FOLLOW-UP EVALUATION REPORT

St. Petersburg Aviation Unit

OCTOBER 1974

Research and Development Division
Planning Bureau
St. Petersburg Police Department

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Systems and Procedures
Administration Bureau
St. Petersburg Police Department

The St. Petersburg Aviation Unit acquired a second helicopter in April of 1974. After four months of implementation, a follow-up evaluation was ordered.

The second helicopter was purchased in order to meet certain objectives:

- to increase availability through extended hours;
- to maintain 100 air hours per month per aircraft;
- to reduce down-time due to scheduled and unscheduled maintenance;
- to decrease response time; and
- to increase apprehension rate.

This evaluation will attend to these objectives as well as report any other changes occurring in the Aviation Unit.

The methodologies used in this evaluation did not differ greatly from those used in the initial Aviation Unit Evaluation Report. In fact, the mission activity logs as well as the daily and weekly summary reports used in the original evaluation were utilized again in the follow-up evaluation. Response times were computed using the Electronic Data Processing Printouts, and apprehension rates were calculated using the original offense reports.

The evaluation was ended when the second helicopter had to make a forced landing in the bay September 23, 1974, making it inoperable due to salt water corrosion.

Resources

The Aviation Unit was originally staffed with a civilian coordinator and six pilot-observers. One additional observer has been added since the acquisition of the second aircraft. In addition, an observer already assigned to the Aviation Unit and a police officer new to the unit are attending flight school in Gettysburg, Pennsylvania. It is intended that these police officers replace the two firemen/pilots assigned to the Aviation Unit now. When these officers receive their helicopter licenses and the firefighters are transferred out of the Aviation Unit, the unit will have one man less than is authorized.

The second aircraft is a reconditioned Bell 47G2 helicopter, which was purchased at a cost of $29,000. Although it is basically the same as the first helicopter (a Bell 47G), it is a later model with a bigger engine and is capable of furnishing better lighting for ground units.

Two recommendations were made regarding resources in the original Aviation Unit Evaluation Report. It was recommended that for safety reasons, as well as speed, a ramp vehicle be provided to the Aviation Unit for transportation around the field. This vehicle has not been provided. It was also recommended that each Aviation Unit member be provided with a flight helmet. These are now in order through Army surplus.

Operating Procedures

The Aviation Unit is now operating a total of 116 hours a week, an increase of 18% (or 18 hours). Monday through Saturday, the Aviation Unit is available for patrol and responding to calls from 0800-0200. On Sunday, the Aviation Unit operates from 1600-2400 hours. The Aviation staff is still working overlapping shifts.

One objective in operating a second helicopter is to maintain a maximum of 100 air hours per aircraft, which is the manufacturer's recommended maximum usage. During the months of August and September a total of 383 flight hours (95 hours and 45 minutes per month per aircraft) were logged, keeping well within the limits of this objective. The Aviation Unit logs an average of 6.3 air hours per day.

Another primary objective in operating with two helicopters is to reduce down-time due to scheduled and unscheduled maintenance. Downtime is defined as any time less than six hours that the aircraft flew per day. During this evaluation period there were twenty hours of downtime. Table I illustrates the differences in down-time when one or two helicopters are available. Previous to the acquisition of the second helicopter, scheduled maintenance was responsible for over 50% of the down-time. However, now downtime due to scheduled maintenance is non-existent. Down time due to unscheduled maintenance was reduced by almost 86%. Total down-time is now 5.23% of the hours

TABLE I

EAGLE II's & III's DOWNTIME COMPONENTS

REASON FOR DOWNTIME	ONE HELICOPTER		TWO HELICOPTERS	
	Hours	%	Hours	%
Scheduled Maintenance	27	50.9	0	0
Unscheduled Maintenance	21	39.6	3	15.4
Poor Weather	1	1.9	7	33.7
Conflicting Ground Activities	4	7.5	10	50.7
TOTAL	53	99.9	20	99.8

flown; with one helicopter it was 9.3%.

Preventive patrol activity increased with the acquisition of the second helicopter. Eighty percent of all airtime is currently spent in patrol activities; the original evaluation showed 73% of air time spent on preventive patrol. A comparison of mission activities with one and two helicopters available is presented in Table II. Answering "police calls" still predominates the Aviation Unit's activities. In fact, answering "police calls" increased over 18 percentage points since the acquisition of the second helicopter.

TABLE II

HELICOPTER UTILIZATION - TYPES OF MISSIONS

ACTIVITY	ONE HELICOPTER*		TWO HELICOPTERS **	
	#	%	#	%
Police Calls	854	68.3	643	87.1
Discoveries	236	18.3	32	4.3
Request for Assistance	88	7.0	36	4.9
Special Details	27	2.2	7	1.0
Traffic Problems	26	2.1	8	1.1
Fire Calls	19	1.5	12	1.6
TOTAL	1,250	100.0	738	100.0

* Three months of data

** Two months of data

Effectiveness

One of the performance objectives established for the original evaluation of the Aviation Unit was "to obtain an average response time to priority calls of less than three minutes and to answer 70% of such calls in less than three minutes." Although the Aviation Unit was able to reach an average response time of 2.5 with one helicopter, they were not able to respond to 70% of the priority calls in less than 3 minutes. Tables III and

IV demonstrate that both these objectives were met when two helicopters were employed.

TABLE III

Helicopter Response Time

	Number of Priority Calls Answered	Average Response Time
One Helicopter *	216	2.5
Two Helicopters**	230	2.4

* Based on data for 3 months

** Based on data for 2 months

TABLE IV

Percentage of Calls Answered in Less Than Three Minutes

	Total Calls	No. Calls Under 3 Min.	% Calls Under 3 Min.
One Helicopter *	216	139	64.4
Two Helicopters **	230	174	75.7

* Based on data for 3 months

** Based on data for 2 months

As can be seen in Table IV, the number of calls responded to in less than three minutes increased by 25.1 percent. In fact, 65.7% of the priority calls were responded to in less than two minutes.

Another important measure of effectiveness is the apprehension rate, which is defined as the rate at which at-the-scene arrests are made. A comparison was made of helicopter assisted calls and non-assisted calls in the original evaluation report. Based on eight months of data it was determined that on a helicopter assisted call it is 1.54 times as likely that an at-the-scene arrest will be made. Unfortunately, due to changes in the computer print-outs, the actual numbers are not comparable to present data, but the rate of apprehension can still be computed. Table V presents the data for two months with two helicopters.

TABLE V

Apprehension Rates for Helicopter-Assisted and Non-Assisted Priority Calls

	Apprehension Rates	Number in Sample
Helicopter Assisted Rate	4.78%	230
Non-Assisted Rate	1.19%	253

This is a dramatic increase in the apprehension rate, indicating that helicopter-assisted priority calls are now 4.02 times as likely to result in an at-the-scene arrest as calls which are unassisted.

The original evaluation report pointed out a problem the Avaiation Unit was experiencing concerning the failure of the police dispatchers to consistently punch up priority calls on all radio channels. The Aviation Unit members report that this problem has not yet been corrected. Although this would not lower the apprehension rate or the response time the helicopters have achieved, it does make it likely that there would be a reduction in the number of priority calls to which the Aviation Unit responds.

Conclusion

The Aviation Unit has achieved all of the objectives set for the second helicopter.

- The Aviation Unit has increased its availability through extended hours. They are now available 18% more than they were with one helicopter.
- The Aviation Unit has maintained 100 air hours per aircraft per month.
- The Unit has eliminated scheduled maintenance as a cause of downtime and reduced unscheduled maintenance as a factor by 86%.
- The Aviation Unit is maintaining a consistently low response time average of 2.4 minutes per priority call, and is responding to over 75% of all priority calls in less than 3 minutes.
- The Aviation Unit has increased its apprehension rate to the extent that a helicopter assisted call is now four times as likely to result in an apprehension as a non-assisted call.

Although a few of the recommendations made in the initial evaluation report were not acted upon, such as punching up priority calls on all channels, the data clearly demonstrate a marked improvement in the performance of the Aviation Unit when two helicopters are employed.

During the evaluation period the Aviation Unit responded to an average of 115 priority calls per month; with one helicopter the unit averaged 72 priority calls a month, an increase of 59.7%. There was not only an increase in the work load assumed, but also an increase in the quality as demonstrated in the apprehension rate.

It is therefore RECOMMENDED that the second helicopter be replaced as soon as possible to allow the Aviation Unit to continue operating at the level of efficiency maintained during this second evaluation period.

END