



DIVISION OF POLICE
COUNTY OF HENRICO, VIRGINIA

HIGH INCIDENCE TARGET PROJECT FINAL EVALUATION REPORT



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ACQUISITIONS

DIVISION OF POLICE
COUNTY OF HENRICO, VIRGINIA

HIGH INCIDENCE TARGET PROJECT FINAL EVALUATION REPORT

MARCH 19, 1975

ARTHUR YOUNG & COMPANY



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WASHINGTON, D. C. 20036
(202) 785-4747

March 19, 1975

Colonel W. J. Hedrick
Chief of Police, Henrico County
3812 Nine Mile Road
Richmond, Virginia 23510

Dear Colonel Hedrick:

Arthur Young & Company is pleased to transmit this final evaluation report of the Henrico County High Incidence Target (HIT) Project. As you know, this evaluation report is part of the overall evaluation of the Virginia HIT program being conducted by Arthur Young & Company under the direction of the Virginia Division of Justice and Crime Prevention (DJCP). Although our client for this evaluation has been the DJCP, we have attempted to also interact with you and members of the Henrico County Division of Police in a consultant/client relationship. For that reason, our objective in producing this report is not only to report on our evaluative findings, but also to offer specific recommendations designed to improve the future effectiveness of the Henrico County HIT project.

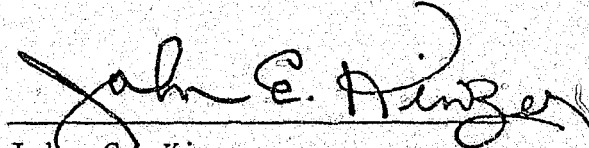
We wish to thank you, Lt. Schesventer, and other members of the Henrico County Police Department for the excellent assistance and cooperation we have received during this project.

If you have any questions concerning the content of this report, please do not hesitate to contact John Smock or myself at (202) 785-4747.

Yours very truly,

ARTHUR YOUNG & COMPANY

By:


John G. Kinzer
Henrico County HIT Project Director
Co-Director, Criminal Justice
and Public Safety Services

By:

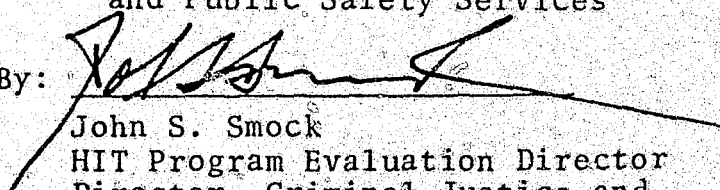

John S. Smock
HIT Program Evaluation Director
Director, Criminal Justice and
Public Safety Services

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I. INTRODUCTION

I. INTRODUCTION

This report presents a comprehensive evaluation of the Henrico County High Incidence Target (HIT) project after its first seven months of operations. The Henrico County project is part of the overall HIT Program developed by the Virginia Division of Justice and Crime Prevention (DJCP) to concentrate law enforcement resources in order to bring about a significant reduction in specific target crimes over a short period of time.

This Statewide program has been designed and implemented in two phases. HIT Phase I was developed for the three most populous metropolitan locations in the Commonwealth -- Fairfax County, Norfolk City and Richmond City. The Henrico County project is part of HIT Phase II, which was developed for those Virginia cities and counties with a population of 50,000 to 200,000. The localities chosen for HIT Phase II, including Henrico County, and the specific crimes they intend to address are shown in the following table:

<u>City/County</u>	<u>Target/Crime(s)</u>
Alexandria City	Burglary/Robbery
Arlington County	Burglary
Hampton City	Burglary
Henrico County	<u>Burglary/Robbery</u>
Newport News City	Burglary
Portsmouth City	Burglary
Roanoke City	Burglary
Virginia Beach City	Burglary

The evaluation of the Henrico County HIT project is an integral part of the evaluation of the overall HIT Phase II Program. Each of the other seven projects will also be evaluated, as will be the impact and results of the overall program. Arthur Young & Company is responsible for the entire evaluation component. The objectives of this overall evaluation are as follows:

- . Determination of the relative success and effectiveness of each HIT Phase II project and the determination of the effectiveness of individual elements of each project.
- . Determination of cost effectiveness of results obtained for each of the projects and the individual elements of each project.
- . Development of improved procedures in each police department in terms of data collection and presentation for further crime specific analysis.
- . Effective comparison of the results of HIT Phase I and HIT Phase II.
- . Development of recommendations and guidelines for future crime specific planning and implementation by the DJCP.

The remainder of this document is devoted to describing the results of evaluating the Henrico County HIT II project; the report is organized in the following manner:

- . Management summary of overall project achievement and recommendations for future operations.
- . Description of the Henrico County HIT project.
- . Methodology used to evaluate the project.
- . Evaluation findings and recommendations regarding:
 - Tactical elements/project equipment
 - Public information elements
 - Planning and support elements.
- . Survey results of Special Action Force Personnel

II. MANAGEMENT SUMMARY

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This section of the report presents an overall assessment of project achievement of the Henrico County HIT II Project and sets forth major recommendations regarding future project operations. (The basis for evaluative findings and recommendations are described in detail throughout the remainder of this report). In general the project can be termed a "qualified success" and should be continued contingent upon certain project modifications and response to present project problems.

1. ASSESSMENT OF OVERALL ACHIEVEMENT

The degree to which the Henrico County HIT II Project has (or has not) been a success was determined by analyzing project results in terms of: (1) attainment of stated objectives, (2) comparison of target area statistics to county-wide statistics, and (3) potential crime displacement.

(1) Attainment of Objectives

The two major objectives established for the HIT Project are as follows:

- . To stabilize commercial robbery within Henrico County in a one year period; that is, to hold the total incidence of commercial robbery to the level attained in the twelve month period prior to project inception
- . To reduce the number of non-residential burglaries within Henrico County by 10% in one year.

Although the project has not been operational for a full year, statistics for the first seven months of operations indicate the following:

- . Commercial robbery has increased 74% countywide
- . Commercial burglary has increased 54% countywide

Based on the above statistics, project objectives are not being achieved nor are they expected to be achieved by the end of the first year of project operations. Consequently, the project has not been successful in terms of its originally stated objectives.

It should be noted, however that the objectives were considered overly optimistic by project evaluators. Consequently, the evaluation plan developed in January 1974 (six months prior to project operations) pointed out the following factors related to project objectives:

Robbery Objective

The HIT Project in Henrico County is designed to apprehend commercial armed robbers through on-the-scene confrontation with Special Action Force Personnel. With the exception of one month in target area C, the most number of commercial armed robberies committed in any month during 1973 and in any target area was three. Consequently, on-the-scene confrontation and apprehension may be difficult to engineer due to the few number of offenses committed each month, and the low probability of a confrontation at a given location at a given time.

Burglary Objective

During 1973 the County experienced 679 nonresidential burglaries. Of this number, 26% or 174 occurred in the target areas. Therefore, in order to achieve a 10% reduction countywide (68 offenses), the incidence of nonresidential burglary would have to be reduced by approximately 40% in the target areas ($.40 \times 174 = 69.6$) -- assuming no increase in this offense in other county locations during project operations. Thus, a 10% reduction of nonresidential burglaries on a countywide basis may be difficult to achieve and the adjustment of this objective to a 10% reduction of nonresidential burglaries in only the target areas might be considered.

(2) Comparative Analysis

The HIT Project was conceived and designed to operate in four relatively small target areas within the 245 square miles of Henrico County. Consequently, in order to determine the

relative success or failure of project operations, a comparative analysis was undertaken regarding the incidence of target offenses occurring in the designated areas versus those occurring in the remainder of the county.

Exhibit I and II, on the following pages, present relevant incidence data of commercial robbery and commercial burglary over a 30 month period. Statistics are presented for the total county, target and control areas. Analysis of these statistics based on comparing 7 months of project operations (July 74-January 75) with corresponding months of the prior year reveals the following:

- . Since project inception, commercial robbery in the target areas has increased 34% in comparison with 133% in other county locations.
- . Commercial burglary in the target areas has increased 28% while that occurring in other county locations has increased 64%.

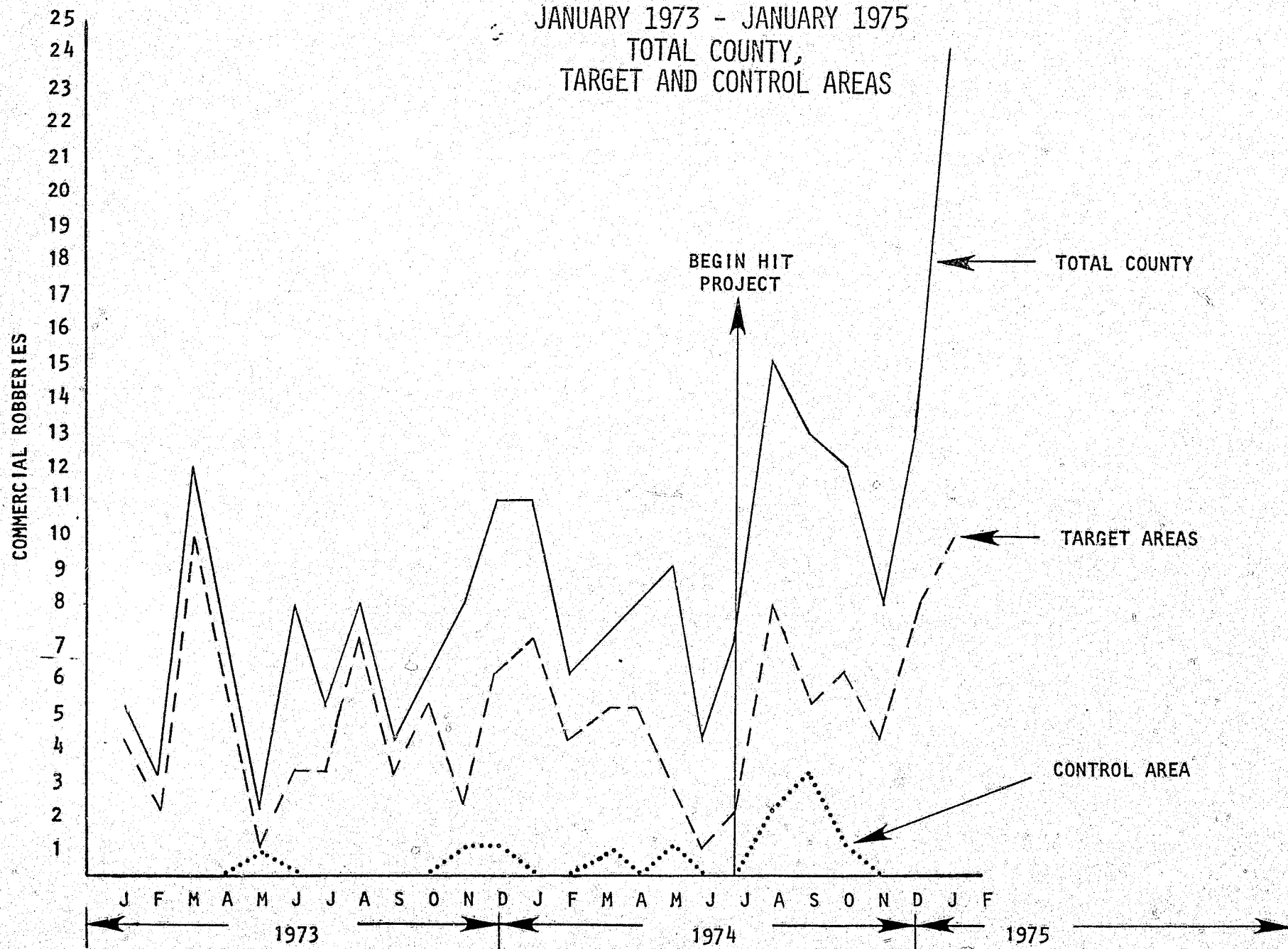
Consequently, the HIT Project has been successful on a relative basis; that is, the activities of the Special Action Force have been successful in reducing the rate of increase of target offenses committed in the-designated areas in comparison with the remainder of the county.

(3) Crime Displacement

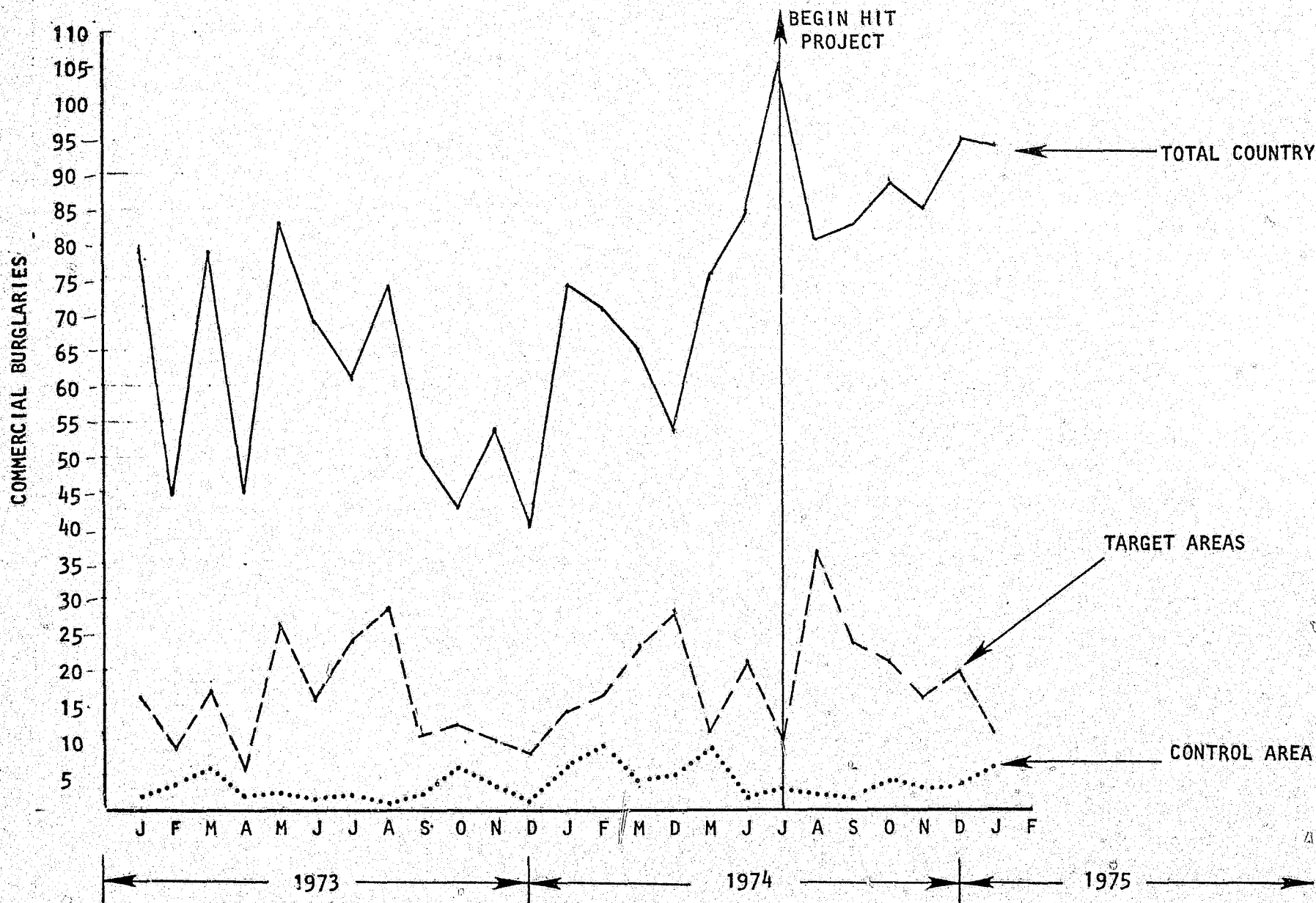
An issue that has been discussed at length in relation to the Virginia HIT Program has been that of crime displacement. The purpose of analyzing crime displacement is to determine whether or not HIT related activities actually reduced crime in designated areas or merely displaced it to other surrounding areas or to other similar crimes of opportunity.

Displacement is extremely difficult to measure. In fact, only inferences concerning its probable existence or lack thereof can be drawn from project statistics. The only accurate way to measure displacement is to interview

HENRICO COUNTY HIT PROJECT: INCIDENCE OF COMMERCIAL ROBBERY JANUARY 1973 - JANUARY 1975 TOTAL COUNTY, TARGET AND CONTROL AREAS



HENRICO COUNTY HIT PROJECT: INCIDENCE OF COMMERCIAL BURGLARY JANUARY 1973 - JANUARY 1975 TOTAL COUNTY, TARGET AND CONTROL AREAS



offenders to determine their reasons for committing a crime in a particular area.

Given that the overall incidence of target crimes have increased in both target, control and other county locations, no conclusive statements can be made regarding displacement other than the following (see Exhibit III):

- . Since the nature of the Henrico Project centers on covert or clandestine surveillance activities aimed at criminal apprehension rather than using highly visible, uniformed patrol officers (which would have a deterrent effect), it is probable that the difference in crime rates between target areas and other county locations is not due to geographic displacement.
- . There is no evidence that target crimes were displaced to other similar crimes of opportunity (see Exhibit IV):
 - From July 1973 through January 1974, commercial robbery accounted for 63% of all robberies committed in Henrico County. From July 1974 through January 1975, commercial robbery still accounted for 63% of all robberies committed in the county. Therefore, it is assumed that no displacement occurred from commercial robbery to "other robbery."
 - From July 1973 through January 1974, commercial burglary accounted for 33% of all burglaries committed in the county. From July 1974 through January 1975, commercial burglary dropped by one percentage point -- from 33% to 32%. Therefore, it is assumed that no displacement occurred from commercial burglary to "other burglary."
- . Exhibit V indicates the trend of all robberies and burglaries occurring in the county over a seven year period. The only interesting facts that these trends depict are the dramatic increase in robbery and burglary from 1973 to 1974. During that period robbery increased 35% and burglary increased 50%. Since the city of Richmond has been participating in the HIT Phase I Program since 1973 and their target crime is burglary, one might infer that crime was displaced into Henrico County from the city. However, no data exists to support this inference. In fact, the city of Richmond has had a city-wide increase of 35.9% in nonresidential burglaries and 26.9% in robberies during the first seven months of Henrico HIT operations. Thus, crime displacement from Richmond to Henrico County becomes even more difficult to infer.

HENRICO COUNTY HIT PROJECT:
ANALYSIS OF CRIME DISPLACEMENT

<u>CASE</u>	<u>TARGET AREAS</u>	<u>CENTRAL AREA</u>	<u>REMAINDER OF COUNTY</u>	<u>INFERENCE REGARDING CRIME DISPLACEMENT</u>
1	CRIME DOWN	CRIME UP	NO CHANGE	DISPLACEMENT
2	CRIME DOWN	CRIME UP	CRIME UP	PROBABLE DISPLACEMENT
3	CRIME DOWN	NO CHANGE	CRIME UP	PROBABLY NO DISPLACEMENT
4	CRIME DOWN	NO CHANGE	NO CHANGE	NO DISPLACEMENT
5	CRIME UP	CRIME UP	CRIME UP	NO INFERENCE POSSIBLE

HENRICO COUNTY HIT PROJECT: ROBBERY/BURGLARY TREND STATISTICS^{a/}

Mo/Yr	TOTAL ROBBERY			ARMED ROBBERY		COMMERCIAL ROBBERY		TOTAL BURGLARY			COMMERCIAL BURGLARY	
	Incidence	Clearances	\$ ^{b/} Stolen	Incidence	Clearances	Incidence	\$ Stolen	Incidence	\$ Stolen	Clearances	Incidence	\$ Stolen
JAN.	8	1	1.5	6	1	5	1.3	152	26.9	10	79	13.6
FEB.	8	3	3.6	7	3	3	3.5	127	32.8	19	45	5.4
MAR.	17	2	2.5	14	2	12	2.4	150	22.5	12	79	10.7
APR.	9	3	1.7	7	3	7	1.6	119	22.8	9	45	11.0
MAY	6	2	16.1	4	2	2	16.1	163	30.6	10	83	19.9
JUN.	12	4	1.1	10	2	8	0.7	136	35.0	15	69	23.1
JUL.	11	3	14.5	9	2	5	5.9	144	25.9	12	62	15.3
AUG.	12	3	4.5	9	2	8	4.5	186	21.2	25	74	8.5
SEP.	9	2	124.7	5	2	4	124.4	146	28.7	12	50	4.1
OCT.	12	1	1.2	8	1	6	0.9	160	33.3	17	43	11.0
NOV.	12	3	2.2	10	3	8	2.2	198	50.2	22	54	17.6
DEC.	14	4	18.1	13	4	11	18.1	180	50.6	19	42	9.2
JAN'74	14	2	6.7	12	1	11	6.3	194	45.6	16	74	12.6
FEB.	9	0	14.6	6	0	6	14.0	197	39.1	19	72	6.7
MAR.	11	0	2.2	9	0	7	1.8	206	68.1	21	65	10.4
APR.	8	2	13.1	8	2	8	13.1	190	69.1	25	53	5.5
MAY	13	1	11.3	10	0	9	9.1	180	36.0	12	76	9.5
JUN.	8	1	11.2	6	0	4	11.0	208	38.9	11	78	15.3
JUL. ^{c/}	11	2	13.0	10	2	7	12.8	262	73.8	20	104	15.2
AUG.	21	4	32.1	19	3	15	31.1	274	132.0	19	82	31.5
SEP.	22	6	26.4	14	5	13	24.0	246	86.7	18	83	17.9
OCT.	21	6	6.3	15	4	12	5.0	271	91.0	20	88	18.8
NOV.	15	5	39.3	14	5	8	29.0	281	103.6	19	80	29.9
DEC.	21	3	4.5	16	3	13	4.4	310	123.3	18	90	39.8
JAN'75	35	4	10.1	30	4	24	6.2	300	165.1	18	89	74.2

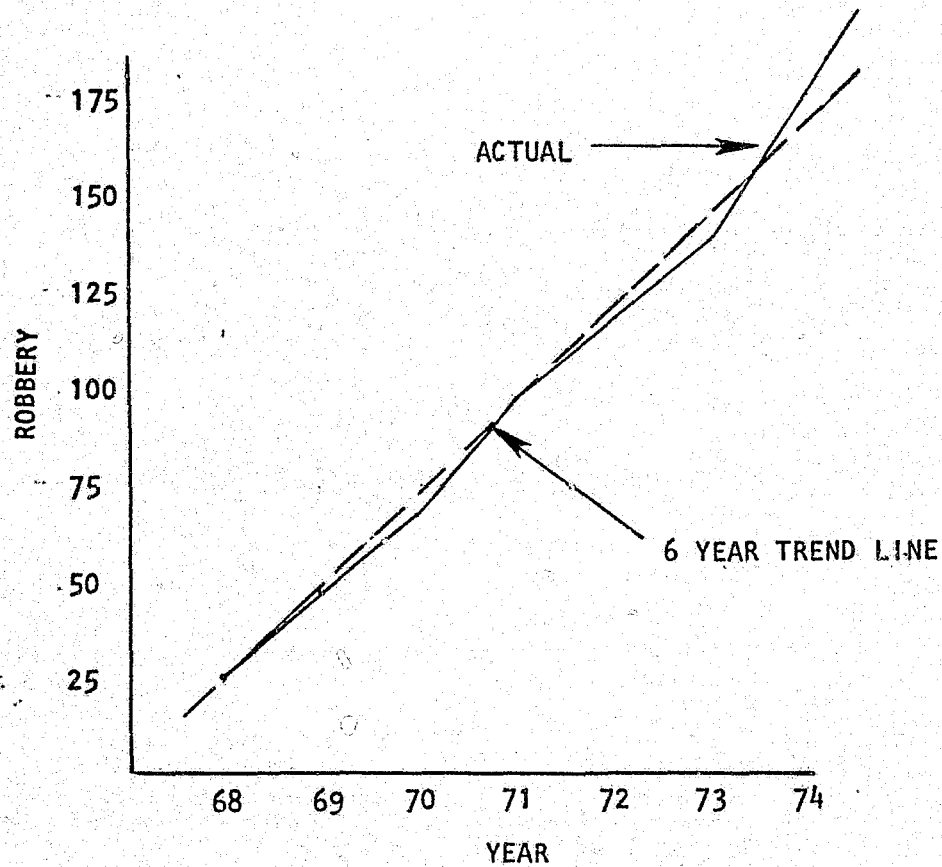
^{a/} Source: UCR, Return A

^{b/} \$(000)

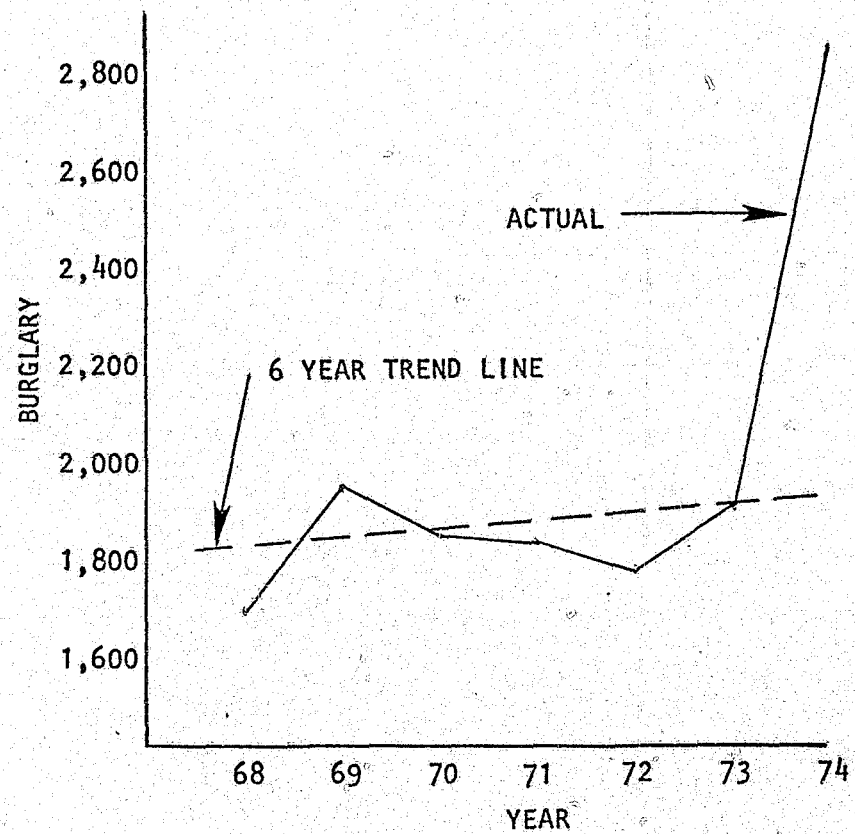
^{c/} Project Inception

HENRICO COUNTY HIT PROJECT:
TREND OF ROBBERY AND BURGLARY
IN HENRICO COUNTY
1968 - 1974

TREND OF ALL ROBBERY



TREND OF ALL BURGLARY



In summary, crime displacement does not appear to be a factor related to the Henrico HIT II Project.

2. SUMMARY OF RECOMMENDATIONS

It is believed that the effectiveness of the Henrico HIT II Project can be significantly improved through the implementation of six major recommendations involving:

- . Gathering and utilization of intelligence data
- . Expanding geographic coverage of operations
- . Acquiring additional ground and air personnel
- . Expanding aircraft operations and placing their direction under uniformed patrol
- . Modifying electronic surveillance operations
- . Providing additional training to S.A.F. personnel.

Each of these recommendations are briefly described below. Further discussion of each recommendation is presented in other sections of this report.

(1) Improve Intelligence Function

The biggest single problem affecting project operations centers on the lack of adequate intelligence data for making tactical decisions regarding the time and location of surveillance activities. It is recommended that a position be created for an intelligence officer to act as a focal point for the collection and dissemination of information relevant to project operations.

(2) Expand Project County-wide

Prior to the beginning of the HIT Project, 64% of all commercial robberies and 26% of all commercial burglaries occurred in the target areas. Over the past seven months the

incidence and location of target offenses have changed considerably. Commercial robbery has increased 74% and commercial burglary has increased 54% on a county-wide basis. In addition, the target areas now account for only 47% of the robberies and 23% of the burglaries. Consequently, it is recommended that project operations be expanded to encompass the entire county.

(3) Acquire Additional S.A.F. Personnel

The present number of S.A.F. personnel is insufficient to adequately provide effective surveillance based on two shifts of operations and county-wide coverage. Therefore, it is recommended that the following personnel be added to the S.A.F. unit: 2 sergeants; 3 pilots; and 8 ground officers.

(4) Place Aircraft Under Direction of Uniformed Patrol

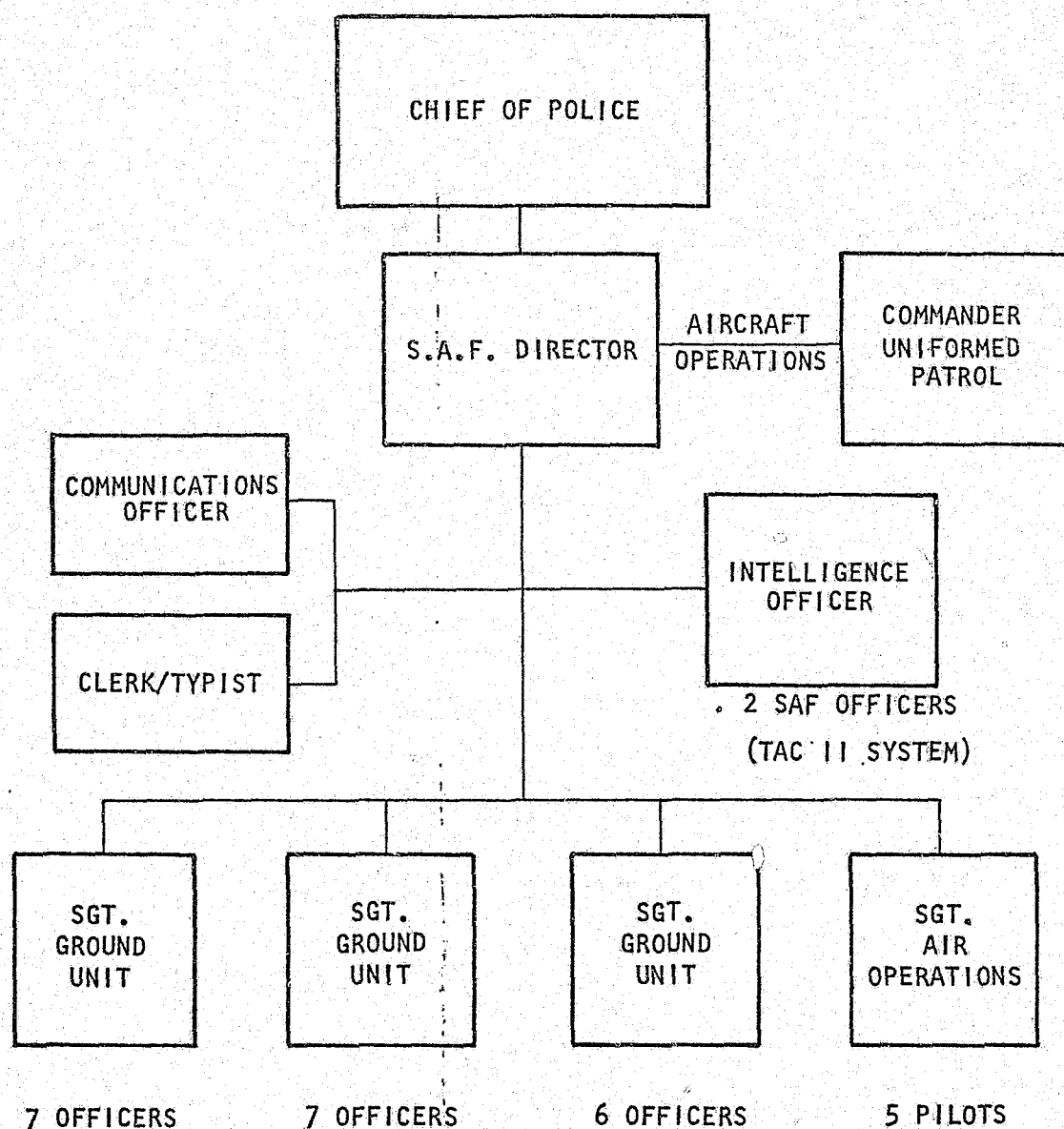
The aircraft has provided more support and is consequently of more value to overall departmental operations than it has been to the S.A.F. unit. Thus, it is recommended that the aircraft be placed under the overall direction of the Uniformed Patrol Division with the S.A.F. Director remaining in a supervisory capacity.

A recommended table of organization that reflects changes in project personnel, assignments and command of aircraft operations is given in Exhibit VI, on the following page.

(5) Modify TAC II Operations

A number of recommendations have been made in regard to the future use of the TAC II alarm system. These recommendations are further described in this report and, consequently, will not be repeated here.

HENRICO COUNTY HIT PROJECT: RECOMMENDED ORGANIZATION CHART

ADDITIONAL PROJECT PERSONNEL RECOMMENDED:

• SERGEANTS	2
• PILOTS	3
• GROUND OFFICERS	8
	<hr/>
	13
	<hr/>

TOTAL PROJECT PERSONNEL: 34 SWORN OFFICERS
1 CIVILIAN

TOTAL 35

(6) Provide Additional Training for S.A.F. Personnel

It is recommended that S.A.F. personnel receive additional training in the following areas: (1) firearms, (2) intelligence gathering, (3) field problems, (4) equipment usage, and (5) flight training.

The remainder of this report is devoted to describing the HIT II Project, the procedures used to evaluate it, and the detailed findings upon which the foregoing recommendations were made.

III. DESCRIPTION OF THE HENRICO COUNTY HIT PROJECT

III. DESCRIPTION OF THE HENRICO COUNTY HIT PROJECT

The Henrico County Division of Police is participating in the overall High Incidence Target (HIT) Program developed by the Virginia Division of Justice and Crime Prevention. The purpose of the program is to concentrate law enforcement resources in a given area in order to bring about a significant reduction in specific target crimes over a relatively short period of time.

The purpose of this section is to review the Henrico County project in terms of its background history and objectives, strategy and tactics, organization and staffing, personnel changes, project equipment, personnel training and schedule of operations.

1. BACKGROUND AND OBJECTIVES

As a part of project planning, various offense statistics were compiled over a number of years and analyzed to identify significant crimes that would be amenable to reduction through a concentrated law enforcement effort. Analysis of data revealed the following facts:

- From 1968 through 1972 commercial robbery rose from a total of 25 to 113 offenses which indicated an increase of 352% over a five year period. On the other hand, the national incidence of commercial robbery increased only 60% during the same period of time.

- In 1972 Henrico County's non-residential burglaries accounted for 43% of all reported burglaries. Based on the total number of residential and commercial structures in the county and the associated number of burglaries, the residential burglary rate was 2% whereas the commercial burglary rate was 17%, i.e., 1 out of every 53 residences was burglarized versus 1 out of every 6 commercial establishments was burglarized.

Consequently, commercial robbery and commercial burglary were selected as the target offenses to be addressed by the Henrico County HIT Project. The following primary objectives were then established for the project:

- . To stabilize commercial robbery within Henrico County in a one year period; that is, to hold the total incidence of commercial robbery to the level attained in the twelve month period prior to project inception, and
- . To reduce the number of non-residential burglaries within Henrico County by 10% in one year.

2. STRATEGY AND TACTICS

The primary strategy that was employed by the Henrico County HIT Project to reduce target crimes centered on covert operations using clandestine ground, air and electronic surveillance of commercial establishments. Target offenses were to be combatted through an aggressive approach consisting of specially trained personnel whose sole responsibility would be directed at detecting, confronting and apprehending offenders during the commission of crimes.

Four target areas were selected for the conduct of operations for the following reasons:

- . They encompassed a significant number of commercial establishments, and
- . Collectively, they accounted for 64% of all commercial robberies and 26% of all non-residential burglaries that occurred in the county during 1973.

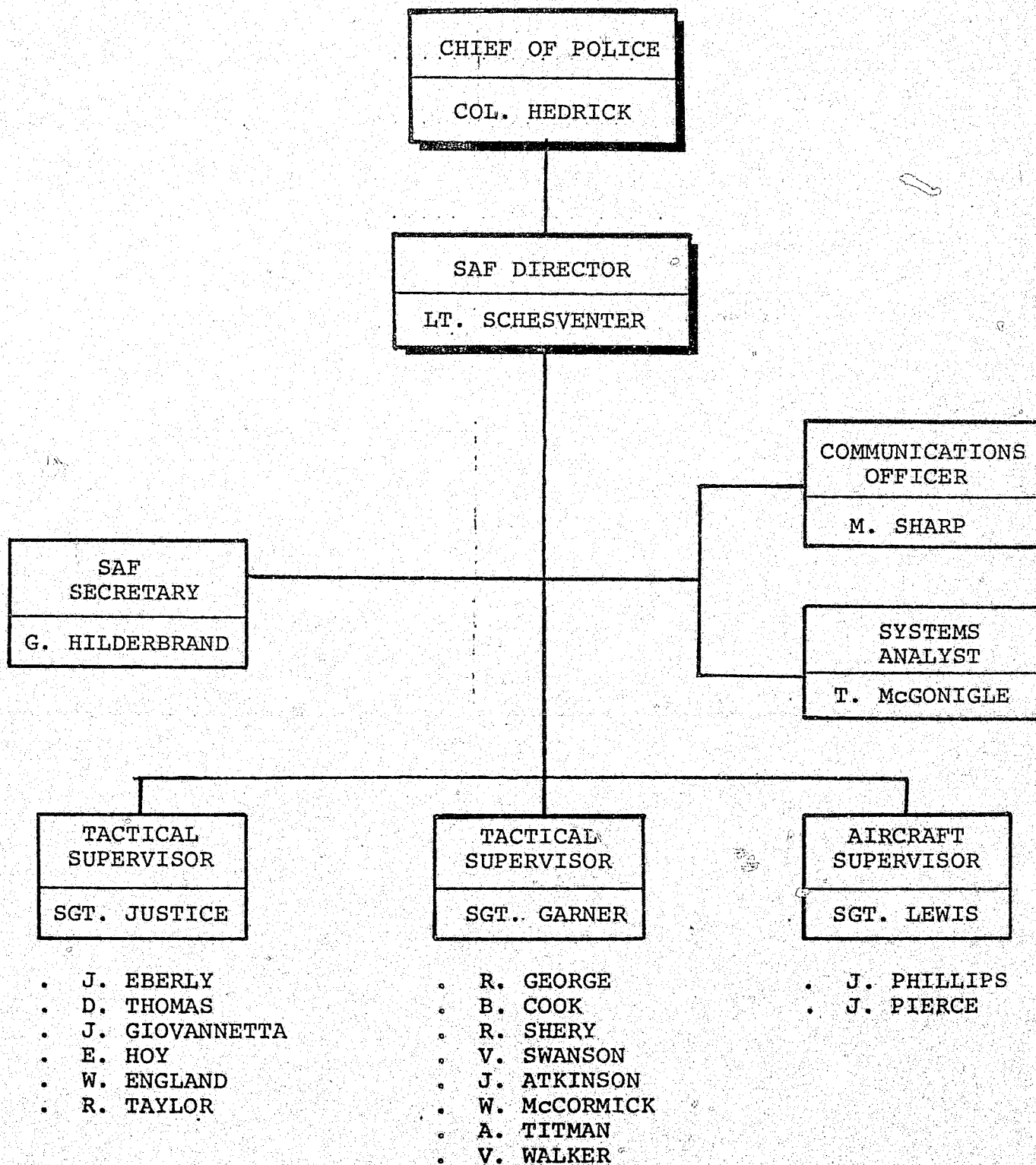
The Henrico County HIT project was approved by the Virginia Council on Criminal Justice on January 3, 1974 and commenced operations in July of 1974.

3. ORGANIZATION AND STAFFING

Exhibit VII, on the following page, depicts the organization chart of the Henrico County HIT II Project. The roles and responsibilities of each of the members of the Special Action Force* (SAF) are briefly described below:

* The duties and responsibilities of Support Personnel are described in the section of this report entitled "Evaluation of Planning and Support Elements".

HENRICO COUNTY HIT PROJECT: CURRENT ORGANIZATION CHART



- . The unit is headed by a Lieutenant who reports directly to the Chief of Police. In the capacity of S.A.F. Director, the Lieutenant is responsible for the overall administration and management of project personnel and activities.
- . The S.A.F. Director is assisted by three Sergeants who act in the capacity of first line supervisors of S.A.F. officers. Two supervisors are responsible for the day-to-day direction and coordination of ground operations whereas the third is responsible for aircraft operations, safety, maintenance and supervision of pilots.
- . There are a total of 16 S.A.F. field officers assigned to the unit. Of these officers, 12 are primarily responsible for conducting covert surveillance of commercial establishments, two are assigned to pilot the fixed wing aircraft, and the remaining two officers have dual responsibilities of conducting covert surveillance activities, and the placement, installation, testing and maintenance of electronic surveillance devices.

4. PERSONNEL CHANGES

Since project inception (July 1, 1974), there have been relatively few changes in project personnel. Of the three personnel changes, two involved pilots and one involved a member of the ground force:

- . During the month of August the chief pilot requested that he be relieved of supervisory responsibilities. Another pilot was assigned his duties and was subsequently promoted to Sergeant during the fifth month of project operations.
- . Also during the month of August, one S.A.F. officer requested to be transferred to the Detective Section in which he was originally a member prior to joining the S.A.F. unit.
- . During the month of January 1975, another pilot requested a transfer to uniformed patrol.

All requests for transfer were based on personal reasons and were subsequently granted. Vacated positions have been filled.

5. PROJECT EQUIPMENT

In order to support S.A.F. activities, approximately \$135,000 of equipment/facilities were leased or purchased during the first year of project operations. Equipment and facilities are listed below (office equipment, furnishings and supplies are excluded):

- . Fixed wing aircraft -- 1
- . Unmarked cars -- 16
- . Unmarked vans -- 2
- . Portable radios -- 19
- . Tape recorders -- 11
- . Computer terminal -- 1
- . Ballistic vests -- 17
- . Pairs of binoculars -- 10
- . Night vision scope -- 1
- . TAC II alarm system -- 1
- . Video-tape recorder -- 1
- . Hand-held spot lights -- 17
- . Vest barriers -- 2
- . Bullet proof helmets -- 17
- . Slide projector -- 1
- . Separate S.A.F. facilities.

6. PERSONNEL TRAINING

The majority of S.A.F. personnel received 68 hours of specialized training prior to project inception. The training program included instruction in: (1) firearms, (2) surveillance techniques, (3) field problems and tactics, (4) tactical approaches to crimes in progress, (5) legal aspects relating to S.A.F. operations, (6) F.B.I. philosophy of shooting, and (7) air surveillance.

In addition, pilots of the fixed wing aircraft received 290 hours of specialized flight training prior to and/or following project inception.

7. SCHEDULE OF OPERATIONS

At the present time, there are four schedules of operations for S.A.F. personnel which are dependent upon individual responsibilities and assignments. Generally, the schedules are as follows:

- . The S.A.F. Director, systems analyst and clerk/typist work five days/week from 8:00 a.m. to 4:30 p.m.
- . The air support team operates on a two-shift basis:
 - One pilot works five days/week from 9:00 a.m. to 6 p.m. His primary responsibility is to assist the uniformed patrol division.
 - Two pilots work six nights/week from 8:00 p.m. to 4 a.m. Duties are shared between piloting the aircraft and acting as observer. Their primary responsibility is to support S.A.F. ground units.
- . The communications officer works six nights/week from 9:00 p.m. to 5:00 a.m.
- . Tactical ground units work as two-man teams in each of the four target areas. Six-day coverage is provided from 8:00 p.m. to 4:00 a.m.

Over the duration of the project, the operating hours of tactical ground units and areas under surveillance have been frequently modified to conform to changing patterns of target crimes.

IV. EVALUATION METHODOLOGY

IV. EVALUATION METHODOLOGY

The purpose of this section is to describe the methodology used in evaluating the Henrico County HIT II project. The methodology served as a guide in preparing the six monthly evaluation reports and this final report following seven full months of project operations.

1. STANDARDIZED MODEL

Arthur Young & Company has been tasked by the Virginia Division of Justice and Crime Prevention (DJCP) with evaluating the entire HIT Program which is composed of eleven separate projects operating in various jurisdictions throughout the State. It is expected that the results of the various evaluations performed in connection with this program will yield valuable insights as to the feasibility and effectiveness of various approaches to crime prevention and control.

In order to facilitate evaluation, a standardized model was developed for assessing the eleven HIT projects on an individual and comparative basis. The model provides a framework for evaluating overall project effectiveness, and individual project components and activities. Major characteristics of the standardized evaluation model include:

- . Categorization of project activities, personnel, equipment, etc., into three standardized components:
 - Tactical elements
 - Public information elements
 - Planning and support elements.
- . Delineation of objectives and priorities for the overall project and each of its major elements
- . Specification of measures to assess overall project effectiveness and individual project elements

- . Definition of data required for evaluation criteria
- . Identification of data sources
- . Specification of analytical techniques for ascertaining project effectiveness and efficiency through the application of performance measures and assessment criteria.

(1) Categorization of Project Elements

For purposes of individual and comparative evaluations, the various activities, personnel and equipment used within the Henrico County HIT II project were classified into one of the three major categories as follows:

- . Tactical Project Elements

Those project elements that are directly related to the tactical or strategic activities directed at crime prevention and criminal apprehension.

- . Public Information Elements

Those project elements which involve planned interaction with the community-at-large in terms of increased overall security or improved police/community cooperation.

- . Planning and Support Elements

Those project elements that provide support or planning assistance for the successful implementation of the above tactical and public information elements.

(2) Delineation of Project Objectives

In addition to specifying overall project objectives, subsidiary objectives which contributed to the attainment of primary objectives were identified based on an analysis of project elements, their planned interaction and their relative importance as perceived by the Henrico County personnel directly concerned with the HIT project. Consequently, subobjectives were established for each project element and assigned priorities based on the following classification:

- High priority (H) project element objectives represented those elements that had an important relationship to and effect on the attainment of the primary project goal and overall project success.
- Medium priority (M) project element objectives represented those elements that were necessary to the project but not as important or directly related to results as high priority elements.
- Low priority (L) project element objectives represented those elements that contributed to project success, but with far less direct effect than the other two priority categories.

(3) Specification of Measures

Evaluation measures were developed for all project objectives and classified into one of the following four categories:

- Measures of effectiveness to assess overall project results
- Measures of efficiency to assess tactical and public information elements
- Subjective criteria to assess planning and support elements
- Cost/effectiveness measures to assess overall and selected project elements.

Measures of effectiveness indicate the impact of overall project activities upon the target problem. They are end-oriented rather than means-oriented and relate to what is ultimately desired. The measures of effectiveness of the Henrico County HIT project center on the incidence of commercial robbery and nonresidential burglary.

Measures of efficiency are means-oriented and indicate how adequately project activities are carried out. These measures were used to assess the performance of project activities falling within the categories of tactical project elements and public information elements. Measures in this

category include number of arrests, property value recovered, average response time and so forth.

Subjective criteria were used to assess planning and support elements that do not lend themselves to quantitative measurement. For example, criteria such as value of curriculum and instruction were used to assess project training activities.

Cost effectiveness measures were used to assess selected project results as a function of expenditures.

(4) Identification of Data Sources

In order to effectively measure project performance, utilizing the previously outlined evaluation measures, data concerning project activity and results were gathered, tabulated and analyzed. Evaluation data came from the following sources:

- . Commercial robbery and burglary offense reports
- . U.C.R. monthly tally sheets
- . S.A.F. activity reports
- . Flight logs
- . Personal observation of field activities
- . Interviews with:
 - S.A.F. management
 - S.A.F. officers
 - S.A.F. civilian personnel
 - Headquarters Staff
 - Records personnel.
- . Special Police Unit Questionnaire.

In order to ensure that the statistical results of the HIT project were reliable, limited data audits were conducted over the project duration. These audits traced, on a sampling basis, specific target offense statistics to their original source documents to determine if proper classification and compilation procedures were used. In addition, other HIT reports were audited on a limited sampling basis.

(5) Specification of Analytical Techniques

Analytical techniques involved the manipulation of data to arrive at specified evaluation measures and the application of those measures to project results to determine objective attainment. These methods included standard arithmetical operations, statistical calculations, subjective assessment of training, value of project equipment, etc.

Certain analytical techniques, however, were standardized and used on a monthly basis. These techniques primarily involved comparison of data on a before and after basis within and among target, control and peripheral areas.

Data were collected on a monthly and year-to-date basis and compared to the corresponding time frame in the prior year. The percent increase or decrease in these measures were calculated for the target areas, control area, remainder of the County and the total County.

The types of analyses centered on:

Attainment of Major Objectives

This type of analysis involved ascertaining the degree to which the HIT Project achieved its major objectives. The level of success was determined through the application of effectiveness evaluation measures.

Efficiency of Project Activities

The method for determining the contribution of various project elements to overall project success involved an analysis of each of the elements within the HIT project. This determination depended on how well each of the project elements achieved its objectives and the effect of this achievement on overall project results.

Cause-Effect Relationships

The entire project, its related activities and the environment in which it operated were analyzed to determine the major reasons for the degree of success achieved. Such diverse factors as crime displacement, attitudes and morale of project personnel, and exogenous forces were important in determining cause-effect relationships.

Crime Displacement

Three types of crime displacement were taken into account in the conduct of the evaluation. They are:

- Displacement of commercial robbery and nonresidential burglary from the target areas to the control area or other county locations.
- Displacement of crime from the target offenses to other similar crimes of opportunity. In this instance, "other" robbery and "other" burglary may attract the offender as alternate methods of obtaining illegal economic gains.
- Displacement of crime from locations surrounding Henrico County to locations within the County. This type of displacement may be attributable to special anticrime activities being conducted in neighboring jurisdictions.

V. EVALUATION OF TACTICAL ELEMENTS

V. EVALUATION OF TACTICAL ELEMENTS

This section of the report addresses the evaluation of the project's tactical elements which are related to the strategic activities directed at crime prevention and criminal apprehension. That is, this section is devoted to assessing project management, SAF personnel, surveillance activities, and operating results. (Project equipment such as the fixed wing aircraft and tactical operations is separately evaluated in Section VI of this report.)

1. PROJECT MANAGEMENT

Project management is composed of one Lieutenant and three Sergeants -- two of which are assigned to ground operations whereas the third acts as first line supervisor of air operations.

Respondents to the special questionnaire contained in Appendix A of this report replied to project management-related questions as follows:

- . How would you typify the supervision of the HIT Squad?
 - Excellent, responsive and effective 56%
 - No better than other police supervision in other units 44%
 - Not very effective, poor 0%
- . What improvements would you recommend in HIT Squad management?
 - No change 27%
 - Better coordination between management and men 18%
 - Eliminate influence on SAF operations from other department commanders 27%
 - Better field supervision 9%
 - More delegation of authority 18%

- . How has the day-to-day cooperation and coordination been with the:

	<u>Excellent</u>	<u>Adequate</u>	<u>Poor</u>
- Detective Division	14%	50%	36%
- Uniform Patrol	29%	71%	0%
- Traffic	17%	83%	0%
- Overall Police Division	7%	93%	0%

Based on the results of the SAF questionnaire and interviews with project personnel, the following observations are set forth regarding project management.

- . It was felt that overall project management was good; however, areas existed in which improvements could be made.
- . Coordination could be improved between the Special Action Force and other departmental units, especially the Detective Division.
- . The most commonly cited problems centered on tactical decisions based on poor intelligence data.
- . SAF personnel felt that decisions regarding time and location of surveillance activities, and subsequent assignment of men and equipment, could be improved through better coordination and communication between the Director, Sergeants, field personnel and the Detective Division.
- . The SAF Director was characterized as: (1) being innovative, (2) adept at project planning and administration, (3) having an open door policy, (4) willing to take suggestions under consideration, and (5) in general, the best individual qualified to direct the project.
- . On the other hand, it was felt that the Director: (1) by-passed his Sergeants in the chain of command, (2) did not delegate adequate authority, and (3) should leave the day-to-day tactical decisions to first line supervisors.

2. SAF PERSONNEL

There are a total of 23 individuals assigned to the Special Action Force of which 21 are sworn officers and two are civilians. Fourteen sworn officers responded to the special questionnaire contained in Appendix A from which the following data were extracted:

- . Members of the force possessed an average of 7.5 years of experience.
- . Patrolmen averaged 5.8 years of experience.
- . One sergeant and one patrolman collectively possessed 5.5 years of detective experience.
- . One Lieutenant and one Sergeant collectively possessed 12 years of supervisory experience.
- . 79% of respondents had received some college training.
- . 71% had voluntarily submitted a written request to join the project.
- . The two major reasons cited for joining the project were:
 - Desire to participate in an innovative project
 - Prefer covert operations rather than uniformed patrol.
- . With the exception of the Director, sworn personnel are being paid more as a HIT Squad member than they were in their last assignment.
- . At the time questionnaire results were received, the average time as a HIT Squad member was 6.2 months.
- . Characterization of morale was as follows:

- Extremely high	36%
- Better than with previous units	57%
- Lower than average	7%
- Extremely poor	0%

Based on the above responses and personal interviews, the following observations are made regarding SAF personnel:

- Collectively SAF officers possess a relatively high level of experience and education,
- They are positively motivated as evidenced by the number of volunteers, reasons cited for joining the project and current level of morale.

3. SURVEILLANCE ACTIVITIES

The primary strategy used by the Henrico County HIT project to reduce target crimes centers on covert operations using clandestine ground, air and electronic surveillance of commercial establishments. Nineteen of twenty-three SAF personnel are directly involved in day-to-day surveillance activities with the major portion of project time being expended on stationary surveillance -- approximately 9,000 man-hours since project inception. The majority of stake-out activity has been conducted in the designated target areas using unmarked cars and vans, and other surveillance equipment such as binoculars and TAC II alarm devices.

At times, surveillance activities have been conducted outside of the target areas based on intelligence data and requests for assistance. Joint operations have been undertaken with the FBI, Richmond Police Department, Henrico County Detective and Vice units, and the Hanover County Sheriffs' Department.

Over the duration of the project there has been very little consistency in the character or nature of ground surveillance activities. For example,

- Hours of operation have involved 1 shift, 2 shifts and split shifts
- Methods of operation have included either 1 man units or 2 man units
- Stake-outs centered on target areas or, on the other hand, by type of establishment, e.g., banks and ABC stores
- Periods of surveillance have shifted between day, night or a combination of both.

In general, tactical operations appear to have been reactive (based on recently reported incidences of crime) rather than preventive. Consequently, the operational results of tactical surveillance activities have not been as effective as originally planned.

4. OPERATING RESULTS

The operating results* of the SAF unit on a project-to-date basis are presented below:

Arrests

The SAF unit was instrumental in a total of 69 felony arrests. The majority of arrests (54 vs. 15) were made in the target areas. Five arrests were for commercial robbery, 31 for commercial burglary and 33 for "other felonies." An average of 3.6 felony arrests were made per SAF officer over a seven month period.

Cases Cleared by Arrest

A total of 69 cases within the county or other jurisdictions were cleared** through arrest or exceptional means:

- 37 cases were cleared by arrest in the county (31 in target areas versus 6 in non-target areas)
- Of the 37 cases cleared, 22 were for target offenses
- Due to arrests, 10 other outstanding cases were cleared in the county
- In addition, 22 outstanding felony cases were cleared in other jurisdictions due to arrests -- the majority of these cases being armed robbery
- Categorization of all cases cleared is as follows:

* Results of aircraft and TAC II operations are documented respectively in Sections VI-2 and VI-3 of this report.

**Cases cleared were based on partial information obtained through the Detective Division and other jurisdictions. Consequently, total clearances should exceed those reported above.

- .. Commercial robberies -- 19
- .. Commercial burglaries -- 24
- .. Other felonies -- 26

Value of Property Recovered

The total value of property recovered was \$39,130:

- \$13,000 from commercial robberies
- \$5,805 from commercial burglaries
- \$20,325 from other felonies.

(Exhibit VIII, on the following page, summarizes the above statistics).

The clearance rate* for commercial robbery and commercial burglary in the target areas was 5% and 11% respectively. This relatively low clearance rate can be attributed to the following factors: (1) reactive approach to target crimes, (2) inconsistent tactical operations, (3) lack of sufficient personnel, (4) inadequate intelligence gathering capabilities, and (5) a portion of the target offenses occurring during hours in which the SAF unit was not operational.

5. RECOMMENDATIONS

Two major recommendations are suggested for improving the tactical operations of ground surveillance units. These recommendations involve the gathering and utilization of intelligence data and the acquisition of additional ground personnel.

Intelligence Function

It is recommended that a position of "Intelligence Officer" be created. The individual given this responsibility should be an experienced, sworn officer having Detective experience. His primary responsibility would be to act as a focal point for the collection and dissemination of intelligence data relevant to project operations. Specifically, his duties would include:

* Clearance rate is based on "on-scene apprehension."

ARRESTS, CLEARANCES AND RECOVERED PROPERTY

SAF Performance Statistics July 1974 through January 1975	Comm. Robb.	Comm. Burg.	Other Felony	Total
. Arrests:				
- Target Areas	3	27	24	54
- Nontarget Areas	2	4	9	15
- Total Arrests	5	31	33	69
. Cases Cleared by Arrest				
- Target Areas	2	16	13	31
- Nontarget Areas	1	3	2	6
- Total Cases Cleared by Arrest	3	19	15	37
. Other Cases Cleared in County Due to Arrest	1	3	6	10
. Cases Cleared in Other Jurisdictions Due to Arrest	15	2	5	22
. Total Cases Cleared	19	24	26	69
. Value of Property Recovered	\$13,000	\$5,805	\$20,325	\$39,130

- Coordination and liaison between the Special Action Force and the Detective Division.
- Obtaining and analyzing current intelligence from informants and the Detective Division.
- Analysis of commercial robbery and burglary incident reports/supplements on a daily basis.
- Establishing an M.O. file for target crimes.
- Daily briefing of SAF personnel regarding current intelligence and emerging patterns of target crimes.
- Maintenance and analysis of overall project statistics.
- Advising project management on long and short-range tactics regarding time and location of surveillance operations.

Additional Personnel

It is recommended that an additional eight officers be added to the SAF unit. The present number of personnel is insufficient to adequately provide effective surveillance on a two-shift basis.

VI. EVALUATION OF PROJECT EQUIPMENT

VI. EVALUATION OF PROJECT EQUIPMENT

During the first year of operations, the Henrico County HIT II project will have purchased or leased equipment and facilities at an approximate cost of \$135,000. The purpose of this section, therefore, is to assess the value and utility of this equipment within the overall operations of the HIT II project.

The methodology used in evaluating project equipment included: (1) statistical and cost analyses, (2) private interviews with project personnel to determine their subjective opinions, (3) analysis of written responses to the questionnaire contained in Appendix A of this report and (4) personal observations.

The overall findings regarding project equipment are presented in the remainder of this section. Special consideration was given to evaluating the impact of the aircraft and the TAC II system on project operations. Consequently, in-depth analyses of these two pieces of equipment are presented in separate subsections.

1. OVERALL FINDINGS

The exhibit IV, on the following page, presents a rating of all project equipment based on a scale of 1 to 9. Relative ranking of equipment was developed in the following manner:

- . The four members of project management were asked to rate each piece of equipment according to its frequency of usage on a scale of high, moderate or low which translated to a numeric value of 3, 2, or 1.
- . They were then asked to rate each piece of equipment using the same scale, according to its value or utility to overall project operations.
- . A weighted score was then calculated by multiplying the values assigned to each variable, e.g., if one individual rated the value of ballistic vests as high and frequency of usage as moderate, vests would have received a weighted score of 6.
- . The final step involved averaging all weighted scores for each piece of equipment in order to derive a composite score.

RATING OF PROJECT EQUIPMENT

Project Equipment and Facilities*	No. of Units	Composite Assessment by S.A.F. Personnel	Approx. Equip. Cost or Rental	Recurring Cost
Cessna 172	1	9.0 (Excellent)	\$21,000	Yes
Unmarked Cars (9 purchased, 7 leased)	16	9.0 (Excellent)	31,000	Partial
Unmarked Vans	2	9.0 (Excellent)	8,000	No
Portable Radios and Related Equipment	19	9.0 (Excellent)	33,000	No
S.A.F. Headquarters	1	9.0 (Excellent)	3,700	Yes
Tape Recorders and Related Equipment	11	9.0 (Excellent)	1,200	No
Computer Terminal	1	8.3 (Excellent)	2,000	Yes
Ballistic Vests	17	7.0 (Excellent)	600	No
Binoculars	10	6.5 (Good)	400	No
Night Vision Scope	1	6.0 (Good)	4,600	No
TAC II Alarm System	1	6.0 (Good)	25,200	No
Video-tape Recorder	1	4.3 (Fair)	1,900	No
Hand-Held Spotlights	17	4.0 (Fair)	200	No
Vest Barriers	2	3.0 (Fair)	300	No
Bullet Proof Helmets	17	2.0 (Poor)	1,900	No
Slide Projector	1	1.0 (Poor)	100	No

TOTAL \$135,100

*Does not include office furnishings, equipment or supplies which approximate \$5,600.

As can be seen in Exhibit IX, most equipment was considered valuable or useful by project management. The assessment of the value of electronic surveillance equipment (night scope, TAC II and video tape recorder) was moderate. Responses to the questionnaire (see appendix A) by non-management personnel support this finding:

- . Question: "How much assistance has the sophisticated equipment (electronic surveillance equipment, etc.) given you in accomplishing your duties?"
- . Responses: A great deal 14%
Moderate 64%
Of little use 22%

A detailed assessment of each piece of equipment based on results of personal observations, analysis and interviews with project personnel is presented below:

- . The purchase/lease cost of unmarked cars and vans during the first year of project operations approximates \$39,000. The vehicles have received very high ratings from S.A.F. personnel due to their high usage and unobtrusive appearance. During the first seven months of operations, 163,371 miles were driven in unmarked cars and 20,192 miles in unmarked vans. Car surveillance resulted in 24 felony arrests and van surveillance resulted in 10 felony arrests within the target areas.
- . Since project vehicles do not contain mobile radios, portable radios are the only means of communication between S.A.F. units and headquarters. Consequently, they were rated very high by S.A.F. personnel. Thus far, a total of \$33,000 has been expended on radio equipment. Positive aspects of the equipment include: (1) the ability to leave a vehicle and maintain communications, and (2) a separate channel for communications among S.A.F. units. Negative features, on the other hand, are: (1) the inability to monitor headquarters' communications when using the S.A.F. frequency, and (2) lowered quality of communications which is a function of electronic interference, transmission range and features of terrain.

- . An annual expenditure of \$3,700 is required to lease separate facilities for housing the Special Action Force. This expenditure appears quite cost effective since:
 - (1) facilities are located at the Holladay Aero Building at Bird Field which provides an excellent location from which to base aircraft operations, (2) facilities are self-contained, that is, they include a communications center (S.A.F. dispatching, coordination with headquarters, monitoring center for TAC II alarms, and operation of the VCIN/NCIC/DMV computer terminal), and (3) given the nature and hours of operation of S.A.F. personnel, separate quarters facilitates administration and management of the project.
- . Tape recorders are used by all personnel to transcribe their major activities while on duty. This includes locations of stationary surveillance, time expended, circumstances surrounding arrests, suspicious persons, vehicles, situations, miles driven, etc. Each day the S.A.F. secretary prepares typed reports of the activities of field units for the previous evening. The expenditure of \$1,200 for tape recording equipment appears to be a worthwhile investment. In addition, all S.A.F. radio communications are documented via a voice activated tape recorder. Consequently, the S.A.F. Director can review all communications among project personnel in approximately 45 minutes for any given day.
- . A computer terminal has been installed at S.A.F. facilities for the purpose of querying the VCIN, NCIC and DMV computer systems. S.A.F. personnel feel that by having a terminal dedicated to their operations (versus using the one located at headquarters) they receive more prompt and better service. Consequently, they have rated the value of the terminal as high. Approximately 30 inquiries are made per day which translates to a unit cost of 18 cents per inquiry. A comparative analysis was not made between the S.A.F. terminal and headquarters' terminal to determine variance in elapsed time to answer inquiries. Consequently, an analysis of this nature should be conducted in order to justify an expenditure of \$2,000/year.
- . Given the purpose and nature of the Henrico project that is, on scene confrontation and apprehension of armed suspects, the \$600 expended for ballistic vests appears to be a necessary and worthwhile expenditure.
- . The binoculars used by S.A.F. personnel in stationary surveillance operations were rated as excellent. Rating by aircraft personnel was less since binoculars in

- general are difficult to use in a moving vehicle and specifically very difficult to use in turbulent air conditions.
- The cost of the night vision scope was approximately \$4,600. It is used primarily by air observers rather than ground personnel. Its overall rating by S.A.F. units was good; however, binoculars appear to be a much more cost-effective investment in comparison with a night vision scope. Binoculars are smaller, cheaper (\$40) and have a magnification capability whereas a night scope is bulky, costly (\$4,600), sensitive to light interference, and cannot be used to differentiate colors.
- The purpose of the video tape recorder is to carry out surveillance of an establishment and to record suspicious vehicles, persons, or crimes in progress from within an unmarked van. Covert surveillance is carried out by viewing a closed circuit monitor from within the van. Thus far, the equipment has received little use by the Special Action Force and its overall rating is fair.
- Seventeen hand-held spotlights, two vest barriers, seventeen bullet proof helmets and one slide projector were rated fair to poor. The most expensive purchase was the bullet proof helmets at a cost of \$1,900. Both the vest barriers and helmets have never been used by project personnel and their utility to the HIT project is questionable.

2. FIXED WING AIRCRAFT

One of the most unique and expensive pieces of equipment that has been used in any of the eleven HIT jurisdictions throughout the State is the Cessna 172 fixed wing aircraft that is currently being used by the Henrico County Police Department in its HIT II project.

Since there are relatively few fixed wing aircraft used by police departments throughout the entire country, an in-depth evaluation of the aircraft seems warranted. Consequently, the remainder of this section is devoted to: (1) describing aircraft operations, (2) analyzing initial investment and annual operating costs, (3) reviewing statistical data related to aircraft

efficiency and effectiveness, and (4) setting forth findings and recommendations.

(1) Description of Operations

During the first month of S.A.F. operations (July 1974), all pilots were assigned to fly during the hours of 8:00 p.m. to 4:00 a.m. resulting in seven day coverage and support of S.A.F. ground tactical units. Two pilots were in the plane at all times and rotated duties between piloting the aircraft and acting as ground observer.

During the second month of project operations, a day shift was added to the flight schedule for the purposes of assisting uniform patrol and allowing for continued training of pilots. The new schedule resulted in one pilot flying five days/week, two pilots flying five nights/week, and one pilot flying the remaining two nights/week. A total of three pilots have manned the aircraft since project inception.

The most frequent uses of the aircraft have centered on initiating calls regarding suspicious vehicles, responding to robbery and burglary alarms, and conducting roof top and area searches at the scene of reported incidents.

Some examples regarding more unique uses of the aircraft are cited below:

- . The aircraft discovered and reported a forest fire in Hanover County. Since there were no access roads to the area where the fire existed, S.A.F. pilots directed fire fighters to the scene from the aircraft.
- . The aircraft provided surveillance of a suspected drug dealer for five continuous hours while directing and coordinating ground units. This activity resulted in the suspect being apprehended and charged with the sale and distribution of illegal drugs.
- . The aircraft assisted the Richmond Bureau of Police in apprehending a suspect who was lying unconscious in

the bottom of an empty pool. Since the search was conducted at night, the aircraft's spotlight was instrumental in locating the suspect.

. The aircraft spotted a stolen road grader, valued at \$13,000, that was abandoned in a creek in a remote wooded area, and subsequently directed uniformed patrol to the scene.

. The aircraft was used in the apprehension of two larceny suspects who had fled from uniformed patrol and were hiding in a wooded area. Using the public address system while circling the area, pilots encouraged the suspects to surrender themselves to ground units.

(2) Analysis of Aircraft Characteristics and Auxiliary Equipment

The Cessna 172 has excellent slow flight, low noise and long range characteristics; it can stay airborne for a maximum of six hours. These characteristics enable it to be used effectively in conducting surveillance activities from a high altitude during the hours of daylight or darkness. In addition, due to its quick response capabilities, approximately 90% of the time it is the first unit at the scene of a reported incident to which it responds. Thus far, SAF and other departmental units (uniformed patrol, vice, detective, and traffic) believe the aircraft is an asset to overall departmental operations.

Auxiliary equipment used by the aircraft during the conduct of its operations include: a spotlight, binoculars and mount, public address system, penetrator siren, plexiglass windows and a night vision scope. A brief assessment of this equipment is provided below.

. The spotlight provides a night light for the aircraft observer and ground units. It can be used effectively at 1,000 feet above ground and is primarily employed for area and roof checks at reported B&E locations. It is somewhat difficult to use since it requires that pilots fly in a tight circling pattern to effectively illuminate the search area. The pilots, however, feel that the spotlight is definitely a worthwhile piece of equipment.

- . Plexaglass windows have been installed on both sides of the bottom of the aircraft which provide an excellent means for observing ground activities.
- . The public address system is operated through two speakers mounted on each side of the aircraft. Certain problems have been experienced with the use of this equipment. For example, the pilot must reduce RPMs of the aircraft in order to use the P.A. system at its full power. In addition, since the speakers are mounted on both sides of the plane, when the aircraft circles over the area, only half the power of the P.A. system reaches the ground. Consequently, it is recommended that both speakers be mounted on the same side of the aircraft. The public address system appears to be most useful in maintaining communications with ground units that have left their vehicles and are not equipped with portable radios. Thus far, the system has been used approximately a dozen times since project inception and the overall assessment of its value could be categorized as fair.
- . The penetrator siren is tied into the public address system. Its purpose is to quell civil disturbances and/or riots. It has received little or no usage thus far and its utility is questionable.
- . Binoculars are used for both day and night surveillance. The binoculars can be used effectively during daylight hours given good visability and nonturbulant air conditions. The value of binoculars during night surveillance is marginal to poor. Since the observer operates both the spotlight and mounted binoculars, it is quite difficult to coordinate both pieces of equipment simultaneously.
- . The night vision scope is primarily used by air observers in the surveillance of vehicles operating without lights and observing dark areas such as back lots of shopping centers. The overall utility of the night scope to air observers is considered good; however, certain problems have been encountered since the night scope has no magnification capabilities and colors cannot be differentiated which limits the observer's ability to identify suspicious vehicles.

(3) Initial Investment and Operating Costs

Exhibit X, on the following page, presents a price list composing the total cost of the Cessna 172 which includes additional equipment and modifications to make the plane operational as a police patrol aircraft.



May 1, 1973

LIST PRICE OF STANDARD EQUIPMENT ON SKY SENTINEL*

Searchlight (Locator)	\$3,180.00
Searchlight Mount	125.00
Communication Console including installation and public address system	2,580.00
Muffler	410.00
Observer's Desk	200.00
Binoculars and Mounts	293.00
Observer's Seat	950.00
24-Volt System	400.00
Rudder Trim	325.00
Hobbs Meters	50.00
Headsets	348.00
Instrument Lighting	198.00
Relief Bottles and installation	20.00
Navcoms	2,800.00
Vors	465.00
Marker Beacon	173.00
Glide Slope	787.00
Transponder	595.00
Installation of Avionics	820.00
Windows and installation	2,000.00
Rate of Climb	130.00
Artificial Horizon	338.00
Directional Gyro	338.00
Observer's Airspeed and Altimeter	200.00
Clocks	75.00
Labor Costs for modification	8,000.00
	<u>25,800.00</u>
Cost of Sales (including Overhead & G&A)	7,000.00
	<u>32,800.00</u>
Basic Cessna 172	14,500.00
	<u>\$47,300.00</u>

* The total cost for the modification and the additional equipment to make the Sky Sentinel operational as a police patrol aircraft is \$25,800.00. Because of increasing costs, the total purchase price of the next Sky Sentinels manufactured will increase by \$2,000.00. The present total purchase price of the aircraft is \$52,000.00, which thus represents a figure of cost plus less than 10% fee.

Henrico County is presently under contract to the Holladay Aero Corporation under a lease/purchase option plan and is leasing the aircraft at \$1,750/month.

Exhibit XI presents an analysis of the initial investment and annual operating costs of the aircraft. Since the plane is currently being leased and all equipment, facilities and flight expenses are included in the lease and maintenance agreements, investment costs were defined as flight instruction fees and the pro-rated salaries of pilots during their instruction period. Consequently, investment costs approximate \$13,800. It should be noted, however, that one officer had previously held a private and commercial license prior to joining the program and, therefore, investment costs were subsequently reduced.

Recurring operating costs were based on: (1) leasing expense, (2) aircraft maintenance and operating expense, (3) insurance premiums, and (4) annual base salaries for three pilots. Consequently, annual operating costs approximate \$86,000/year which can be calculated on a unit cost basis of 58 cents per statute mile flown. If Henrico County purchases the aircraft and the salaries of pilots are not considered in calculating recurring expenses, the annual operating costs of the aircraft would approximate \$27,000/year (based on the current maintenance contract, miles flown and insurance premium). Consequently, the average cost per statute mile flown would approximate 18 cents.

(4) Analysis of Operational Statistics

Exhibit XII, on the following page, depicts various aircraft flight statistics in graphic form. Examination of this exhibit reveals the following:

- During the first six months of operation, the aircraft has flown a total of 1,056 hours. Night operations accounted for 79% of all hours flown.

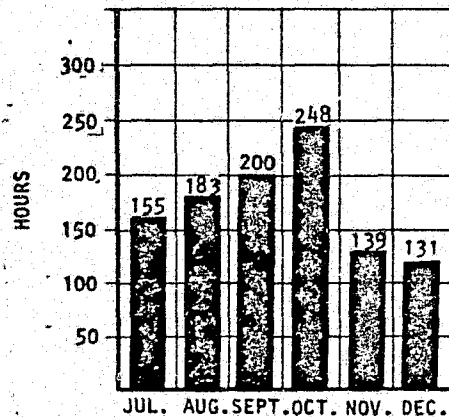
Initial Investment and Annual Operating Costs of Aircraft

Investment Costs			Annual Operating Costs	
	Flight Training Hours	Elapsed Calander Time		Annual Operating Costs
Flight training for 3 pilots:				
. Sgt. Lewis - private and commercial licenses	200 hrs.	4 months	. Purchase/lease agreement with Holladay Aero for Cessna 172 (\$1,750/mo. x 12)	\$21,000
*. Officer Phillips - instructors and instrument license	40 hrs.	6 weeks	. Maintenance contract including gas, oil, hanger and mechanical/electrical maintenance (\$12/flight hr. x 2,124 annual hrs.)	25,488
. Officer Cary - private license	50 hrs.	3 months	. Annual Insurance Premium	1,597
Total	290 hrs.	8.5 months	. Annual Base Salaries for three pilots	37,923
Training Costs and Pilot Salaries	\$4,687	\$9,067	Total Annual Operating Costs	<u>\$86,008</u>
- Total Investment Costs	<u>\$13,754</u>		Average cost per statute mile flown \$86,008/(2,124 hrs. x 70 MPH avg. ground speed)	\$.58

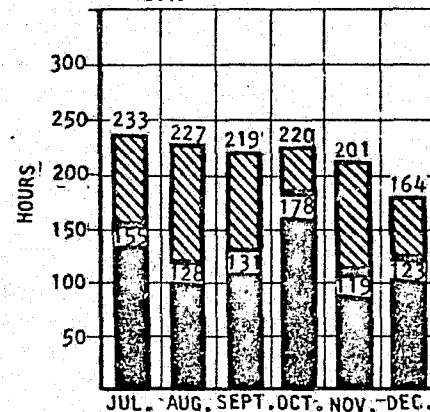
* Officer Phillips had previously held a private and commercial license prior to joining the HIT Project.

HENRICO COUNTY HIT PROJECT: AIRCRAFT FLIGHT STATISTICS

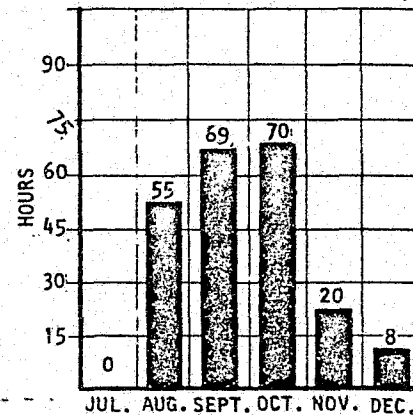
TOTAL FLIGHT HOURS LOGGED
ON AIRCRAFT-ALL SHIFTS



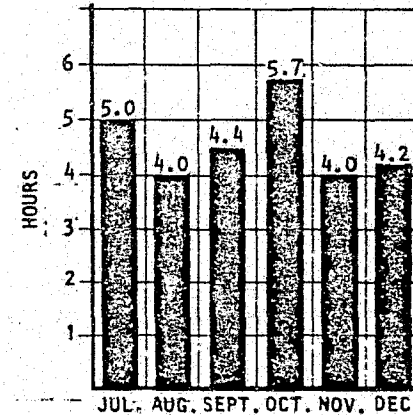
SCHEDULED VS. ACTUAL
NIGHT FLIGHT HOURS
(Hatched denotes SCHEDULED)



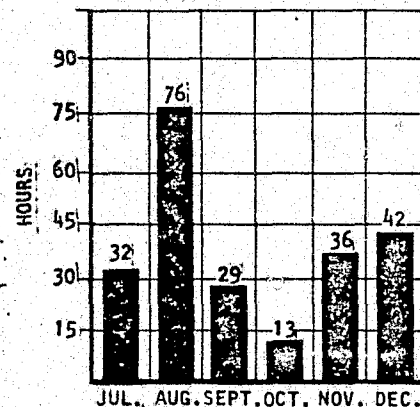
DAYTIME FLIGHT HOURS
(WHICH ARE NON-SCHEDULED)



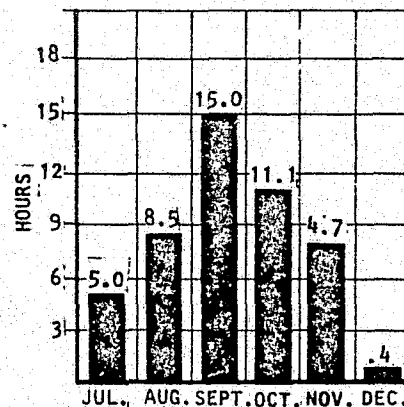
AVERAGE HOURS FLOWN
PER NIGHT*



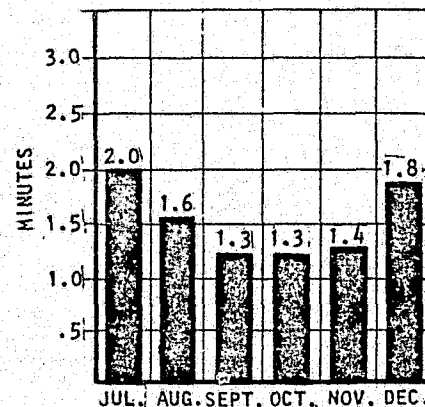
DOWNTIME FOR WEATHER
CONFLICTING WITH NIGHT
OPERATIONS



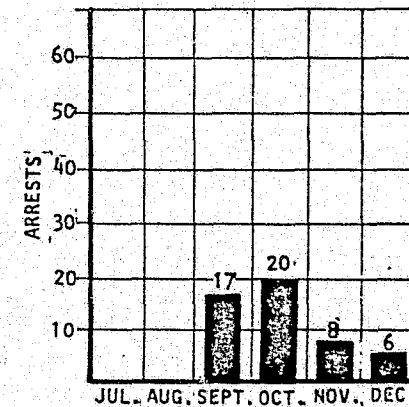
DOWNTIME MAINTENANCE
(UNSCHEDULED) CONFLICTING
WITH NIGHT OPERATIONS



AVERAGE RESPONSE TIME
DAY AND NIGHT
ALL INCIDENTS



ARRESTS MADE WITH MAJOR
ASSIST FROM AIRCRAFT
DAY AND NIGHT
ALL INCIDENTS**



* CALCULATION-TOTAL NIGHT FLIGHT HOURS/SCHEDULED FLIGHT NIGHTS

** STATISTICS NOT GATHERED DURING FIRST 2 MONTHS OF OPERATIONS

- . Aircraft utilization, based on actual versus scheduled hours of night flight, was 66%.
- . Of the 34% differential, 18% can be attributed to down-time due to weather with an additional 4% attributed to unscheduled maintenance. Consequently, 12% of scheduled flight time was not achieved due to other reasons.
- . The average time flown/night was 4.5 hours.
- . The average response time to all incidents both day and night was approximately 90 seconds.
- . A total of 51 arrests were made through assistance provided by the aircraft. (Arrest statistics were not available for the first two months of operations.)

In addition to the above, Exhibit XIII provides data on aircraft activities regarding calls for service, type and frequency, and ground units supported.

(5) Summary of Findings

A number of findings are given below regarding the overall effectiveness and operations of the aircraft employed by the Henrico County HIT II project.

- . The acquisition and operational results of the aircraft are an asset to the overall law enforcement function in Henrico County. (Both S.A.F. and other departmental personnel are of this opinion.) Thus far the aircraft has been used in a number of unique and diverse situations, and has been instrumental in the apprehension of various offenders. Its most valuable capabilities include the ability to: (1) conduct roof and area checks during hours of daylight or darkness, (2) reach the scene of an incident in a short period of time, (3) stay airborne for extended periods, and (4) provide long range vehicle surveillance due to its slow flight and low noise characteristics.
- . The utilization of the aircraft has been quite high given the number of available pilots, training requirements and weather conditions; unscheduled maintenance has been relatively low.
- . The current S.A.F. facility located in the Holladay Aero Building at Bird Field is an ideal location from which to base aircraft operations.

Aircraft Service Statistics

Description of Aircraft Activities	Y-T-D (6 Months)	Monthly Average
. Number of calls initiated by aircraft	203	33.8
. Number of times aircraft dispatched	154	25.7
. Number of voluntary responses to provide backup services	394	65.7
. Type and frequency of units supported:		
- SAF	109	18.2
- Non SAF	409	68.2
. Major types and frequency of calls responded to:		
- Armed robbery	55	9.2
- Burglary	232	38.7
- Traffic	15	2.5
- Fire	13	2.2
- Assaults	2	.3
- Disturbance	17	2.8
- Prowler	7	1.2
- Suspicious vehicle	73	12.2
. Primary Activities of Aircraft (Over 7-month Period)		
- Roof and area checks	297	49.5
- Vehicle pursuits	15	2.5

. Certain auxiliary equipment used by the aircraft appears to be of marginal value, that is, the public address system, penetrator siren and night vision scope.

. Currently, three pilots cover two shifts of flight operations. Existing schedules and extended periods of flight cause pilot fatigue. At times pilots are assigned to fly a shift without having a back-up or co-pilot in the aircraft. Since the beginning of the project, major changes in S.A.F. personnel (or turnover) have involved pilots.

. Aircraft operations are presently under the command of the S.A.F. director. Consequently, flight schedules are primarily developed to coincide with S.A.F. operations. Although this appears reasonable, given that the aircraft was acquired as an integral part of the HIT II project, the following factors should be taken into consideration:

- The aircraft has provided more support and is consequently of more value to overall departmental operations. When assessing the value of the aircraft to HIT II operations, S.A.F. personnel ranked it as moderate. However, when rating the aircraft on a departmentwide basis, personnel assessed its value as high. Operating statistics indicate that the aircraft supports and provides more services to other departmental units than it does to S.A.F. units.

(6) Recommendations

Three major recommendations regarding the acquisition, direction and operations of the fixed-wing aircraft are set forth below:

. At the end of the first year of the project (June 1975), approximately \$100,000 will have been expended on pilot training and operational costs of the aircraft. Given the favorable performance of the aircraft and funds invested thus far, it is recommended that the Cessna 172 be purchased by Henrico County and made a permanent part of the departmental operations.

. The aircraft should be placed under the overall direction of the uniformed patrol division. The current S.A.F.

facilities should be used as the base of operations with the S.A.F. Director acting as supervisor of all pilot personnel.

In order to provide expanded services for all departmental operations, two full shifts should be implemented. Each shift should be staffed by two pilots, each possessing private and instrument licenses. Shift duties should be rotated between piloting the aircraft and observing. Thus, one pilot would fly no more than four hours/day and a co-pilot would be present in the aircraft at all times. Implementation of this schedule would require an additional three pilots. Exhibit XIV, on the following page, presents a sample flight schedule and staffing requirements for two shifts of aircraft operations.

3. TAC II ALARM SYSTEM

Henrico County purchased a TAC II alarm system to support project operations. The approximate cost of the equipment was \$25,200 and included:

- . 135 sensor devices (money clips, foot pedals, tape and magnetic switches, and photo cells),
- . Two 20-channel receivers allowing 40 devices to be placed on-line at any one time, and
- . Other related equipment.

The decision to purchase the system was based on limited information as to its adequate performance in the HIT II project setting:

- . Henrico County appeared to be the first police department to use the equipment in a relatively large geographic, suburban setting. Prior equipment usage occurred in relatively high density, small geographic areas in an urban environment.
- . The system could have also been installed using a repeater station at an additional cost of \$4,000 which would have extended its range by a factor of three. However, the repeater station was not used and the system's range is 7 to 10 miles which requires that a unit be placed in a mobile vehicle so as to cover target areas C and D.

HENRICO COUNTY HIT PROJECT: SAMPLE FLIGHT SCHEDULE AND STAFFING REQUIREMENTS

7AM TO 4PM SHIFT BY
WEEK AND DAY OF WEEK

WEEK	S	M	T	W	T	F	S
1	NONE	X	X	X	X	X	X
2	X	NONE	X	X	X	X	X
3	X	X	NONE	X	X	X	X
4	X	X	X	NONE	X	X	X
5	X	X	X	X	NONE	X	X

4PM TO 1AM SHIFT BY
WEEK AND DAY OF WEEK

WEEK	S	M	T	W	T	F	S
1	X	NONE	X	X	X	X	X
2	X	X	NONE	X	X	X	X
3	X	X	X	NONE	X	X	X
4	X	X	X	X	NONE	X	X
5	X	X	X	X	X	X	X

SHIFT COVERAGE
BY WEEK AND DAY OF WEEK

WEEK	S	M	T	W	T	F	S
1	N	D	C	C	C	C	C
2	C	N	D	C	C	C	C
3	C	C	N	D	C	C	C
4	C	C	C	N	D	C	C
5	C	C	C	C	N	C	C

N(NIGHT)
N(NIGHT)=4PM-1AM
D(DAY) =7AM-4PM
C(COMBINED)=7AM-1AM

SAMPLE PILOT SCHEDULE FOR
FIRST WEEK OF OPERATIONS

DAY OF WEEK	PILOT 1	PILOT 2	PILOT 3	PILOT 4	PILOT 5
SUN.	4PM-1PM	OFF	OFF	OFF	4PM-1AM
MON.	OFF	OFF	7AM-4PM	7AM-4PM	OFF
TUE.	OFF	4PM-1AM	"	"	4PM-1AM
WED.	4PM-1AM	"	"	"	OFF
THU.	"	"	"	"	OFF
FRI.	"	"	"	OFF	7AM-4PM
SAT.	"	"	OFF	7AM-4PM	7AM-4PM

- Each pilot would fly 5 days per week on a 5 week rotating schedule that would provide aircraft coverage 7 days per week
- Generally, pilots would have 2 consecutive days off during each week and once every 5 weeks these days would fall on Saturday and Sunday
- Maximum aircraft coverage would be provided on Friday and Saturday
- Two pilots would be assigned to the aircraft during flight hours that would result in the following benefits:
 - Duties would be shared between piloting the aircraft and observing. Consequently, pilot fatigue would be reduced since each pilot would fly only four hours/day.
 - At all times two pilots would man the aircraft thus providing necessary pilot backup if required.

(1) Maintenance and Utilization

Approximately two to three months into the project, two S.A.F. officers were specifically assigned the responsibilities of placement and maintenance of electronic sensor devices. Since they possessed the required knowledge and expertise, the specialization of this function appeared appropriate.

Their responsibilities and duties include the following:

- . Installation, testing and maintenance of TAC II equipment including sensors, transmitters, aerials and receivers
- . Installation of receivers in cars for mobile operations
- . General maintenance of all communications equipment.

The utilization of the system over the course of the project, however, has been low due to the following reasons:

- . Stray radio frequencies have been picked up by the system which have caused equipment malfunctions and have accounted for a significant number of false alarms.
- . In an attempt to improve the functioning of the equipment, an aerial was installed on top of the rescue squad's antenna based on the advice received from a telephone company engineer. The installation was completed at the end of September at a cost of \$50. The functioning of the equipment had not improved.
- . During the last two weeks of September, 20 of a possible 40 on-line devices were out of service.
- . The entire system was out of service during the first 2 weeks of October.
- . As a final attempt to correct the malfunctioning equipment, it was returned to the manufacturer at the end of October to install electronic filters in an attempt to screen out erroneous frequencies.

- . Since that time, the availability and utilization of the system has improved. During the month of January 1975 the false alarm rate dropped to 66% from a year-to-date figure of 93%.

(2) Operating Results

Since project inception, 43 commercial robberies have occurred in the target areas. Of these 43 robberies, 9 (or 21%) occurred in establishments where sensor equipment was installed. Consequently, the strategy for placement of sensor equipment has improved considerably since the beginning of the project. A disturbing fact, however, is that no arrests have resulted through the use of this equipment. The major reasons for lack of arrests appear to be a combination of: (1) delayed activation of sensor equipment by individuals who have been victimized, and (2) slow response time of S.A.F. units. It should be noted that a false alarm rate of 93% probably contributes to the slow response time.

Over the past seven months, 140 commercial burglaries have occurred in the target areas; however, sensors are not used to detect commercial burglaries even though 55 devices (type switches, magnetic switches and photo cells) are available for installation. The lack of utilization of burglary intrusion devices is questionable when one considers the following:

- . A major objective of the HIT project is to reduce commercial burglaries within Henrico County by 10% in one year
- . 140 commercial burglaries have occurred in the target areas in comparison to 43 robberies over the past seven months
- . The value of property stolen in commercial burglaries has exceeded that stolen in commercial robberies by \$57,300.

(3) Recommendations

The following recommendations are set forth regarding the future use of the TAC II alarm system:

- . Two relatively small geographic areas should be selected periodically for electronic surveillance based on current target crime patterns and intelligence data.
- . A mix of 20 robbery and burglary sensors should be installed in each area selected.
- . Both of the two, 20 channel, TAC II receivers should be installed in unmarked cars or vans and these mobile units should be located in each electronic surveillance area.
- . The mobile receiver should be strategically located no more than one mile away from any of the twenty sensors in a given area.
- . Each receiver should be monitored 16 hours per day.
- . Additional technical assistance should be sought from the manufacturer or sales representative regarding efficient operation of equipment.
- . Employees of commercial establishments should receive specific instruction on the purpose, operation, and activation of sensor equipment.

It is hoped that the above recommendations will result in the following benefits:

- . Sensor equipment would be used for both commercial robbery and burglary
- . False alarms would be reduced due to technical assistance received from the equipment manufacturer and better instruction of employees of commercial establishments.
- . The probability of on-scene apprehensions would be increased due to the following reasons:
 - Response time to TAC II alarms should be significantly improved
 - Sensors would be monitored 16 hours per day by mobile field units that would be no more than one mile away from potential target locations.

VII. EVALUATION OF PUBLIC INFORMATION ELEMENTS

VII. EVALUATION OF PUBLIC INFORMATION ELEMENTS

This section describes the public information activities carried out by the S.A.F. unit in order to improve police/community cooperation in conjunction with HIT II project activities. Public information activities included:

- . personal visits by S.A.F. personnel to the majority of business establishments in the target areas,
- . informing owners, managers and employees of the general purpose and nature of the HIT project,
- . distributing literature that described what to do in the case of armed robbery,
- . pointing out serious deficiencies in the physical security of buildings,
- . documenting certain critical information regarding business security, hours of operation, etc., that would be helpful to S.A.F. personnel in carrying out their activities, and
- . distributing instructions, where appropriate, regarding operational procedures of TAC II alarm equipment.

Prior to implementing the HIT project six S.A.F. officers contacted approximately 550 business establishments in the target areas over a three week period. Owners and employers were briefed on the nature and purpose of the HIT project and deficiencies in the physical security of buildings were brought to the attention of proprietors.

Each establishment received a leaflet describing what to do in the case of armed robbery. Exhibits XV and XVI, on the following pages, present the written directions given to business personnel regarding the system.

HENRICO COUNTY HIT PROJECT:

HOLDUP !!**WHAT TO DO?****DON'T HESITATE — CALL 222-1837**

1. CALL POLICE
2. FILL IN ALL BLOCKS OF MEMORANDUM



RADIO HOLDUP MEMORANDUM						Henrico Police Department	
WEAPON		<input type="checkbox"/> ROBBERY <input type="checkbox"/> ATTEMPT		ANY INJURED <input type="checkbox"/> YES <input type="checkbox"/> NO	TIME	TYPE OF BUSINESS	
LOCATION				COMMITTED BY			
DESCR. NO. 1	COLOR	AGE	HEIGHT	WEIGHT	HAIR		
HAT (Color and Type)				JACKET (Color and Type)			
PANTS (Color)		SHOES (Color)		SHIRT	GLASSES	MUSTACHE	
OTHER					HOW ESCAPED <input type="checkbox"/> FOOT <input type="checkbox"/> AUTO		
IF AUTO, DESCRIBE (Include License No.)				DIRECTION TAKEN			

(Over)

Hand this information to Police

The first police officer responding will broadcast your information over Police Radio. Every police car in Henrico will be seeking suspects.

POLICE NEED YOUR HELP**TO APPREHEND CRIMINALS**

SAF-2 7/1/74

HENRICO COUNTY HIT PROJECT:

HERE IS HOW YOU CAN HELP YOUR POLICE

1. Don't panic. Remain calm if a holdup takes place.
DO NOT RESIST.
2. Observe. Be identification conscious. Look for unusual features.
3. Call police first- 222-1837-and sound alarm as soon as possible.
4. Protect the crime scene. Stop others from disturbing articles of evidence.
5. Don't trust your memory. Jot down all information immediately.
6. Do not discuss holdup with anyone until police questioning is completed.
7. Supply all facts. Be willing to make positive identification.
8. Prosecute arrested criminals.



DIVISION OF POLICE

E. A. BECK
COUNTY MANAGER

COLONEL WILMER J. HEDRICK
Chief of Police

During each visit, certain critical information regarding the business was documented on a "Business Index Card" which was later filed at S.A.F. headquarters. Information recorded on each Index Card included:

- . Name and address of business
- . Type of business and target area location
- . Business and emergency telephone numbers
- . Normal hours of operation
- . Type, brand and location of safe
- . Type and nature of alarm system
- . Other security measures including watchmen, dogs and weapons
- . Special notes.

Once the project became operational, those establishments that were selected to receive a TAC II alarm sensor, were given verbal and written instructions regarding operational procedures to be followed in the use of the equipment. Exhibit XVII, on the following page, presents the written directions given to business personnel regarding the system.

The public information and educational activities initiated by the S.A.F. unit appear to have been positive measures resulting in improved police/community relations. The level of effort expended by S.A.F. personnel was significant and adequate to disseminate sufficient information to county businesses. The business sector has interpreted the efforts of S.A.F. personnel as a sincere action to reduce crime within the County and, in general, have cooperated quite well with S.A.F. units.

DIRECTIONS REGARDING FURNISHED ALARM SYSTEM

In an effort to reduce robberies through a criminal apprehension program, the Virginia Division of Justice and Crime Prevention and the County of Henrico have furnished to the Division of Police of Henrico County, alarm equipment that will be installed in selected businesses and areas of the County on a temporary need basis.

Electronic radio transmitters and activators have been installed in your place of business for use in an armed robbery incident. These alarms are to be used in an armed robbery incident only and should not be used for any other reason. Any other use or repeated accidental setting off of the alarm will result in the removal of this equipment. In the case of an accidental setting off of the alarm equipment, please call 737-4118 or 737-4119 immediately. These phone numbers will connect you with a Special Action Force command post (SAF). Advise the answering party what business place and address you are calling from and that the alarm just transmitted was accidentally actuated.

Those business places equipped with pedal switches should caution employees not to incur any risks in trying to activate the pedal switch. If it is thought that the perpetrators of the robbery would see you activating the alarm, we suggest that you not do so and use caution in doing anything which might aggravate the situation or cause you to be harmed by the offenders. In the event you choose not to actuate the alarm while the offender is present, we suggest you activate the alarm at the first opportunity which common sense dictates.

Those business places equipped with money clips in the cash registers should inform their employees to pull the money in the clip prior to other money in the register during an actual robbery.

If police officers do not arrive on the scene before the robbers have fled, immediately call 222-1837 and a description should be furnished the police dispatcher so an immediate search may be instituted for the perpetrators of the crime.

Your individual cooperation in this endeavor will be of benefit to the law enforcement officers who are attempting to serve you, and this effort will assist you in reducing the economic loss to your business establishment.

W. J. Hedrick
W. J. Hedrick
Chief of Police
County of Henrico

VIII. EVALUATION OF PLANNING AND SUPPORT ELEMENTS

VIII. EVALUATION OF PLANNING AND SUPPORT ELEMENTS

This section of the report presents findings and recommendations regarding the evaluation of planning and support elements of the Henrico County HIT II Project. Evaluative findings and recommendations include: (1) Crime Specific Planning preceeding project operations, (2) overall training received by S.A.F. personnel, and (3) activities of support personnel.

1. CRIME SPECIFIC PLANNING

In order to develop a viable plan for the Henrico County HIT project, it was necessary to conduct a thorough study centering on various analyses of offenses, victims, offenders and high incident locations. Based on a preliminary analysis of data, two offenses and four areas were identified as targets for the Henrico County HIT project.

(1) Target Offenses

Over the past years Henrico County had experienced a significant increase in the incidence of robbery. A compilation of robbery statistics for a five-year period indicated this increase:

<u>YEAR</u>	<u>NUMBER OF ROBBERIES</u>
1972	113
1971	95
1970	67
1969	47
1968	25

A comparison of the robbery offenses in Henrico County as opposed to the national trend indicated that the incidence of robbery had increased 352% over 1968 levels within the County whereas the nationwide increase during the same period of time was approximately 60%.

A further analysis of robberies committed during 1972 revealed the following breakout between commercial robbery and other robberies:

<u>TYPE</u>	<u>NUMBER OF OFFENSES</u>
Commercial Robberies	58
Service Stations	12
Restaurants	2
Rental Offices	1
Drive-In Theatres	1
Drug Stores	2
Motels	4
Grocery Stores	15
Quick Food Stores	21
Other Robberies:	55
TOTAL	<u>113</u>

As evidenced by the above table, commercial robberies accounted for more than 50% of the total.

In addition to being a serious offense, commercial robberies resulted in the death of three victims during a six month period from September of 1972 through February of 1973. Consequently, Henrico County had selected commercial armed robbery as the primary target offense to be reduced by its HIT project.

County records also revealed the following reported burglaries from 1968 through 1972:

<u>YEAR</u>	<u>NUMBER OF BURGLARIES</u>
1972	1,846
1971	1,825
1970	1,840
1969	1,934
1968	1,673

This table shows a 10% increase in burglary incidents during the five-year reporting period. While this percentage

increase was not large, consideration was given to the seriousness of the offense in terms of both public concern and monetary loss. In addition, the national burglary rate for 1972 decreased by 2% over 1971; in Henrico County there was a slight increase.

In 1972, Henrico County's nonresidential burglaries accounted for 43% of the total reported burglaries. A review of the total residential units (54,779) and nonresidential units (5,100) in the county showed a rate of one residence out of every 53 and one nonresidence out of every 6 was burglarized in 1972. When considering the greater number of residences as opposed to commercial establishments, there was an inordinate amount of nonresidential burglaries occurring in the county. Consequently, Henrico County had selected nonresidential burglary as a secondary target offense to be reduced by its HIT Project.

(2) Target Areas

There are five geographic areas within Henrico County in which a significant number of commercial establishments are clustered. The remaining number of businesses are relatively scattered throughout the county. Four of the five areas were designated as targets for the HIT Project. The fifth area, which coincides with patrol Beat 14, was to be used as a control area for evaluative purposes.

The breakdown of offenses by target area is given below for 1973:

<u>TARGET AREA</u>	<u>ROBBERY</u>	<u>BURGLARY</u>
A	11	71
B	18	30
C	15	40
D	2	29

These target areas accounted for 64% of all commercial armed robberies and 26% of all nonresidential burglaries occurring in the county during 1973.

Of the four areas, Target Area A experienced the most frequent number of robberies. It comprises parts of Beats 3 and 4 from Seven Pines along Nine Mile Road west to Masonic Lane and on Route 60 from Brittles Lane to Seven Pines. Consequently, it is a linear target that included the commercial establishments located along two major county roads. Area A is the largest of the four targets.

Target Area B is similar to A in that it also is a linear target that includes the commercial establishments along two major roads. It is comprised of parts of Beats 5 and 6, Cool Lane, Route 360 from Richmond City limits to Laburnum Avenue and Laburnum Avenue west to Richmond City limits. It experiences the most frequent number of burglaries.

Target Area C is comprised of parts of Beats 6 and 7, Route 1 from the city limits north to Mountain Road, and Lakeside Avenue from Route 1 to the Richmond City limits. Area C experiences the second most frequent number of robberies and burglaries in the four target areas. It also is a linear target that includes the commercial establishments along two primary roads.

Area D is unique from the other three target areas in that it is a geographic area which encompasses an industrial park. This area experiences the lowest number of robberies and burglaries. It overlaps with parts of Beat 9 and is bounded in the following way: from Westwood Avenue at the City limits westward to Broad Street, from Broad Street and Westwood west to U.S. Route 33, north on Route 33 to Bethlehem Road, east on Bethlehem Road to Jacque Street, then southeast to Westwood Avenue.

The locations of the four target areas and the control area are shown in Exhibit XVIII, on the following page.

(3) Additional Baseline Data

To facilitate detailed tactical planning, additional baseline data were gathered. These data included:

- . The trend of commercial armed robberies and non-residential burglaries from 1970 through 1973
- . Commercial armed robberies by time and day for 1973
- . Value of property stolen by target offense by month for 1973
- . Trend of selected index offenses from 1970 through 1973:
 - Other Robberies
 - Other burglaries
 - Auto theft.
- . Profile of suspects arrested for commission of target crimes in designated areas for 1973
- . Commercial armed robbery by weapon used for 1973
- . Nonresidential burglaries by place of entry for 1973
- . Commercial armed robberies and nonresidential burglaries by structure for 1973.

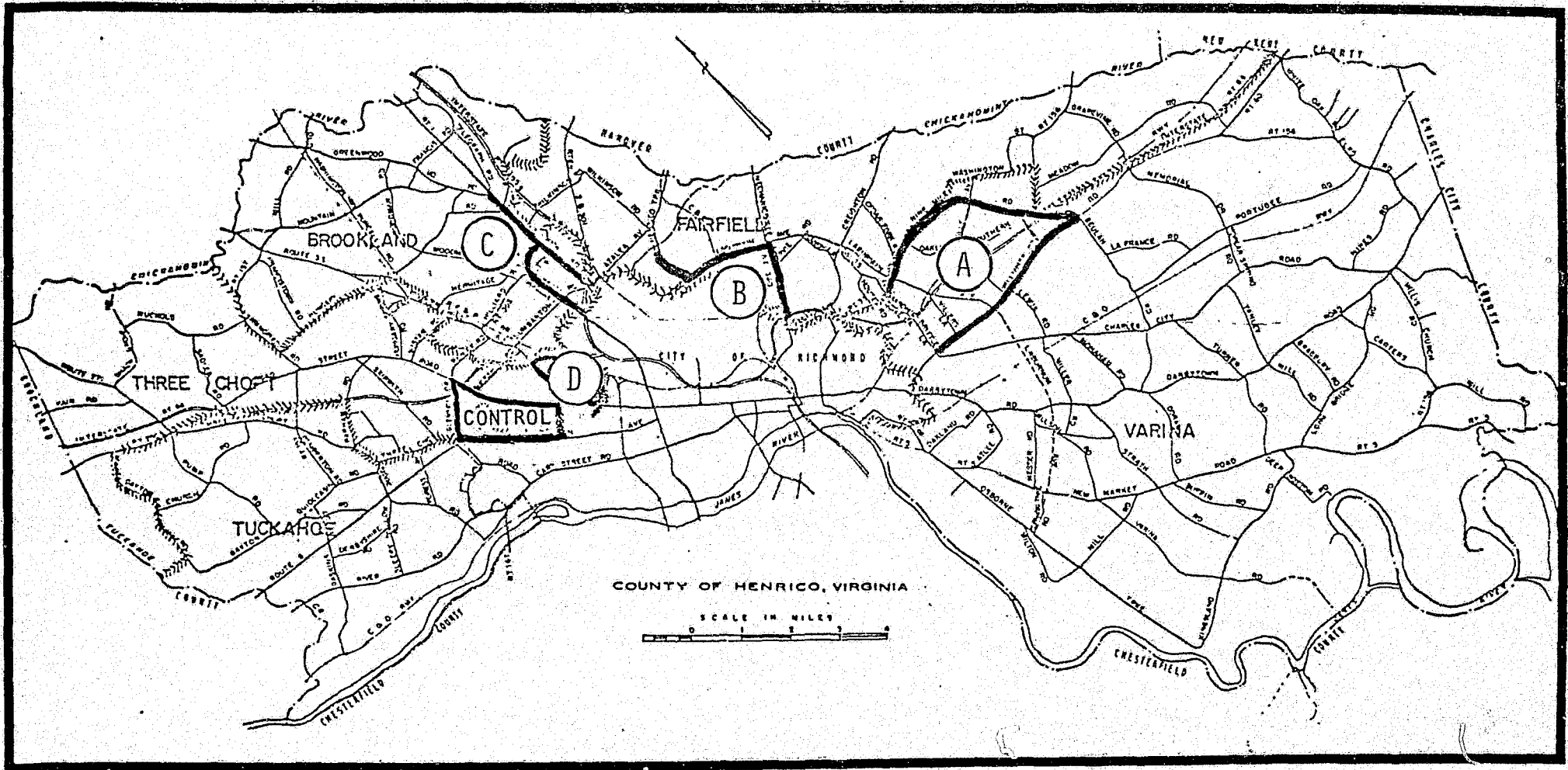
Data were analyzed within the offense, offender, and setting categories for the identification and definition of specific problems and to facilitate additional tactical and evaluation planning. The results of the analysis are given below:

- . Over the past four years there has been a definite trend upward in commercial armed robberies on a countywide basis whereas the nonresidential burglary trend has been erratic; this offense, however, increased 17% from 1972 to 1973. Sixty-four percent of all commercial armed robberies occurred within the target areas

CONTINUED

1 OF 2

HENRICO COUNTY HIT PROJECT:
TARGET AND CONTROL AREAS



whereas only 26% of the nonresidential burglaries were committed there. The peak months for robbery are March, November, and December; those for burglary are January, March and May.

- . Commercial armed robberies occurred most frequently throughout the county on Friday between the hours of 6 pm and 12 am. However, the frequency of offenses, time and day of occurrence varried by target area.
- . The target areas accounted for 53% of the value of all property stolen in the county during 1973. The amount in each of the areas ranged from \$19,000 to \$37,000. The total value lost in the target areas through robbery and burglary was \$49,000 and \$69,000 respectively. The corresponding countywide totals were \$65,000 and \$159,000. (The above figures were adjusted to eliminate one robbery offense which accounted for the loss of \$124,000.)
- . The typical profile of the nonresidential burglar was a white male 14 to 17 years of age who resided in Henrico County. The typical profile of the commercial armed robber was a black male 14 to 20 years of age who resided in the City of Richmond.
- . The most frequently used weapon in commercial armed robbery was the handgun. It accounted for 83% of the weapons used -- specifically in Target Area B. The remaining weapon types, shotguns and knives were used in a small number of offenses.
- . The most frequent places of entry during nonresidential burglaries were doors and windows. Roofs and walls accounted for only 4% of the alternate methods of entry.
- . Countywide commercial armed robbery was most frequently committed in convenience stores, service stations, quick-food stores, and supermarkets. Robberies of these four types of establishments accounted for 69% of the total number of offenses. The three most victimized types of establishments by target area were:
 - Area A: Supermarkets, drug stores, service stations
 - Area B: Service stations, cleaning shops, supermarkets
 - Area C: Convenience, quick food, ABC stores
 - Area D: Experienced only two robberies committed in "other" types of structures.

Countywide nonresidential burglaries were most frequently committed in schools, churches, service stations, and drug stores. Burglaries of these four types of structures accounted for 34% of the total offenses. The three most victimized types of establishments by target area were:

- Area A: Supermarkets, drug stores, service stations
- Area B: Service station, cleaning shops, supermarkets
- Area C: Service stations, restaurants, drug stores
- Area D: Most occurred in "other" types of structures (an industrial park resides in Area D).

(4) Assessment of Planning

Assessment of the Henrico County Planning process was based upon the following criteria:

- . Adequacy of baseline data and crime specific analysis
- . Identification of problems
- . Development of realistic project objectives
- . Design of intervention tactics tailored to identified problems.

The collection and analysis of baseline data appeared to be adequate. In fact, the gathering of baseline data in Henrico County appears to have been one of the most comprehensive efforts undertaken by a HIT Project jurisdiction.

Planning activities included the collection of data by year, month, target areas, control area, and other locations. These data provided the basis for analyzing offenses, offenders, crime settings, and tactical strategies.

. Baseline and offense data included:

- Trend of target offenses
- Value of property stolen
- Trend of other crimes of opportunity.

. Offender data included:

- Sex
- Race
- Age
- Residence
- Recidivism record
- Weapon used
- Place of entry.

. Setting data included:

- Structures victimized.

. Tactical data included:

- Offenses by time, day, and location

Based upon an analysis of the above data, problems were sufficiently identified to permit the development of project objectives and tactical strategies. The major objective of the HIT Project appeared to be realistic while the corollary objective of reducing residential burglary by 10% was somewhat ambitious based upon a lower incidence of this offense in the target areas.

The design of intervention tactics tailored to identified problems or the establishment of the problem/solution link was also evaluated. The assessment was based upon whether or not the planning process made provisions for addressing the following questions.

- . What action is required to reduce the problem?
- . What resources are needed to carry out these activities?
- . What organization should have the responsibility of managing and controlling these activities and resources?
- . What other alternatives exist for attaining objectives?
- . What is their probable impact on the problem?
- . What was the strategy selected?

The planning activity as set forth in the Henrico County HIT II grant application clearly delineated the intervention activities or actions required to reduce identified problems; the resources necessary to conduct these activities were carefully detailed and an organization was designated to manage and control the project. Alternative methods of reducing problems and their probable impact were explored and evaluated. Based on the results, a particular project strategy was selected for implementation. In summary, it appeared that the major steps in the planning process were covered in the Henrico County HIT planning process in a logical and systematic manner.

(5) Recommendations

The initial crime specific planning carried out by members of the Henrico County Police Department was thorough and comprehensive in nature. However, when comparing the past seven months of project operations with the baseline period, one finds that the incidence and location of target offenses have changed considerably. For example, the number of commercial robberies committed in the County during the single month of January 1975 equals the number committed during the entire year of 1969. Previously, 64% of all commercial robberies occurred in the target areas; since project inception, 47% of the robberies occur in target areas. Burglary is also on the decline in target areas (26% historically versus 23% currently).

Consequently, it is recommended that baseline data be updated and analyzed. All offense reports and supplements of commercial robberies and commercial burglaries committed in the entire County from January 1974 through the present should be analyzed to determine patterns of incidence in terms of: (1) time of day, (2) day of week, (3) type of establishment victimized, and (4) location of establishment.

Analysis of offenses should be conducted on a continuing basis in order to support strategies regarding location of stakeouts, hours of surveillance and placement of sensor equipment.

2. OVERALL S.A.F. TRAINING

Prior to commencing HIT Project operations, members of the Special Action Force received seven courses of instruction which amounted to 68 hours of training. The purpose of this section, therefore, is to assess the value of this training to the overall operations of the HIT Project.

(1) Findings

Exhibit XIX, on the following page, presents a composite rating of project training received by S.A.F. personnel. Relative ranking of project instruction was developed in the following manner:

- A sample of five S.A.F. officers were asked to rate each course of instruction according to its value to them on a scale of high, moderate or low which translated to a numeric score of 3, 2 or 1 (S.A.F. management was not asked to assess training since they were primarily responsible for course development and/or instruction).

As can be seen in Exhibit XIX, the majority of training centered on firearms, surveillance techniques, field problems and tactics, and tactical approaches to crimes in



Rating of Project Training

Instruction or Training	Hours	Instructor	Composite Assessment by S.A.F. Personnel
. Firearms	32	J. Eberly	Excellent
. Surveillance Technique	14	Sgt. Garner Sgt. Powell Capt. Sutor*	Excellent
. Field Problems & Tactics	8	Lt. Schesventer Sgt. Garner Sgt. Justice Sgt. Powell	Excellent
. Tactical Approaches to Crimes in Progress	8	Lt. Schesventer Sgt. Justice	Excellent to Good
. Legal Aspects Relating to S.A.F. Operations	2	Commonwealth's Attorney*	Fair to Poor
. FBI Philosophy of Shooting	2	Special Agent*	Fair to Poor
. Air Surveillance	2	State Trooper	Poor

Total 68 Hours

* Non-Henrico County Police Personnel.

progress. These courses accounted for 62 hours or 91% of all instruction and were rated as either "excellent" or "excellent to good."

The worst elements of training centered on: (1) legal aspects related to S.A.F. operations which was taught by the Commonwealth's Attorney, (2) the F.B.I. philosophy of shooting which was taught by a Special Agent, and (3) air surveillance which was taught by an officer of the State Police.

An analysis of the results of the special questionnaire contained in Appendix A reveals the following:

- . 93% of S.A.F. personnel felt that the specialized training they received was either excellent or covered most of the necessary information required for operations,
- . Most respondents felt that additional training was required in the following areas:
 - Firearms
 - Intelligence gathering
 - Field Problems
 - Equipment usage
 - Flight Training

(2) Recommendations

Members of the Special Action Force should receive additional training in the five areas cited above for the following reasons:

- . Due to the nature of the HIT Project in Henrico County (on-scene confrontation and apprehension of armed suspects) continued in-service, firearms training is recommended.

- One of the weakest aspects of the project, thus far, appears to be a lack of coordinated gathering, dissemination and utilization of intelligence data regarding criminal activity. (The only unit that was rated as poor by project personnel in the day-to-day cooperation and coordination with S.A.F. operations was the Detective Division -- the focal point for intelligence gathering.) Consequently, other portions of this report are devoted to setting forth detailed recommendations for improving the gathering and effective utilization of intelligence data by the Special Action Force.
- Since only 8 hours of instruction was received in "field problems", most S.A.F. personnel received informal on-the-job training in covert surveillance activities. It is recommended that additional formal instruction be given to all project personnel.
- Many members of the S.A.F. unit have not received complete instruction regarding the special equipment used within the Project. Consequently, they should be instructed in the operation of all special equipment such as the video tape recorder and monitor.
- It is recommended that all pilots receive training that will qualify them to obtain, as a minimum, private and instrument licenses.

3. SUPPORT PERSONNEL

The support personnel assigned to the HIT Project include a communications officer, systems analyst and clerk/typist. A description of their duties and responsibilities is presented below.

(1) Description of Responsibilities

One S.A.F. member serves as communications officer having the following responsibilities:

- Monitoring the main radio frequency (Channel 1) used by headquarters and relaying relevant communications to S.A.F. personnel over Channel 3 which is the S.A.F. portable radio channel.
- Operating the VCIN/NCIC/DMV computer terminal to respond to inquiries received from field units.

- . Monitoring one of two 20 channel TAC II alarm systems and dispatching S.A.F. units accordingly.
- . Maintaining communications with headquarters via a direct telephone "hot line."
- . Recording all S.A.F. communications by means of a voice activated tape recorder.
- . Maintaining the physical security of separate S.A.F. facilities.

The two civilians assigned to the project include a systems analyst and a clerk/typist:

- . The systems analyst is responsible for:
 - specification of systems and procedures for data collection
 - compilation of project statistics from U.C.R. tally sheets, offense reports, S.A.F. activity reports and aircraft logs
 - preparation of special studies for the S.A.F. Director and Headquarters Staff
 - accounting of grant expenditures
 - substitute communications responsibilities.
- . The clerk/typist is responsible for general secretarial duties including typing, shorthand and filing. Her major responsibility centers on transcription of daily activity reports which have been tape recorded the previous evening by S.A.F. units.

(2) Recommendations

Since the S.A.F. unit is quartered in separate facilities which require the operation of a communications center, no changes are recommended regarding the position or duties of the communications officer. In addition, sufficient work of a clerical nature is generated by project personnel to warrant the full time position of a clerk/typist.

The systems analyst, however, is expected to be transferred to police headquarters at the end of the first year of project operations. It is recommended that this position be filled with a sworn officer, preferably from the Detective Division, to act in the capacity of "Intelligence Officer."

Appendix A

Virginia HIT Program

Special Police Unit Questionnaire

Appendix A
Virginia HIT Program
Special Police Unit Questionnaire

As a part of the final evaluation of Henrico County's HIT II project, a questionnaire was prepared by Arthur Young & Company and distributed to all project personnel. The purpose of the questionnaire was:

- . to document relevant information regarding the background of SAF team members,
- . to obtain subjective opinions of individuals concerning project management, operations and effectiveness,
- . to solicit suggestions for improving future operations, and
- . to utilize the results of the Henrico County Questionnaire in a comparative analysis with those obtained from other HIT jurisdictions throughout the State of Virginia.

The questionnaire was completed by 14 of 22 SAF members; consequently, the response rate was 64%. In order to enhance the objectivity of questionnaire results, respondents were asked to complete the survey instrument in an anonymous fashion and mail it directly to the evaluator.

The questionnaire results have been used in the body of this report as supportive data for evaluative observations. This appendix contains a copy of the survey instrument used, and documents the composite results of the respondents.

ARTHUR YOUNG & COMPANY

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WASHINGTON, D. C. 20036
(202) 785-4747

VIRGINIA HIT PROGRAM SPECIAL POLICE UNIT QUESTIONNAIRE

The purpose of this questionnaire is to gather general information concerning the operations, management, training and impact of the HIT project. It is being filled out by all HIT Squad members. These questionnaires will be used in the specific evaluation analysis of this HIT project and in the comparative analysis of all eleven HIT projects.

This questionnaire is anonymous, you need not write your name. Please fill it out as carefully as possible.

1. GENERAL INFORMATION

(1) Please state your rank

_____ Major
_____ Captain
1 Lieutenant
1 Sergeant
12 Patrolman
_____ Civilian

(2) Number of years' police experience: 7.5 years (average)

(3) Years of experience as a:

5.8 Patrolman (Average of 12 patrolmen)
5.5 Detective (1 Sgt. and 1 patrolman)
12 Supervisor (1 Lt. and 1 Sgt.)

(4) What is the highest level of education you have attained?

 Less than high school
 2 High school graduate
 11 Some college
 A.A. Degree
 1 B.A. Degree

(5) Method of selection for the HIT Squad

 10 Volunteer, written request submitted
 2 Volunteer, verbal request submitted
 1 Requested to join by Squad Supervisor(s)
 1 Chosen for Squad, did not volunteer

(6) Why did you join, or what were your reasons for joining, the HIT Squad?

Desire to participate in innovative project (8); Prefer
covert operations rather than uniformed patrol (4)

(7) Are you being paid any more as a HIT Squad member than you would have been in your last assignment? 13 Yes, 1 No

(8) How long have you been on the HIT Squad? Avg. of 6.2 months

2. HIT SQUAD OPERATIONS

(1) How successful have the tactics used by the HIT Squad been?

 2 Very successful, a very high clearance and arrest rate
 12 Moderately successful
 Little effect on the target crime

(2) How have you spent the major portion of your time?

 2 Patrolling
 11 Stakeouts
 Investigation
 1 Administration/management

(3) How much assistance has the sophisticated equipment (electronic surveillance equipment, etc.) given you in accomplishing your duties?

- 2 A great deal (have used it successfully often)
9 Moderate (have used it successfully a few times)
3 Of little use (have either not used the equipment at all or with little positive results)

(4) Have you been as successful as you originally thought you would be?

- 1 Much more than originally thought
10 About what was originally thought
3 Much less than originally thought

(5) What have been your most successful tactics, strategies, or operations?

Stake out of high incident locations (10)

Team surveillance (2)

(6) What have been your least successful tactics, strategies, or operations?

One man stake out units (4); mobile surveillance (4); use of TAC II alarm system (2); large target areas (2); sharing of intelligence between detective division and SAF team (1); operations using disguises (1)

(7) What have been the reasons for your success or lack of success?

Lack of success due to limited number of men operating in large target areas (4). Success can be attributed to: motivation and enthusiasm of men (6); proper selection of stake out locations (2)

(8) How has the day-to-day cooperation and coordination been with the:

	<u>Excellent</u>	<u>Adequate</u>	<u>Poor</u>
• Detective Bureau	<u>2</u>	<u>7</u>	<u>5</u>
• Uniform Patrol	<u>4</u>	<u>10</u>	<u>-</u>
• Traffic	<u>2</u>	<u>10</u>	<u>-</u>
• Overall Police Division	<u>1</u>	<u>13</u>	<u>-</u>

3. MANAGEMENT

(1) How would you typify the supervision of the HIT Squad?

5 Excellent, responsive and effective
9 No better than other police supervision in other units
 Not very effective, poor

(2) How is your morale?

5 Extremely high
8 Better than with previous units
 Average
1 Lower than average
 Extremely poor

(3) What improvements would you recommend in HIT Squad management?

No change (3); eliminate influence on SAF operations from
other department commanders (3); better coordination
between management and men (2); more delegation of authority
(2); better field supervision (1); extended hours of coverage (1)

4. TRAINING

(1) Did you receive specialized HIT training? yes 13 no 1

(2) How would you typify the specialized training you received for HIT operations?

- 5 Excellent, very comprehensive
7 Adequate, covered most necessary information
1 Incomplete, covered some but not all of the information needed
_____ Inadequate

(3) What was the best element of your training?

Firearms (1); incident simulation (3); surveillance tactics (2); flight training (1); on-the-job training (1).

(4) What was the worst?

FBI theory of when to shoot (2); field problems (1)

(5) What further training could you use for HIT operations?

Firearms (4); intelligence gathering (4); field problems (4); equipment usage (3); flight training (1).

5. IMPACT

(1) Has the target crime been reduced? yes 8 no ____
Stabilized? yes 3 no ____ Increased? yes 3 no ____

(2) Has the overall HIT project been successful? yes 14 no ____
Explain.

Lower rate of robbery increases in target areas vis-a-vis remainder of county (1); on scene apprehensions (2); coordinated information exchange with other departmental units (1).

(3) What changes would you make in the overall police department based on the results of the IIT project?

More emphasis placed on "on scene" apprehensions (3);

improved intelligence gathering (3); uniformed patrol

should be equipped with shotguns and portable radios (3);

make SAF unit a permanent part of the department (2);

conduct more covert operations (2); two men assigned to

each car (2); expand uniformed patrol (2); improve

firearms training (1); detective coverage should span

24 hour period (1)

END