a rural road. By this time the vehicle was away from the crime scene and could observe the patrol helicopter orbiting the area approximately three to four miles away. Apparently confident that they had made a successful escape, the simulated robbers decided to return to the crime scene to see if the helicopter would spot them. While enroute, the driver of the suspect car raced the engine when passing a police motorcycle officer, thus attracting his attention and effecting a felony stop. Within sixty seconds of the stop the helicopter arrived at the location providing aerial back-up support for the single motor officer. This is an extremely rapid response for the first back-up unit.

Recommendations for Improvement: Robbery Exercise

While the mission did not fully substantiate the apprehension capability of the helicopter, it convincingly demonstrated its performance potential as an aerial search observation platform and a back-up unit. It is felt that there could have been more adequate and total coordination of respective units to secure a better courage of the area of search. It was not apparent that any effort was made to coordinate areas of search by unit according to their location or by assignment to a specific search area. The helicopter could probably be used for that type of coordination, but it would require extensive pre-planning on the part of the RPD. Additionally, the general lack of coordination may be traced in part to incomplete planning of the exercise, lack of a more intensive briefing of the personnel involved, and the failure to predict possible differences between a real and simulated exercise. It is recommended, therefore, that instead of having the suspects act as victims, a separate victim should be chosen to call the police department from the scene. This will preclude the suspect-victim from hanging up the

phone before all pertinent information is received. Also, to avoid the intentional tip-off that led to the capture, it may be advisable to use an outside evaluator as the driver of the suspect vehicle.

In terms of evaluating simulated field training exercises, definite and precise instructions must be given to all persons involved in the exercise. Even those personnel who may only be peripherally involved (e.g., watch commander, traffic units) should be advised in advance. Further, all possible steps should be taken to ensure that the exercise is as realistic as possible. Yet, the incident itself should be clearly identified as a tactical training exercise, especially when initially broadcast over the police radio.

The position assignments of observers was believed to be adequate, although it may not be necessary to place two observers in the suspect vehicle, nor is it necessary to have two suspects in the same vehicle. Placement of an observer in the communications center was beneficial in this instance since the tape recording of the radio broadcasts permitted an accurate record of response times and the overall quality and quantity of communications. It is equally important to record the incoming telephone call from the simulated victim, however, a mechanical malfunction in the RPD recording equipment lost this communication. The simulated exercise evaluation form proves useful and may serve as an evaluation tool for other departments desiring to conduct simulated field training exercises. Several changes would further improve this form: (1) under number one, deletion of item ". . . in handling ground unit no. ___" since placement of an observer in this unit would in essence reveal what general part of the city the exercise would encompass (presuming cars are assigned to specific geographic

beats), and (2) deleting response time and who arrived first (nos. 3 and 4) since this can be ascertained in most instances from the dispatch records or a tape recording of the communications traffic.

Second Tactical Exercise: Silent Burglary Alarm

Several hours after the first exercise, in the darkness of the early evening hours, the second (and final) tactical exercise was begun. From the field, a project staff observer triggered the exercise by telephoning the RPD advising them of the location and nature of the incident. The incident was a silent burglary alarm at a high school; no other information was given (except that it was a tactical exercise). After making the call, the project observers drove to the scene (about one-half mile away) and parked in the school parking lot. Another observer was stationed in a vehicle on the opposite side of the school. The remaining observer was in the helicopter.

Evaluation of the Silent Burglar Alarm Incident

This exercise is best summarized by quoting excerpts from the evaluator's reports:

- The response time of the helicopter---first unit on the scene---was one minute, forty-five seconds. The helicopter was approximately two linear miles from the scene.

- While still one to 1-1/2 miles away from the scene the helicopter observer immediately began broadcasting the location of various vehicles that were parked around the school . . . The ground unit checked the parked vehicles . . . and then gave a status report of each one to the helicopter. This information is helpful to the observer so he does not have to "keep an eye" on these vehicles in case one may be a suspect vehicle.

- The staff observer was particularly impressed by the ability of the helicopter crew to observe and report while still some distance from the actual scene.

- This mission demonstrates excellent utilization and coordination of the helicopter by its use of air-to-ground observer and lighting

to survey a burglary scene and vehicle suspect, etc. The helicopter was able to provide responding ground unit coordination by pointing out both persons and vehicles at the scene, by noting an open door; and maintaining surveillance while ground units checked the area.

- The exercise was concluded in very short order . . . A real incident, exactly the same, could have tied up ground units for three times as long . . .

- The staff observer would rate the handling of this incident as excellent from the beginning through its conclusion and credit the same rating to all participants.

Finally, in the future, a situation could be set up which provides for several suspects running from the school in diverse directions. This would cause the helicopter to become focal-point of coordination. They would have to spot the suspects and direct the officers who would be on foot in the area and away from their radios. This would necessitate use of the public address system, the spotlight, and the police radio simultaneously and provided a much better exercise as a basis for evaluation.

APPENDIX A

PROJECT ACE:
ATTITUDE SURVEY OF RIVERSIDE POLICE PERSONNEL
ANALYSIS OF QUESTIONNAIRE II

TABLE OF CONTENTS

Section 1

INTRODUCTION

The success or failure of any new venture such as Project ACE depends, to a great extent, on the attitudes and beliefs of the involved participants. This is particularly true when the participants, in this case policemen, fulfill dual roles as both users of the new ACE helicopter and as beneficiaries.

As users of the helicopter patrol, policemen are trained to employ this tool in the most effective manner possible. As beneficiaries, they directly gain from proper use of the helicopter, either from assistance in an apprehension or an increased feeling of physical security. Further, the nature and extent of the officers' involvements with helicopter operations will determine, in part, his attitudes and opinions of the usefulness/wastefulness or effectiveness/ineffectiveness of the helicopter patrol program. These attitudes, similar to all attitudes, predispose officers to behave accordingly. Hence, if an officer believes police helicopters are overly expensive and ineffective, he most likely will not utilize them to their maximum capability or effectiveness. On the contrary, if an officer believes that helicopters are a useful police tool, he most probably will utilize them in an efficient and effective manner. Of course, there are numerous other intervening variables which influence a person's attitudes, and consequently, his behavior.

Purpose of the Study

The major purpose of this study is to assess the attitudes and opinions of Riverside Police Department personnel toward the Project ACE helicopter program, and to elicit constructive comments and criticisms that

can be translated into project improvements. To gain further insight, the responses were analyzed by a variety of factors:

- Age
- Rank
- Current Assignment
- Previous Assignment
- Law Enforcement Experience
- Educational Progress
- Specialized Training Received
- Type of Military Experience.

The detailed analysis contained herein, hopefully, will permit explanations for any significant differences that may appear in the responses.

A secondary purpose of this study is to permit a comparison between responses received from an earlier questionnaire administered at the beginning of the project period (February-March, 1971). Identically posed questions in both questionnaires allows a determination as to whether any police attitudes have changed during the six month period between the administration of the questionnaires.

Methodology

The study was conducted via the use of structured questionnaire and supplemented by random personal interviews with respondents after they had completed the questionnaire. Also, the questionnaire was administered on a opportunistic basis to ninety-four Riverside Police Department personnel during August and September of 1971. The officers completed the questionnaire at the Riverside Police Department facility with an acknowledged guarantee of anonymity. It is presumed that such anonymity encouraged candid and non-set responses.

Survey Instrument

The questionnaire was designed to measure attitudes in four specific areas:

1. The City's crime problems.
2. Job support provided by the helicopter.
3. Personnel involvement with the program.
4. Suggestions for project improvement.

The following depicts the questions used in the instruments.

1. CRIME PROBLEM

1.1 Do you believe Riverside's crime problem is:

SERIOUS? MODERATE? SMALL?

1.2 Can the problem be handled adequately with the physical resources available, i.e., all which existed and were used within the department prior to the helicopter?

1.3 Do you believe the helicopter has been an aid in reducing the incidence of crime in Riverside?

1.3.1 Would your feelings concerning question be the same if it resulted in a reduction of Departmental Personnel?

1.3.2 Would your feelings toward question three remain the same if your taxes were to be increased?

2. JOB SUPPORT

2.1 Do you believe the helicopter is an aid to you in your particular job?

2.2 Do you believe the general public is accepting the helicopter as a legitimate Police tool?

2.3 If the public does not accept it, do you believe your work will become more difficult?

2.4 Do you believe that implementation of helicopter usage has caused Personnel problems within the Department, i.e., Elite aircrew, degrading patrol functions?

2.5 In your best estimation, and overall, has the helicopter improved law enforcement in the City of Riverside?

3. PERSONAL INVOLVEMENT

3.1 Have you been involved personally with utilization of the helicopter in a field function?

3.2 Have you been involved personally with utilization of the helicopter on any case assigned to you?

3.3 Have you been involved personally with utilization of the helicopter as a supervisor/administrator of units which have worked with the air crews?

If any answer to questions A, B, or C above was "yes," please complete the following:

3.4 Do you, as a field officer, feel more secure while performing certain hazardous field functions if the helicopter is present?

3.5 As a supervisor/administrator, have you observed that field officers display an increased sense of security if the helicopter is present?

3.6 While working jointly with the air crews, have you found the overall tactics and coordination of units satisfactory?

3.7 As a handling detective, supervisor, or administrator, have you observed, overall, that air-ground and/or air tactics and coordination have been satisfactory?

3.8 In your best opinion, and overall, has the use of helicopters as an adjunct to Riverside's law enforcement function improved Departmental efficience:

GREATLY MODERATELY SLIGHTLY NOT AT ALL

4. SUGGESTIONS FOR IMPROVEMENT

The helicopter is your tool. How a task is performed by a tool depends on how well the tool is being used. No matter how minor it may seem to you, what suggestions would you offer that you feel could make the helicopter patrol more efficient. (Suggestions might include: tactics, hours of availability, type of equipment used, additional equipment required, etc.)

Section 2

REVIEW OF SIGNIFICANT FINDINGS

General

Over four out of five police officers queried (80.8%) felt Riverside had a serious crime problem, while nearly one out of five officers (19.2%) believed the problem was moderate. Over ninety-three percent felt the resources available before the advent of the helicopter were inadequate to solve the crime problem. Further, while ninety-four percent believed the helicopter has been an aid in reducing the incidence of crime in Riverside, only forty-eight percent would agree if it resulted in a reduction of Department personnel. Interesting, ninety-eight percent would answer the same even if their taxes were increased.

Approximately ninety-five percent of the officers believe that the helicopter is an aid to them in their particular assignment. Note, in the first questionnaire only seventy-five percent felt the helicopter would aid their particular job.

Nearly every officer surveyed (98%) believe that the general public is accepting the helicopter as a pragmatic police tool. This response is also up considerably from the eighty-three percent affirmative response received in the first questionnaire. Three-fifths of the officers feel that their work will become more difficult if the public rejects Project ACE. This compares to only thirty-one percent who indicated this in the first questionnaire. Compared to the responses from the first questionnaire, significantly fewer policemen believe that usage of the helicopter has caused personnel problems within the Department (7.5% now vs. 31% in the first questionnaire).

An overwhelming ninety-eight percent of the officers surveyed believe that the helicopter has improved law enforcement in Riverside. This compares to eighty-two percent of the officers who expressed this belief in the first questionnaire. Moreover, over nine out of every ten officers queried have been personally involved with utilization of the helicopter in a field function. In addition, nine out of ten sergeants, lieutenants, and captains responding have been personally involved with helicopter utilization as supervisors or administrators.

Seventy-eight out of eighty officers (97%) felt more secure while performing hazardous field functions if the helicopter was present in the air. This increased sense of security also was observed by every one of the ten supervisory and administrative personnel surveyed. Also, while working with the air crews, ninety-three percent of the policemen found the overall tactics and coordination of the units satisfactory. All fifteen detectives, supervisory and administrative personnel concur with this assessment. The plurality of officers (45%) believe the use of helicopters has moderately improved departmental efficiency. Slightly fewer (40%) feel that departmental efficiency has increased greatly. Nine percent believe there was only slightly beneficial effect. None indicated that ACE had not assisted in providing better police services!

Section 3

DISCUSSION OF SIGNIFICANT FINDINGS

Generally, the study revealed that Riverside police personnel are unanimously in favor of the helicopter program. They believe that it has been an aid in reducing crime in Riverside, and that it has served to improve law enforcement in the City. Most of the personal variables analyzed had no apparent bearing on the responses, that is, the overwhelming majority of the officers believe in the program irrespective of their age, education, experience, or job assignment.

One of the most worthwhile benefits of the in-house survey was the list of suggestions offered by the officer respondents. In their opinion, the recommendations could increase the present effectiveness of the helicopter program. They are presented below in summary fashion.

1. The primary concern is air time.
   - A. Readjust air time so the helicopter is up longer and later.
     - (1) Keep in the air to 0300 or 0400 hours.
     - (2) If possible, have two helicopters in the air on Friday, Saturday, and holiday nights between 2000 and 0100 hours.
     - (3) When only one helicopter is in the air, keep the air time up by arranging code seven and fueling times before or after these hours.
     - (4) If possible, keep two helicopters in the air and keep them flying constantly between 1900 and 0400 hours.
     - (5) Stagger the shift times so the helicopter is flying between shift changes for day and evening watch and evening and morning watch.
     - (6) Have air crews take lunch and coffee breaks at the airport where they can respond to calls immediately.
     - (7) Have air crews keep the dispatcher constantly informed as to their in-service, out-of-service status.

2. Establish the chief pilot as an administrator.

   A. Give him an aide to help with paperwork.

   B. Establish all crews as full-time crews.

   C. Add two more crews, one pilot to replace chief pilot on a fulltime basis, and add another helicopter.

3. Lack of coordination between air and ground units, and a need for more cooperation between them.

   A. Have observers attend roll call with the ground officers after which they are picked up at the station by the helicopters.

   B. Rotate observers every three months. This gives everyone who wants to get a chance to become part of the helicopter team. It would supply a ready supply of observers.

      (1) This might prevent an aloof feeling in the helicopter squad (or at least the impression of such by ground units).

   C. As a part of the in-service training program, have all sworn personnel and dispatchers ride in the helicopter for at least one hour so that they might get a feeling of at least part of its capabilities.

   D. Practical training exercises involving aid and ground to improve air-ground cooperation and coordination (including Riverside Sheriff and surrounding agencies).

   E. Train ground units to more readily call upon and direct air units in aiding them in their problems.

   F. Train ground crews in use of hand signals to direct in-flight helicopters

4. Use the helicopter for non-criminal activities.

   A. Dispatch helicopters to traffic collisions, as they can appraise situations effectively from the air and eliminate code three runs on obvious non-injuries. They can light up the area at night, request ambulances, and handle some details before the ground unit arrives.

5. Increase the number of ground units available to cover calls from the helicopter.

6. Technical changes and equipment additions.

A. One more helicopter.

B. Quieter machines.

C. Special radio frequency for helicopter to ground unit communicators.

D. Equipment for all ground personnel to include handi-talkies to provide for communications between the officer while out of his ground unit.

E. Capability to monitor surrounding agencies and CHP.

F. Use gyro stabilized binoculars to eliminate the effects of vibration from the bird.

G. Have one helicopter equipped with a litter.

H. Have one helicopter equipped with gas dispenser (pepper-fogger).

I. Use of still or movie cameras or video-tape to record critical activities.

J. Possibility of using computer readouts of possible areas of criminal activity so both air and ground units may be effectively deployed (as done in Phoenix, Arizona, and Washington, D.C.).

7. Public Support

Have elected and administrative members of city government and key civic and business leaders ride in the helicopter at least once so that they might see the importance of the copter in police work.

Section 4

TOTAL AND COMPREHENSIVE FINDINGS

The Sample

The following presents an overall breakdown of respondents according to age, rank, assignment, education, total law enforcement experience, Riverside Police Department experience, and military experience.

	TOTAL NUMBER	PERCENTAGE OF GROUP*
I. AGE		
21-25	28	29.8
26-30	32	34.0
31-35	17	18.1
36-40	6	6.4
41-50	8	8.5
51-over	2	2.1
Not Given	1	1.1
	94	100.0
II. RANK		
Patrolman	55	58.5
Agent	17	18.1
Sergeant	7	7.4
Lieutenant	3	3.2
Captain	1	1.1
Dispatcher	4	4.2
Traffic Officer	7	7.4
	94	99.9
III. ASSIGNMENT		
Patrol	59	62.8
Helicopter	5	5.3
Communications	5	5.3
Detectives	9	9.6
Traffic	13	13.8
Complaint	3	3.2
	94	100.0

*Percentages may not total 100 due to rounding of numbers.

	TOTAL NUMBER	PERCENTAGE OF GROUP*
IV. EDUCATION		
GED	1	1.1
High School	13	13.8
College Units		
12 or less	4	4.2
13-30	16	17.0
31-59	21	22.3
60-70 (A.A.)	21	22.3
71-90	9	9.6
90-up (no degree)	6	6.4
B.S. or B.A.	2	2.1
B.A. + (no graduate degree)	1	1.1
	94	99.9
V. TOTAL POLICE EXPERIENCE (YEARS)		
0-1	2	2.1
1-3	31	33.4
4-6	29	31.2
7-8	11	11.8
9-10	5	5.4
11-12	3	3.2
13-16	3	3.2
17-20	3	3.2
21-up	6	6.5
	94	100.0
VI. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1	7	7.4
1-3	34	36.2
4-6	27	28.7
7-8	8	8.5
9-10	3	3.2
11-12	3	3.2
13-16	5	5.3
17-20	2	2.1
21-up	4	4.2
unknown	1	1.1
	94	99.9

	TOTAL NUMBER	PERCENTAGE OF GROUPS*
VII. MILITARY EXPERIENCE		
None	25	26.6
Criminal	6	6.4
Infantry	25	26.6
Helicopter	2	2.1
General Air	16	17.0
Other	20	21.3
	94	100.0

Responses by Question

Following is a breakdown of each question showing responses by age, rank, assignment, education, total police experience, experience on Riverside Police Department, and military experience.

Question 1.1

Do you believe that Riverside's crime problem is:

SERIOUS MODERATE SMALL

I. Overall breakdown of responses, 93 total*

SERIOUS = 75 (80.8%) MODERATE = 18 (18.2%) SMALL = 0

II. AGE	SERIOUS	MODERATE	SMALL
21-25	19	8	
26-30	28	4	
31-35	14	3	
36-40	4	2	
41-50	7	1	
50-up	2	0	
	74	18	

III. RANK		
Patrolman	41	13
Agent	16	1
Sergeant	5	2
Lieutenant	3	0
Captain	1	0
Traffic Officer	5	2
Dispatcher	4	0
	75	18

	SERIOUS	MODERATE	SMALL
IV. ASSIGNMENT			
Patrol	44	14	
Helicopter	5	0	
Communications	5	0	
Detectives	8	0	
Traffic	10	3	
Complaint	3	0	
	75	17	
V. EDUCATION			
GED	1	0	
High School	11	2	
0-12 College Units	3	1	
13-30 College Units	13	3	
31-59 College Units	14	6	
60-70 College Units	18	3	
71-90 College Units	9	0	
91-123 College Units	4	2	
BA/BS	1	1	
BA +	1	0	
	75	18	
VI. TOTAL POLICE EXPERIENCE			
0-1 year	1	1	
1-3 years	23	7	
4-6 years	23	6	
7-8 years	10	1	
9-10 years	4	1	
11-12 years	3	0	
13-16 years	2	1	
17-20 years	2	1	
21-up	6	0	
	74	18	
VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT			
0-1 year	4	3	
1-3 years	26	7	
4-6 years	23	4	
7-8 years	7	1	
9-10 years	2	1	
11-12 years	3	0	
13-16 years	3	2	
17-20 years	2	0	
21-up	4	0	
	74	18	

	SERIOUS	MODERATE	SMALL
VIII. MILITARY EXPERIENCE			
None	24	1	
Criminal	4	2	
Infantry	18	6	
Helicopter	1	0	
General Air	10	6	
Other	18	3	
	75	18	

Question 1.2

Can the Problem be handled adequately with the physical resources available, i.e., all which existed and were used within the Department prior to the helicopter?

I. Overall breakdown of responses, 94 total

Yes = 6 (6.4%) No = 88 (93.6%)

II. AGE	YES	NO
21-25	4	24
26-30	0	32
31-35	1	16
36-40	1	5
41-50	0	8
51-and over	0	2
	6	87

III. RANK		
Patrolman	5	50
Agent	0	17
Sergeant	1	6
Lieutenant	0	3
Captain	0	1
Dispatcher	0	4
Traffic Officer	0	7
	6	88

IV. ASSIGNMENT		
Patrol	6	53
Helicopter	0	5
Communications	0	5
Detectives	0	9
Traffic	0	13
Complaint	0	3
	6	88

	YES	NO
V. EDUCATION		
GED	0	1
High School	0	13
0-12 College Units	1	3
13-30 College Units	1	15
31-59 College Units	2	19
60-70 College Units	0	21
71-90 College Units	0	9
91-123 College Units	2	4
BA/BS	0	2
BA +	0	1
	6	88
VI. TOTAL POLICE EXPERIENCE		
0-1 year	1	1
1-3 years	7	23
4-6 years	6	23
7-8 years	1	10
9-10 years	1	4
11-12 years	0	3
13-16 years	1	2
17-20 years	1	2
21-up	0	6
	18	74
VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	0	7
1-3 years	2	32
4-6 years	1	26
7-8 years	1	7
9-10 years	0	3
11-12 years	0	3
13-16 years	1	4
17-20 years	0	2
21-up	0	4
	5	88
VIII. MILITARY EXPERIENCE		
None	2	23
Criminal	0	6
Infantry	1	6
Helicopter	0	2
General Air	1	15
Other	1	19
	5	71

Question 1.3

Do you believe the helicopter has been an aid in reducing the incidence of crime in Riverside?

I. Overall breakdown of responses, 92 total

Yes = 86 (93.5%) No = 6 (6.5%)

II. AGE	YES	NO
21-25	24	3
26-30	31	1
31-35	16	1
36-40	6	0
41-50	8	0
50-up	1	1
	86	6

III. RANK		
Patrolman	50	5
Agent	15	1
Sergeant	7	0
Lieutenant	3	0
Captain	1	0
Dispatcher	3	0
Traffic Officer	7	0
	86	6

IV. ASSIGNMENT		
Patrol	53	4
Helicopter	5	0
Communications	4	1
Detectives	9	0
Traffic	12	1
Complaint	3	0
	86	6

V. EDUCATION		
GED	1	0
High School	12	1
0-12 College Units	4	0
13-30 College Units	12	1
31-59 College Units	21	0
60-70 College Units	20	2
71-90 College Units	8	1
91-123 College Units	5	1
BA/BS	2	0
BA +	1	0
	86	6

II. AGE	YES	NO
41-50	7	1
51 and over	2	0
	43	47

III. RANK		
Patrolman	25	28
Agent	10	5
Sergeant	3	4
Lieutenant	3	0
Captain	0	1
Dispatcher	0	4
Traffic Officer	2	5
	43	47

IV. ASSIGNMENT		
Patrol	27	29
Helicopter	3	2
Communications	1	4
Detectives	5	3
Traffic	6	7
Complaint	1	2
	43	47

V. EDCUATION		
GED	0	1
High School	8	5
1-12 College Units	1	3
13-30 College Units	7	6
31-59 College Units	8	13
60-70 College Units	9	11
71-90 College Units	7	2
91-123 College Units	1	5
BA/BS	2	0
BA +	0	1
	43	47

VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	11	17
4-6 years	15	15
7-8 years	3	7
9-10 years	2	3
11-12 years	0	3
13-16 years	3	0
17-20 years	2	1
21-up	5	1
	43	47

	YES	NO
VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	4	3
1-3 years	12	19
4-6 years	13	14
7-8 years	3	4
9-10 years	2	1
11-12 years	0	3
13-16 years	4	1
17-20 years	2	1
20-up	3	1
	43	47
VIII. MILITARY EXPERIENCE		
None	9	16
Criminal	2	4
Infantry	6	11
Helicopter	2	0
General Air	6	11
Other	12	5
	37	47

Question 1.3.2

Would your feelings toward question three remain the same if your taxes were to be increased?

I. Overall breakdown of responses, 93 total

Yes = 91 (97.8%) No = 2 (2.2%)

II. AGE	YES	NO
21-25	28	0
26-30	30	2
31-35	17	0
36-40	6	0
41-50	8	0
51- and over	2	0
	91	2

III. RANK	YES	NO
Patrolman	53	2
Agent	17	0
Sergeant	7	0
Lieutenant	3	0
Captain	1	0
Dispatcher	4	0
Traffic Officer	7	0
	91	2

IV. ASSIGNMENT		
Patrol	55	2
Helicopter	6	0
Communications	5	0
Detectives	9	0
Traffic	13	0
Complaint	3	0
	91	2

V. EDUCATION		
GED	1	0
High School	13	0
1-12 College Units	4	0
13-30 College Units	13	1
31-59 College Units	21	1
60-70 College Units	21	0
71-90 College Units	9	0
91-123 College Units	6	0
BA/BS	2	0
BA +	1	0
	91	2

VI. TOTAL POLICE EXPERIENCE		
0-1 years	2	0
1-3 years	29	2
4-6 years	29	0
7-8 years	11	0
9-10 years	5	0
11-12 years	2	0
13-16 years	3	0
17-20 years	3	0
21-up	6	0
	90	2

	YES	NO
VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	32	2
4-6 years	27	0
7-8 years	8	0
9-10 years	3	0
11-12 years	3	0
13-16 years	5	0
17-20 years	2	0
21-up	4	0
	91	2
VIII. MILITARY EXPERIENCE		
None	24	0
Criminal	6	0
Infantry	22	2
Helicopter	2	0
General Air	16	0
Other	20	0
	90	2

Question 2.1

Do you believe the helicopter is an aid to you in your particular job?

I. Overall breakdown of responses, 92 total

Yes = 87 (94.6%) No = 5 (5.4%)

II. AGE	YES	NO
21-25	28	0
26-30	31	1
31-35	17	1
36-40	4	1
41-50	6	1
50- and over	1	1
	87	5
III. RANK		
Patrolman	54	1
Agent	13	2
Sergeant	7	0
Lieutenant	3	0
Captain	0	1
Dispatcher	4	0

	YES	NO
Traffic Officer	6	1
	87	5

IV. ASSIGNMENT

Patrol	56	1
Helicopter	5	0
Communications	5	0
Detectives	6	3
Traffic	12	1
Complaint	3	0
	87	5

V. EDUCATION

GED	1	0
High School	11	2
1-12 College Units	4	0
13-30 College Units	12	2
31-59 College Units	20	1
60-70 College Units	21	0
71-90 College Units	9	0
91-123 College Units	6	0
BA/BS	2	0
BA +	1	0
	87	5

VI. TOTAL POLICE EXPERIENCE

0-1 year	2	0
1-3 years	31	0
4-6 years	28	1
7-8 years	10	1
9-10 years	4	1
11-12 years	3	0
13-16 years	3	0
17-20 years	3	0
21-up	3	2
	87	5

VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT

0-1 year	7	0
1-3 years	33	0
4-6 years	26	1
7-8 years	7	1
9-10 years	2	1
11-12 years	3	0
13-16 years	5	0
17-20 years	2	0

	YES	NO
21-up	2	2
	87	5

VIII. MILITARY EXPERIENCE

None	25	0
Criminal	6	0
Infantry	21	2
Helicopter	2	0
General Air	16	0
Other	17	3
	87	5

Question 2.2

Do you believe the general public is accepting the helicopter as a legitimate police tool?

I. Overall breakdown of responses, 93 total

Yes = 91 (97.8%) No = 2 (2.2%)

II. AGE	YES	NO
21-25	28	0
26-30	32	0
31-35	17	0
36-40	4	2
41-50	8	0
51- and over	2	0
	91	2

III. RANK

Patrolman	55	0
Agent	16	0
Sergeant	6	1
Lieutenant	3	0
Captain	1	0
Dispatcher	4	0
Traffic Officer	6	1
	91	2

IV. ASSIGNMENT

Patrol	56	1
Helicopter	6	0
Communications	5	0
Detectives	9	0
Traffic	12	1
Complaint	3	0
	91	2

	YES	NO
V. EDUCATION		
GED	1	0
High School	13	0
1-12 College Units	4	0
13-30 College Units	14	0
31-59 College Units	21	1
60-70 College Units	21	0
71-90 College Units	9	0
91-123 College Units	5	1
BA/BS	2	0
BA +	1	0
	91	2
VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	31	0
4-6 years	29	0
7-8 years	10	1
9-10 years	5	0
11-12 years	3	0
13-16 years	2	1
17-20 years	3	0
21-up	6	0
	91	2
VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	32	0
4-6 years	29	0
7-8 years	7	1
9-10 years	3	0
11-12 years	3	0
13-16 years	4	1
17-20 years	2	0
21-up	4	0
	91	2
VIII. MILITARY		
None	25	0
Criminal	6	0
Infantry	24	0
Helicopter	2	0
General Air	15	1
Other	19	1
	91	2

Question 2.3

If the public does not accept it, do you believe your work will become more difficult?

I. Overall breakdown of responses, 93 total

Yes = 56 (60.2%) No = 37 (39.8%)

II. AGE	YES	NO
21-25	19	9
26-30	19	13
31-35	7	10
36-40	3	3
41-50	8	0
51- and over	0	2
	56	37

III. RANK		
Patrolman	37	18
Agent	8	9
Sergeant	4	3
Lieutenant	3	0
Captain	1	0
Dispatcher	1	2
Traffic Officer	2	5
	56	37

IV. ASSIGNMENT		
Patrol	37	20
Helicopter	3	2
Communications	0	5
Detectives	5	4
Traffic	7	6
Complaint	3	0
	55	37

V. EDUCATION		
GED	0	1
High School	11	2
1-12 College Units	1	3
13-30 College Units	8	7
31-59 College Units	13	8
60-70 College Units	13	8
71-90 College Units	6	3
91-123 College Units	3	3
BA/BS	1	1
BA +	0	1
	56	37

VI. TOTAL POLICE EXPERIENCE	YES	NO
0-1 year	2	0
1-3 years	21	10
4-6 years	15	14
7-8 years	6	5
9-10 years	2	3
11-12 years	2	1
13-16 years	3	0
17-20 years	1	2
21-up	4	2
	56	37

VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	6	1
1-3 years	18	12
4-6 years	17	14
7-8 years	3	5
9-10 years	2	1
11-12 years	2	1
13-16 years	4	1
17-20 years	1	1
21-up	3	1
	56	37

VIII. MILITARY EXPERIENCE		
None	15	10
Criminal	4	2
Infantry	15	7
Helicopter	1	1
General Air	9	7
Other	12	8
	56	35

Question 2.4

Do you believe that implementation of helicopter usage has caused personnel problems within the Department, i.e., Elite aircrew, degrading patrol function?

I. Overall breakdown of responses, 93 total

Yes = 7 (7.5%) No = 86 (92.5%)

II. AGE	YES	NO
21-25	1	27
26-30	2	30
31-35	2	15
36-40	1	5
41-50	1	7
51 and over	0	2
	7	86

III. RANK	YES	NO
Patrolman	3	52
Agent	2	14
Sergeant	0	7
Lieutenant	1	2
Captain	0	1
Dispatcher	0	4
Traffic Officer	1	6
	7	86

IV. ASSIGNMENT		
Patrol	5	53
Helicopter	1	4
Communications	0	5
Detectives	0	9
Traffic	1	12
Complaint	0	3
	7	86

V. EDUCATION		
GED	0	1
High School	0	13
1-12 College Units	1	3
13-30 College Units	5	11
31-59 College Units	0	21
60-70 College Units	0	21
71-90 College Units	1	8
91-123 College Units	0	6
BA/BS	0	2
BA +	0	1
	7	87

VI. TOTAL POLICE EXPERIENCE		
0-1 year	0	2
1-3 years	1	29
4-6 years	2	27
7-8 years	3	8
9-10 years	0	5
11-12 years	0	3
13-16 years	0	3
17-20 years	0	3
21-up	1	5
	7	85

VII. EXPERIENCE ON RIVERSIDE POLICE DEPARTMENT		
0-1 year	0	7
1-3 years	1	33
4-6 years	2	25

	YES	NO
7-8 years	3	5
9-10 years	0	3
11-12 years	0	3
13-16 years	0	5
17-20 years	0	2
21-up	0	3
	6	86

VIII. MILITARY EXPERIENCE

None	1	24
Criminal	0	6
Infantry	2	22
Helicopter	1	1
General Air	3	13
Other	0	20
	7	86

Question 2.5

In your best estimation, and overall, has the helicopter improved law enforcement in the City of Riverside?

I. Overall breakdown of responses, 92 total

YES = 91 (98.9%) NO = 1 (1.1%)

II. AGE

	YES	NO
21-25	27	1
26-30	32	0
31-35	17	0
36-40	6	0
41-50	7	0
51 and over	2	0
	91	1

III. RANK

Patrolman	53	1
Agent	16	0
Sergeant	7	0
Lieutenant	3	0
Captain	1	0
Dispatcher	4	0
Traffic Officer	7	0
	91	1

IV. ASSIGNMENT	YES	NO
Patrol	56	1
Helicopter	5	0
Communications	5	0
Detectives	9	0
Traffic	13	0
Complaint	3	0
	91	1

V. EDUCATION		
GED	1	0
High School	13	0
1-12 College Units	4	0
13-30 College Units	14	0
31-59 College Units	21	0
60-70 College Units	21	0
71-90 College Units	9	0
91-123 College Units	5	1
BA/BS	2	0
BA +	1	0
	91	1

VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	31	0
4-6 years	27	1
7-8 years	11	0
9-10 years	5	0
11-12 years	3	0
13-16 years	3	0
17-20 years	3	0
21-up	6	0
	91	1

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	33	0
4-6 years	26	1
7-8 years	8	0
9-10 years	3	0
11-12 years	3	0
13-16 years	5	0
17-20 years	2	0
21-up	4	0
	91	1

VIII. MILITARY EXPERIENCE	YES	NO
None	24	1
Criminal	6	0
Infantry	23	0
Helicopter	2	0
General Air	16	0
Other	20	0
	91	1

Question 3.1

Have you been involved personally with utilization of the helicopter in a field function?

I. Overall breakdown of responses, 94 total

YES = 86 (91.5%) NO = 8 (8.5%)

II. AGE	YES	NO
21-25	28	0
26-30	29	3
31-35	17	1
36-40	5	1
41-50	7	1
51 and over	0	2
	86	8

III. RANK		
Patrolman	52	3
Agent	14	2
Sergeant	6	1
Lieutenant	3	1
Captain	0	1
Dispatcher	4	0
Traffic Officer	7	0
	86	8

IV. ASSIGNMENT		
Patrol	55	3
Helicopter	5	0
Communications	5	0
Detectives	7	2
Traffic	13	0
Complaint	1	1
	86	6

V. EDUCATION	YES	NO
GED	1	0
High School	10	3
1-12 College Units	4	0
13-30 College Units	15	1
31-59 College Units	20	1
60-70 College Units	20	1
71-90 College Units	8	1
91-123 College Units	6	0
BA/BS	2	0
BA +	1	0
	87	7

VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	31	0
4-6 years	28	1
7-8 years	8	2
9-10 years	5	1
11-12 years	3	1
13-16 years	3	0
17-20 years	3	0
21-up	3	3
	86	8

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	34	1
4-6 years	26	1
7-8 years	7	1
9-10 years	2	1
11-12 years	2	1
13-16 years	3	2
17-20 years	2	0
21-up	3	1
	86	8

VIII. MILITARY EXPERIENCE		
None	24	1
Criminal	6	0
Infantry	23	2
Helicopter	2	0
General Air	15	1
Other	16	4
	86	8

Question 3.2

Have you been involved personally with utilization of the helicopter on any case assigned to you?

I. Overall breakdown of responses, 91 total

YES = 67 (73.5%) NO = 24 (26.5%)

II. AGE	YES	NO
21-25	27	1
26-30	25	7
31-35	11	4
36-40	1	5
41-50	3	5
51 and over	0	2
	67	24

III. RANK		
Patrolman	49	6
Agent	2	5
Sergeant	3	4
Lieutenant	1	2
Captain	0	1
Dispatcher	0	4
Traffic Officer	3	2
	68	24

IV. ASSIGNMENT		
Patrol	47	9
Helicopter	5	0
Communications	1	4
Detectives	3	7
Traffic	10	3
Complaint	2	1
	68	24

V. EDUCATION		
GED	0	1
High School	8	5
1-12 College Units	2	1
13-30 College Units	12	2
31-59 College Units	17	4
60-70 College Units	15	6
71-90 College Units	7	2
91-123 College Units	4	2
BA/BS	2	0
BA +	0	1
	67	24

VI. TOTAL POLICE EXPERIENCE	YES	NO
0-1 year	2	0
1-3 years	26	2
4-6 years	25	5
7-8 years	8	3
9-10 years	3	2
11-12 years	1	2
13-16 years	1	3
17-20 years	0	3
21-up	1	5
	67	24

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	29	4
4-6 years	23	4
7-8 years	5	3
9-10 years	2	1
11-12 years	0	3
13-16 years	1	3
17-20 years	0	2
21-up	0	4
	67	24

VIII. MILITARY EXPERIENCE		
None	19	6
Criminal	6	0
Infantry	19	3
Helicopter	2	0
General Air	9	7
Other	12	8
	67	24

Question 3.3

Have you been involved personally with utilization of the helicopter as a supervisor/administrator of units which have worked with aircrews?

I. Overall breakdown of responses, 11 total

YES = 9 (81.8%) NO = 2 (18.2%)

II. AGE	YES	NO
21-25	0	0
26-30	2	0
31-35	2	0
36-40	2	1
41-50	3	1
51 and over	0	0
	9	2

III. RANK	YES	NO
Patrolman	0	0
Agent	0	0
Sergeant	6	1
Lieutenant	3	0
Captain	0	1
Dispatcher	0	0
Traffic Officer	0	0
	9	2

IV. ASSIGNMENT		
Patrol	7	0
Helicopter	1	0
Communications	0	0
Detectives	1	1
Traffic	0	1
Complaints	0	0
	9	2

V. EDUCATION		
GED	0	0
High School	0	1
1-12 College Units	0	0
13-30 College Units	0	0
31-59 College Units	0	0
60-70 College Units	3	1
71-90 College Units	1	0
91-123 College Units	3	0
BA/BS	1	0
BA +	1	0
	9	2

VI. TOTAL POLICE EXPERIENCE		
0-1 year	0	0
1-3 years	0	0
4-6 years	1	0
7-8 years	1	0
9-10 years	0	0
11-12 years	1	1
13-16 years	2	0
17-20 years	2	0
21-up	2	1
	9	2

		YES	NO
VII.	EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
	0-1 year	0	0
	1-3 years	1	0
	4-6 years	1	0
	7-8 years	1	0
	9-10 years	0	1
	11-12 years	1	0
	13-16 years	2	0
	17-20 years	2	0
	21-up	1	1
		9	2
VIII.	MILITARY EXPERIENCE		
	None	2	0
	Criminal	0	0
	Infantry	0	1
	Helicopter	0	0
	General Air	3	0
	Other	4	1
		9	2

Question 3.4

Do you, as a field officer, feel more secure while performing certain hazardous field functions if the helicopter is present?

I. Overall breakdown of responses, 80 total

YES = 78 (97.5%) NO = 2 (2.5%)

		YES	NO
II.	AGE		
	21-25	27	0
	26-30	28	0
	31-35	12	1
	36-40	4	1
	41-50	6	0
	51 and over	1	0
		78	2
III.	RANK		
	Patrolman	51	1
	Agent	12	0
	Sergeant	6	0
	Lieutenant	3	0
	Captain	0	0
	Dispatcher	0	0
	Traffic Officer	6	1
		78	2

IV. ASSIGNMENT	YES	NO
Patrol	59	0
Helicopter	5	0
Communications	1	0
Detectives	9	0
Traffic	2	2
Complaints	2	0
	78	2

V. EDUCATION		
GED	0	0
High School	10	0
1-12 College Units	3	0
13-30 College Units	12	0
31-59 College Units	20	1
60-70 College Units	17	1
71-90 College Units	8	0
91-123 College Units	6	0
BA/BS	2	0
BA +	0	0
	78	2

VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	28	0
4-6 years	24	1
7-8 years	9	0
9-10 years	4	0
11-12 years	1	0
13-16 years	4	0
17-20 years	3	0
21-up	3	0
	78	1

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	27	0
4-6 years	26	1
7-8 years	4	1
9-10 years	3	0
11-12 years	1	0
13-16 years	4	0
17-20 years	3	0
21-up	2	0
	77	2

VIII. MILITARY EXPERIENCE	YES	NO
None	20	0
Criminal	6	0
Infantry	22	1
Helicopter	2	0
General Air	9	0
Other	19	1
	78	2

Question 3.5

As a supervisor/administrator, have you observed that field officers display an increased sense of security if the helicopter is present?

I. Overall breakdown of responses, 10 total

YES = 10 (100%) NO = 0

II. AGE

26-30	1
31-35	2
36-40	3
41-50	4
	10

III. RANK

Sergeant	7
Lieutenant	3
	10

IV. ASSIGNMENT

Patrol	7
Helicopter	1
Detectives	1
Traffic	1
	10

V. EDUCATION

60-70 College Units	4
71-90 College Units	1
91-123 College Units	3
BA/BS	1
BA +	1
	10

VI. TOTAL POLICE EXPERIENCE

	YES	NO
1-3 years	1	
4-6 years	1	
7-8 years	1	
9-10 years	1	
11-12 years	0	
13-16 years	2	
17-20 years	2	
21-up	2	
	10	

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT

1-3 years	1
4-6 years	1
7-8 years	1
9-10 years	1
11-12 years	1
13-16 years	2
17-20 years	2
21-up	1
	10

VIII. MILITARY EXPERIENCE

None	2
General Air	3
Other	5
	10

Question 3.6

While working with the aircrews, have you found the overall tactics and coordination of units satisfactory?

I. Overall breakdown of responses, 83 total

YES = 77 (92.8%) NO = 6 (7.2%)

II. AGE

	YES	NO
21-25	26	2
26-30	25	2
31-35	16	1
36-40	3	1
41-50	6	0
51 and over	1	0
	77	6

III. RANK	YES	NO
Patrolman	49	3
Agent	11	2
Sergeant	6	0
Lieutenant	3	0
Captain	0	0
Dispatcher	4	0
Traffic Officer	4	1
	77	6

IV. ASSIGNMENT		
Patrol	50	5
Helicopter	5	0
Communications	5	0
Detectives	7	0
Traffic	8	1
Complaint	2	0
	77	6

V. EDUCATION		
GED	1	0
High School	9	0
1-12 College Units	4	0
13-30 College Units	13	0
31-59 College Units	17	4
60-70 College Units	18	1
71-90 College Units	8	0
91-123 College Units	4	1
BA/BS	2	0
BA +	1	0
	77	6

VI. TOTAL POLICE EXPERIENCE		
0-1 year	2	0
1-3 years	28	2
4-6 years	23	2
7-8 years	8	2
9-10 years	4	0
11-12 years	2	0
13-16 years	4	0
17-20 years	3	0
21-up	2	0
	76	6

	YES	NO
VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT		
0-1 year	7	0
1-3 years	31	2
4-6 years	22	2
7-8 years	5	2
9-10 years	2	0
11-12 years	2	0
13-16 years	4	0
17-20 years	3	0
21-up	1	0
	77	6
VIII. MILITARY EXPERIENCE		
None	22	2
Criminal	6	0
Infantry	19	2
Helicopter	2	0
General Air	10	0
Other	18	2
	77	6

Question 3.7

As handling detective, supervisor, or administrator, have you observed, overall, that air-ground and/or air tactics and coordination have been satisfactory?

I. Overall breakdown of responses, 15 total

YES = 15 (100%) NO = 0

II. AGE	YES	NO
26-30	3	
31-35	4	
36-40	4	
41-50	3	
51 and over	1	
	15	

III. RANK	
Patrolman	1
Agent	3
Sergeant	8
Lieutenant	3
	15

IV. ASSIGNMENT	YES	NO
Patrol	7	
Helicopter	1	
Detectives	6	
Traffic	1	
	15	

V. EDUCATION	
High School	1
31-59 College Units	1
60-70 College Units	7
71-90 College Units	1
91-123 College Units	3
BA/BS	1
BA +	1
	15

VI. TOTAL POLICE EXPERIENCE	
4-6 years	2
7-8 years	3
9-10 years	1
11-12 years	2
13-16 years	2
17-20 years	3
21-up	2
	16

VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT	
1-3 years	1
4-6 years	2
7-8 years	2
9-10 years	1
11-12 years	2
13-16 years	2
17-20 years	3
21-up	2
	15

VIII. MILITARY EXPERIENCE	
None	3
Criminal	1
Infantry	1
General Air	4
Other	6
	15

Question 3.8

In you best opinion, and overall, has the use of helicopters as an adjunct to Riverside's law enforcement function improved Departmental efficiency?

I. Overall breakdown of responses, 89 (94.6% of total questionnaires)

GREATLY = 41 (46.1%) MODERATELY = 40 (44.9%) SLIGHTLY = 8 (9.0%)

II. AGE	GREATLY	MODERATELY	SLIGHTLY
21-25	15	12	2
26-30	17	9	2
31-35	2	15	1
36-40	1	2	2
41-50	5	1	0
51 and over	1	1	0
	41	40	8

III. RANK			
Patrolman	28	21	5
Agent	7	7	0
Sergeant	1	5	1
Lieutenant	3	0	0
Captain	0	1	0
Dispatcher	0	4	0
Traffic Officer	2	2	2
	41	40	8

IV. ASSIGNMENT			
Patrol	30	25	3
Helicopter	3	2	0
Communications	0	3	0
Detectives	3	4	1
Traffic	5	4	4
Complaint	0	2	0
	41	40	8

V. EDUCATION			
GED	0	1	0
High School	8	5	0
1-12 College Units	0	3	0
13-30 College Units	7	7	2
31-59 College Units	9	9	0
60-70 College Units	8	9	4
70-90 College Units	6	1	0
91-123 College Units	1	4	2
BA/BS	2	0	0
BA +	0	1	0
	41	40	8

	GREATLY	MODERATELY	SLIGHTLY
VI. TOTAL POLICE EXPERIENCE			
0-1 year	2	0	0
1-3 years	16	15	2
4-6 years	12	13	3
7-8 years	1	5	2
9-10 years	2	2	1
11-12 years	2	0	0
13-16 years	2	3	0
17-20 years	2	0	0
21=up	2	2	0
	41	40	8
VII. EXPERIENCE WITH RIVERSIDE POLICE DEPARTMENT			
0-1 year	7	0	1
1-3 years	11	20	1
4-6 years	13	9	3
7-8 years	2	5	2
9-10 years	1	1	1
11-12 years	2	0	0
13-16 years	2	3	0
17-20 years	2	0	0
21-up	1	2	0
	41	40	8
VIII. MILITARY EXPERIENCE			
None	11	12	1
Criminal	5	2	0
Infantry	7	12	1
Helicopter	2	0	0
General Air	6	8	1
Other	10	6	5
	41	40	8

APPENDIX B

METHODOLOGY FOR CRIME RATE PROJECTION

Part I Offenses reported to the police (by classification), adult arrests and juvenile arrests were obtained for the 132 month period commencing in January, 1960, from the returns submitted to the Bureau of Criminal Statistics in Sacramento. Crime rates were computed from all categories. First, second, and third degree regression equations were calculated for all categories and superimposed on their respective scatter diagrams. It was determined by observation that the second degree equations provided the best fit for the majority of classifications when the trends exhibited in the last three years were given weighted consideration. For this reason, second degree equations were utilized for all classifications. The equations were:

Murder and Non-Negligent Manslaughter	$Y = .0217 - .0025x + .0004x^2$
Manslaughter by Negligence	$Y = .1171 + .0170x - .0014x^2$
Forcible Rape	$Y = .1234 - .0074x + .0021x^2$
Aggravated Assault	$Y = .7508 - .0495x + .0162x^2$
Robbery	$Y = .4466 - .0974x + .0161x^2$
Burglary	$Y = 9.7500 - 1.3244x + .2737x^2$
Theft over $200	$Y = .8818 + .0688x + .0051x^2$
Theft: $50 to $200	$Y = 3.0965 + .5985x + .0042x^2$
Grand Theft Auto	$Y = 2.2751 + .0470x + .0234x^2$
Adult Felony Arrests	$Y = 2.7573 - .2360x + .0360x^2$
Adult Misdemeanor Arrests	$Y = 11.8985 - .1734x + .0222x^2$
Arrests of Youths under 18	$Y = 28.9171 + .7419x - .1252x^2$

Where:

Y = Monthly crime rate
x = Month and year (January 1960 is the base. January 1971 = 12.00; February 1971 = 12.08).

APPENDIX C

PROJECT ACE -- RIVERSIDE POLICE DEPARTMENT
SIMULATED FIELD EXERCISE EVALUATION REPORT -- IPS

Evaluator _____ Type Incident _____ Date of Exercise _____

Location of Incident _____ Time Begun _____

1. Evaluator's position assignment (Check one):
( ) With suspect ( ) In handling ground field unit no. _____
( ) In assisting ground field unit no. _____ ( ) In assisting helicopter
( ) In observer helicopter ( ) Other _____

2. Location of evaluator when call "went down" _____
Approximate distance from scene _____ miles or blocks

3. Approximate response time _____ min.

4. Who arrived first at location?
( ) Helicopter ( ) Ground Field Unit ( ) Both (Tie)

5. Navagational data -- HANDLING HELICOPTER ONLY
Altitude - Approach _____ ft.
Altitude - Minimum during handling _____ ft. Maximum during handling _____ ft.
Air Speed - Approach _____
Air Speed - Minimum during handling _____ Maximum during handling _____

6. Equipment used: _____

_____

7. Tactics used (Describe in some detail): _____

_____

_____

_____

_____

8. Critique of tactics (Rate and evaluate the following factors):
(a) Response time (b) Method of approach to scene (c) Timeliness and accuracy of information given by dispatcher (d) Adequacy of directions or landmarks given (e) Quality of communications (f) Effectiveness of visual and radio communications (g) Overall coordination among units (h) Performance of equipment used (i) Other factors deemed important. USE REVERSE SIDE FOR RESPONSE

9. How would you rate the overall manner in which the incident was handled?
( ) Excellent ( ) Good ( ) Fair ( ) Poor ( ) Extremely Poor

10. Would additional training have improved performance? ( ) Yes ( ) No
Comments: _____

_____

11. Could additional and/or specialized equipment have been used? ( ) Yes ( ) No
Comments: _____

12. Additional comments, suggestions, etc. should be put on reverse or on separate attached sheet(s).

City of Riverside
ACE FIELD EVALUATION REPORT

OFFICER_____ BADGE #_____ UNIT #_____

DAY_____ DATE_____ SHIFT_____ TIME_____ RD.#____

WEATHER ( ) CLEAR ( ) OVERCAST ( ) RAIN ( ) FOG

TYPE OF ACTIVITY_____ TIME SPENT_____ (MINS)

HOW RECEIVED ( ) RADIO ( ) OBSERV. ( ) R.I. ( ) CITN ( ) MISC.

LOCATION:_____ OTHER AGENCY ( ) Yes ( ) No

WHO ARRIVED FIRST AT LOCATION? COPTER ( ) GROUND UNIT ( ) BOTH ( )

TACTICS USED (DESCRIBE IN SOME DETAIL):_____

CRITIQUE OF TACTICS:_____

EQUIPMENT USED:_____

1. Were given landmarks and/or directions adequate? Yes ( ) No ( )
   Comment:_____

2. Was identification (visual) (radio) of other units effective?
   Yes ( ) No ( )
   Comment:_____

3. Were communications, satisfactory ( ) unsatisfactory ( )
   Comment:_____

4. Could additional and/or specialized equipment have been used? Yes ( ) No ( )
   Comment:_____

5. Could the beat car have handled activity without the copter? Yes ( ) No ( )
   Was the incident handled more effectively with the copter? Yes ( ) No ( )
   Comment:_____

Use reverse side for additional comments, suggestions, etc.

200-35-2

DAILY FIELD ACTIVITIES REPORT
RIVERSIDE POLICE DEPT.
AERIAL UNIT

1. MAY	2. MARCH	3. UNIT	4. DATE	5. DIV.	8. AIRCRAFT TACH. END
					9. AIRCRAFT TACH. START
6. EMPLOYEE NO.		7. NAME (LAST, INITIAL) PRINT PILOT OBS.			10. TOTAL HRS. MIN.

FLIGHT TIME OBTAIN	
ACTIVITIES	PATROL
HRS. MIN.	HRS. MIN.
11. ON DUTY	12. OFF DUTY

13. HOW REC'D.							14. REPORTS				15. ARRESTS			16. CITATIONS				17.	18.	19. SERVICES			20. VEHICLES	
R	RT	CIT'N	CPS	OFR	STA		CRIM.	NON-CRIM.	TRF.	I.O.D.	FEL.	MISD.	I.O.D.					F.I.	WRITS	MISC.	BUS.	RES.	REC.	IMP.

WEATHER:	A. VISIBILITY:	MI.	B. CEILING:	FT.	C. MISC.	AIRCRAFT REG. NO.

TIME REC'D.	TIME ARRIVED	TIME COMPLETE	HOW REC'D.	LOCATION	TYPE OF ACTIVITY	R.P.T. DIST.	DISPOSITION OR FILE NO.	GROUND UNIT INVOLVED-NO.	ARRESTS FEL.	ARRESTS MISD.

200-36-2 R1

TIME RECEIVED	TIME ARRIVED	TIME COMPLETED	HOW RECEIVED	VOCATION	TYPE OF ACTIVITY	RPT. DIST.	DISPOSITION OF FILE NO.	GROUND UNIT INVOLVED NO.	ARRESTS FEL.	ARRESTS MISD.

COMMENTS:

END