



CITY COUNCIL AGENDA REPORT

MEETING DATE: February 15, 2011 ITEM NUMBER:

SUBJECT: DISSOLUTION OF AIRBORNE LAW ENFORCEMENT SERVICES

DATE: FEBRUARY 9, 2011

FROM: CITY MANAGER'S DEPARTMENT

**PRESENTATION BY: THOMAS R. HATCH, ASSISTANT CITY MANAGER
TIM STARN, ABLE COMMANDER**

FOR FURTHER INFORMATION CONTACT: THOMAS R. HATCH, 714 754-5288,

RECOMMENDATION:

The City Council Budget Working Group is recommending that the City Council dissolve the Airborne Law Enforcement (ABLE) Program and direct staff to proceed to take the necessary administrative steps to complete this action including notifying respective ABLE partners. It is further recommended that the City Council provide any direction to staff related to the City formally encouraging the creation of a regional air support program.

BACKGROUND:

The City of Costa Mesa has had helicopters since 1970. In 1996, Costa Mesa and Newport Beach merged their individual helicopter programs into one and formed ABLE. The first year of operation, each City saved \$500,000. ABLE's success is derived from cost sharing and vigilantly evaluating the operation for additional savings. ABLE serves the City of Santa Ana by way of contract and each Member Agency receives \$180,000 in revenue to offset their expenditures. The ABLE commander is a shared position that is funded from the maintenance and operating budget.

Annually ABLE flies 1500 hours and handles 3000 calls for service. They are instrumental in reducing the workload for ground officers on perimeters, area searches, natural disasters, as well as reducing liability during pursuits and other dynamic events. ABLE works with the Fire Departments through the use of infrared technology, downlink of incidents and firefighting of vegetation fires. ABLE is a force multiplier that has enhanced our law enforcement operations for many years.

ANALYSIS:

The City has a budget shortfall of approximately \$1,400,000 for FY 2010-2011. On several occasions, members of the City Council have communicated that the continued use of fund balance is not fiscally appropriate and that reductions are necessary to balance the budget. The City Council Budget Working Group and City staff has been

discussing and debating options to close the gap. Over the past several years when budgets have been tight, both Newport Beach and Costa Mesa City Councils have supported reductions in service levels to the ABLE Program. For FY 2010-2011, the service hours were decreased from 3,000 to 1,500 flight hours per year. With the continuing budget shortfalls, Newport Beach City Manager Dave Kiff and Costa Mesa City Manager Allan Roeder have informally discussed the option of dissolution of the Program and felt that it is an appropriate time for the City Councils of both communities to formally consider this matter.

The Budget Working Group of Mayor Monahan and Mayor Pro Tem Jim Righeimer has reviewed this option and are recommending to the full City Council the dissolution of the ABLE Program. Attachment A of this report is a memo from the Police Department that details the ABLE Program and the process and issues that would be involved in its potential dissolution. The memo includes information about issues related to the current contracts, impacts to all partners including the Orange County Sheriff's Department, the hanger lease with Signature Flight Support at the John Wayne Airport, cost considerations, personnel issues and timelines.

Impact on City Personnel

The potential impact on Costa Mesa personnel would be based on the four (4) Costa Mesa positions assigned to ABLE. This staffing is comprised of one (1) Police Helicopter Sergeant and three (3) Police Helicopter Pilots.

In the event that Layoff Procedures are implemented due to the dissolution of ABLE, all employees will be eligible to exercise their bumping rights. This will ultimately result in other less senior/tenured sworn Police Officers being laid off. The Layoff Procedures (CMPA MOU, Article 18, A.R. 2.26, and PR&R 14.5) state that employees with the least City seniority will be laid off first. As of the writing of this report, staff was still determining the specific bumping rights as to the impacts to full and part-time employees. In addition, the City is proceeding to meet and confer with the Costa Mesa Police Association.

FISCAL REVIEW:

The financial impact of eliminating or reducing ABLE services will depend on specific direction provided by City Council in conjunction with the ABLE Board. However, as stated in the attached memo from the Police Department, ABLE does have a total fund balance of \$3,113,300 in the Equipment Replacement Fund and \$998,965 in the General Fund. Should ABLE be dissolved a portion of these assets, as well as the proceeds from the sale of equipment, will be returned to the City.

The current projected impact of the ABLE program to the City's General Fund for FY 11-12 is:

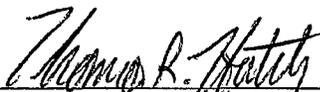
Salaries and Benefits	\$754,380 (1 Sergeant, 3 Pilots)
Maintenance and Operations	\$490,255 (same as FY 10-11)
Revenue from contract cities and reimbursement of Sergeant salary	(\$392,545)
Net cost	- \$852,090

LEGAL REVIEW:

Preliminary legal review has been completed by the Attorney for the ABLE Board and no significant legal issues were identified. The City Attorney's Office has also reviewed the various agreements. The only step that needs to be completed prior to actually dissolving the program is the meet and confer process with the affected employee bargaining unit under the Meyer-Millias-Brown Act. Notice of intent to terminate the various contracts must be given by March 1, 2011 if the program is to be dissolved at the end of the fiscal year. Upon completion of the meet and confer process and satisfaction of the required legal notices, the dissolution can be effected, subject to the terms of the existing Joint Powers Authority Agreement.

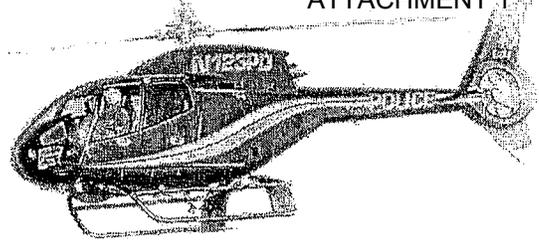
CONCLUSION:

The City Council Budget Working Group is recommending that the City Council dissolve the Airborne Law Enforcement (ABLE) Program and direct staff to proceed to take the necessary administrative steps to complete this action including notifying respective ABLE partners. Some members of the City Council have expressed interest in the City participating in the review of the potential for a larger regional air support program in Orange County and staff is looking for direction from the City Council about this issue.



THOMAS R. HATCH
Assistant City Manager

ATTACHMENTS: 1 Memo from Police Department
 2 ABLE Program Background
 3 ABLE Statistics



February 3, 2011

To: Allan Roeder, Costa Mesa City Manager

From: Tim Starn, ABLE Commander

Subject: Dissolution of Airborne Law Enforcement Services

Summary

The dissolution of ABLE will require terminating the Joint Powers Agreement between Costa Mesa and Newport Beach, selling of the aircraft, parts, vehicles and tools, reassigning the pilots to their respecting agencies and assisting the mechanics in locating new employment. All non-qualified Grant Equipment would get reallocated to other agencies. Contracts between ABLE, Orange County Sheriff's Department and Santa Ana Police Department will need to be terminated. ABLE's hangar lease expires on April 1, 2012 and does not have a provision for early termination. This will require an expenditure of \$119,700. Costa Mesa's personnel costs will increase through lost revenue from a shared commander position.

Current Contracts

Joint Powers Agreement (JPA)

The Joint Powers Agreement between the City of Costa Mesa and the City of Newport Beach, collectively referred as "Member Agencies" dated January 1, 2001, has a provision to dissolve the ABLE Program. Section 6.02, *"The withdrawal of any Member Agency, either voluntary or involuntary shall, unless otherwise provided for by the Board, be conditioned as follows: (a) Involuntary withdrawal shall mean those circumstances where a Member Agency must withdrawal due to fiscal or budgetary impacts which discontinue the funding of crews or aircraft; (b) In the case of involuntary withdrawal, written notice shall be given one hundred twenty (120) days prior to the end of a fiscal year except that such notice may be shortened by unanimous approval of the Board; (c) Neither voluntary or involuntary withdrawal shall relieve the withdrawing Member Agency of its proportionate share of any debts or other liabilities incurred by ABLE prior to the effective date of the Member Agency's withdrawal, nor any liabilities imposed upon or incurred by the Member Agency pursuant to this Agreement prior to the effective date of the Member Agency's withdrawal;"*

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Section 7.01 *“ABLE shall continue to exist and exercise the powers herein until this Agreement is terminated by action of the Member Agencies; provided, however, that no termination shall be complete and final until ABLE has satisfactorily disposed of all financial obligations and claims, distributed all assets, and performed all other functions deemed necessary by the Board to conclude the affairs of ABLE.”*

Section 7.02 *“Termination shall occur upon the written consent of all Member Agencies, upon the withdrawal from ABLE of a sufficient number of the Member Agencies to leave fewer than two (2) Member Agencies remaining in ABLE and full satisfaction of all outstanding financial obligations of ABLE. However, no such termination shall occur until all other contractual obligations of ABLE have been satisfied.”*

Section 7.03 *“In the event of the termination of this Agreement, any funds remaining following the discharge of all obligations shall be disposed of by returning to each current Member Agency of ABLE immediately prior to the termination of this Agreement, a share of such funds proportionate to the contribution made to ABLE by said Member Agency, to the extent determined by the Board in its sole discretion to be fair and equitable.”*

Section 7.04 *“Notwithstanding other provisions in the Agreement, the Member Agencies Costa Mesa and Newport Beach agree to abide by the following procedure for selling of equipment and aircraft in the event the Agreement is terminated. The equipment and aircraft shall be given a fair market value by an appraiser mutually agreed upon by Costa Mesa and Newport Beach. Before the equipment and aircraft are sold on the open market, Costa Mesa and Newport Beach each shall have the right to purchase the equipment and aircraft at a price and under terms as mutually agreed upon by Costa Mesa and Newport Beach which may include a financing arrangement for the purchaser and a leasing arrangement for the non-purchasing Member Agency to allow for a transition period after the termination of this Agreement. If an agreement cannot be reached concerning a purchase of the equipment, then it shall be sold on the open market. Proceeds from the sale of equipment and aircraft upon termination of the Agreement shall be equally distributed (50/50) to Costa Mesa and Newport Beach.”*

Santa Ana Police Department Contract FY 10/11

The current contract with the Santa Ana Police Department has a provision for a one (1) year extension if mutually agreed by both parties. **Section 7.03** of the contract states, *“Each of the Parties to this Agreement may terminate this Agreement without cause upon one hundred twenty (120) days prior written notice”*. Therefore, they would need to be notified by March 1, 2011 to avoid the potential of an implied consent for a contract extension.

Orange County Sheriff's Department Contract FY 10/11

Either party may terminate the contract at any time, without cause, upon a 90-day prior written notice. The cancellation of this contract would require the OCSD to relocate or create a monthly agreement to continue the same 50% cost sharing formula until ABLE fulfilled the JPA procedures of dissolution. Due to an unfavorable long term lease agreement, the rent is nearly double of the current rate, thereby reducing the incentive for the OCSD to remain.

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All of the helicopter mechanics are employed by the Newport Beach Police Department. The termination of ABLE would require the OCSD to hire their own mechanics and purchase specialized tools at a significant cost.

Hangar Lease

ABLE currently holds a lease agreement with Signature Flight Support for a hangar located at the John Wayne Airport. The lease agreement was reviewed by ABLE's legal counsel who advised it did not include a condition for an early termination. Therefore, ABLE is financially responsible for the lease through April 1, 2012. Due to the unfavorable rate increases in the 23 year lease agreement, the rent is significantly higher than the comps. At the present time, Signature Flight Support has not been contacted with regard to an early termination request.

Cost Considerations

Due to the hangar lease agreement, ABLE will be financially responsible for the hangar until April 1, 2012 at a monthly cost of \$13,300 per month. If ABLE closes by June 30, 2011, nine months remain on the lease totaling \$119,700. ABLE's three helicopters are EC120B's and have high component times as compared to the worldwide fleet. In the current economic conditions the aircraft would be sold at a significantly reduced rate. Price estimates range between \$300,000 and \$500,000 each. Per section 7.04 of the JPA, the equipment and aircraft shall be given a fair market value by an appraiser mutually agreed upon by Costa Mesa and Newport Beach.

ABLE has \$3,113,300 in a Replacement Fund and \$998,965 in their General Fund, which includes \$255,084 of inventory and prepaid legal expenses (09/10 Auditor's Report). These funds would need to remain intact until all of the assets have been sold and financial obligations have met.

The commander's salary and benefits are currently paid by both Member Agencies through the Maintenance & Operations line item at a 50% cost sharing formula. At the termination of ABLE, Costa Mesa would lose revenue from the shared position, increasing personnel cost.

ABLE Personnel

All of the pilots assigned to ABLE could return to their respective agencies for reassignment. However, the three mechanics who are employed by the Newport Beach Police Department do not have the same ability. Their job classification is only applicable to aviation and their future is uncertain. If Newport Beach could not reassign them to a new position, Costa Mesa and Newport Beach should assist them to locate new employment.

Timeline

At the present time, March 1, 2011 is the date that the Santa Ana Police Department must be notified to comply with the contract, unless both parties agree to an early termination. The JPA is also March 1, 2011 unless the ABLE Board of Governors unanimously approves an early termination. The hangar lease cannot terminate early. A member of the ABLE staff and one mechanic should be retained until all of the assets have been liquidated.

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Alternatives

ABLE is working with the Santa Ana Police Department to seek funding for a replacement aircraft through a UASI Grant. Preliminary meetings have been favorable for the request. This could temporarily eliminate ABLE's Replacement Fund by journaling the funds to ABLE's Undesignated Fund. This Fund could be used to offset the expenditures for both Member Agencies. Costa Mesa currently has 3 pilots and 1 commander assigned to ABLE. It would be possible to reduce the assigned personnel by one pilot without affecting service to the communities. It is suggested the Fund Balance not fall below \$2,300,000, which is the total cost a fully equipped helicopter.

The options below contain reduced personnel levels with the same level of service.

Option #1 Reduction of One Pilot

M & O	Personnel	SAPD Revenue	Salary Reimbursement from Newport Beach	Net
\$490,255	\$578,969	\$180,000	\$ 212,545	\$676,679

Use of ABLE's Fund Balance to offset expenditures.

Option 2 (a) Sustainable for 6-Years

Budget Total	ABLE Fund Balance Contribution	CM Contribution
\$676,679	\$137,351	\$539,328

Option 2 (b) Sustainable for 3-Years

Budget Total	ABLE Fund Balance Contribution	CM Contribution
\$676,679	\$274,703	\$401,976

Option 2 (c) Sustainable for 2-Years

Budget Total	ABLE Fund Balance Contribution	CM Contribution
\$676,679	\$369,407	\$307,272

Option 3

Create an Orange County Regional Air Support program similar to the one established in the early 90's with one significant change, all contributing agencies create a new Joint Powers Agreement or amend ABLE's to add the new agencies. The addition of agencies has the ability to increase County wide coverage with the reduction of expenditures through cost sharing.

Option 4

The ABLE Board of Governors can approve a return of revenue from ABLE's Replacement Fund to each Member Agency. The revenue could be used to offset Costa Mesa's current budget deficit. It's recommended the amount returned not exceed \$1,700,000. This amount would be

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shared by both Member Agencies. This would leave the Replacement Fund balance at a level sufficient to purchase a helicopter when appropriate.

Airborne Law Enforcement Study

This is a summary of a research paper by Rick May of Norwich University and Dr. Penny Shtull "Police Helicopters and Their Invaluable Contribution to Law Enforcement". (See attachment A for the full report.)

Helicopters were first used in a law enforcement roll in the mid 1960's. Since then there have been nearly a dozen different studies conducted addressing the cost effectiveness, the ability to impact and reduce crime and the force multiplication of helicopters in law enforcement. These studies have been conducted in municipalities across the United States, Canada and Great Britain. In Lakewood, California a study showed that major crimes were reduced by 8% while major crimes rose 9% in neighboring cities during the same time period. Additionally the crime rate per 100,000 decreased 11% while it rose 8% elsewhere. In Kansas City crime dropped 13.5% in the first six months after the police helicopter began patrols. NASA conducted a study in Los Angeles that showed the likelihood of arrest rose to 40% when apprehending a fleeing felon as compared to only 18% when a helicopter was not used. Studies in Baltimore and Miami-Dade showed that the capture rate of suspects during high speed pursuits were 83% and 91% respectively. There are many more studies and statistics cited that show that cities that use police helicopters for routine patrol are safer, have a lower crime rates and are able to effectively cover more area with fewer ground officers than cities that do not utilize police helicopters.

POLICE HELICOPTERS AND THEIR INVALUABLE CONTRIBUTION TO LAW ENFORCEMENT

Police Helicopters and Their Invaluable Contribution to Law Enforcement

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GJ: 510 Foundations in Criminal Justice Administration and Criminology

Dr. Penny Shtull

November 3, 2004

Police Helicopters and Their Invaluable Contribution to Law Enforcement

Introduction

Police helicopters have been in use since the mid-1960s. Their use at first was questioned because the cost of helicopter operations is quite expensive for a police department. However, the usefulness that the helicopter provides a police department will be illustrated throughout this paper. Some of its current uses include: (1) surveillance; (2) emergency response; (3) backup to patrol units; (4) high speed pursuits (5) show of force; (6) special weapons and tactics (SWAT) team insertions; (7) search and rescue (SAR); and (8) terrorist response. The possibilities of the helicopter in use today and in the future are limitless.

The purpose of this paper is to highlight some of the studies conducted on the effectiveness of police helicopters and their contributions. Helicopters, because of their initial cost and maintenance, are not cheap to operate. They are more expensive to operate than an airplane, especially turbine powered helicopters. However, their contributions to society are invaluable. Several examples of the helicopter's effectiveness in the US and abroad will be discussed. Particular recognition will be given to a study conducted in Calgary, Canada with comparison to a neighboring city, Edmonton. This study will expose results that indicate the helicopter has not only been an effective tool for law enforcement but it also has the potential to deter crime.

Lastly, newer technology will be discussed in helicopter advancements and also equipment used by police helicopters. One of the main criticisms about helicopter operations, from the community that it serves, is its noise nuisance. Newer technological advancements will be discussed in ways to lessen the noise nuisance of police helicopters. However, the noise is a byproduct of the police helicopter and this paper suggests that the helicopter is in fact an effective crime fighting tool in today's criminal justice system.

Historical Overview

Lakewood, California 1966

The first recorded study on the effectiveness of police helicopters and particularly their usefulness on deterring crime was done in 1966 in Lakewood, CA (Whitehead, 2001, p. 8). Lakewood, at the time, was a city of 87,000 people and the study compared crime rates in Los Angeles, a city that had 7 million people (2001 p. 8). Lakewood used helicopters to assist ground police on patrol and at the time; Los Angeles did not. Results from this study "indicate[d] that the frequency of certain crimes decreased in the City of Lakewood, while they increased in Los Angeles, County, in the year of the helicopter patrols compared to the previous year" Whitehead (2001, p. 9). During the time of the helicopter patrols, 1965-1966, the following results were recorded:

- Actual Major Crimes decreased by 8% in Lakewood compared to +9% in LA
- Crime Rate/100,000 pop. decreased by 11% in Lakewood compared to +8% in LA
- Robberies decreased by 6% in Lakewood compared to +22% in LA
- Burglaries decreased by 7% in Lakewood compared to +9% in LA (2001 p. 9).

Kansas City, Missouri 1969

Another study of deterrence was conducted in Kansas City, MO in 1969. This time the study wasn't compared to a nearby city. Also, unlike the Lakewood study, the Kansas City study observed only three months of helicopter patrols during a twelve month period as opposed to a twelve month helicopter patrol studied in Lakewood. The following results were found:

- Crime decreased 13.7% in June compared the previous five months
 - Crime decreased 7.4% in July compared the previous six months
- In August, the patrol area changed but indicated:
- Crime decreased 3% compared to the previous seven months
- In September, the patrol areas was again revised but indicated:
- Crime decreased 7.6% compared to the previous six months
- (Whitehead, 2001, p. 10)

The study also concluded that the number of crimes in the patrol areas decreased 13.5% as compared with those crimes which occurred in the first six months (2001 p. 10).

Los Angeles, California 1969

In Los Angeles in 1969 a study was conducted to evaluate the effectiveness of helicopter patrols. The study was conducted in two of Los Angeles' 17 divisions; a low crime division and a high crime division (Whitehead , 2001, p. 10). Unfortunately, there was not a time given as to how long the study was conducted, but the following table indicates that the helicopter was effective in both divisions during its patrol. Number of Calendar Quarters in which Actual Occurrences were Significantly Above or Below;

Division	Prediction			
	Robbery	Burglary	Theft	Auto Theft
Low Crime	-2	0	0	-1
High Crime	-2	0	-4	-3

Note. From "The Eye in the Sky: Evaluation of Police Helicopter Patrols," by P.C. Whitehead, 2001, TR-01-2001R, p. 11. Copyright 2001 by Canadian Police Research Centre. Adapted with permission.

This table illustrates that the police helicopter used in Los Angeles did have effect on crime reduction. It also shows, however, the most crime reduction came from the high crime area.

Long Beach, California 1970

After examining the effects of the helicopter study conducted in Lakewood, CA, Long Beach decided to purchase a full-time helicopter. The crimes that the helicopter patrols were intended to deter were robbery, burglary and auto theft. The results of the helicopter patrol were as follows: total crime decrease by 3.2%; robbery -7.3%; burglary -0.1%; and auto theft -6.6%. The total number of crimes that fell into the category of crimes that wasn't expected to be deterred by the helicopter patrol actually increased by 8.6% (Whitehead , 2001, p. 13). It could be assumed that with crime rising in general, the helicopter patrol actually deterred the types of crime anticipated.

Los Angeles, California 1972

Another study was conducted in Los Angeles by the National Aeronautics and Space Administration (NASA) in 1972. The conclusions that NASA revealed were, "...the likelihood of police arrests rose to 40% when a police helicopter was assisting in the apprehension of a fleeing felon, as opposed to an 18% arrest rate ... where police helicopters were not being used" (Marz, 2000, p. 8).

Columbus, Ohio 1972

In Columbus, Ohio in 1972, three helicopters were used for a test that lasted six months. The tests were to be conducted in Columbus' 15 precincts. Eight of the precincts were to have the helicopters on an "on call" basis (Whitehead , 2001, p. 14). The rest of the precincts are assumed to have constant patrol. The results, as given by the city of Columbus, were very good; however, the Canadian police research center (CPRC) results were a little more conservative based on their statistical analysis. Although both reports did show a deterrent effect created by the helicopter patrol. The results from CPRC were as follows: robberies decreased more in the comparison area (22.2%) than in the area that received helicopter patrols (8.6%); however, burglaries decreased more in the experimental area (17.2%) than in the comparison area (9.9%) and auto theft decreased (9.4%) in the experimental area while it was increasing (28.8%) in the comparison area (Whitehead , 2001, p. 15). The helicopter patrol did not show deterrence in robberies, however, it did show a significant deterrence in burglaries and especially in auto thefts.

Nashville, Tennessee 1978

In Nashville, TN in 1978 another study was conducted to examine what type of impact the helicopter patrol had on residential burglaries. The city was divided into 33 police zones and the Police Helicopters and Use 6 patrol chief decided on what zones were to be patrolled by air based on the number of burglaries per zone. The study was conducted in phases; there would be a 12 day patrol followed by an 18 day reset to baseline and then 12 more days of patrol followed by 18 more days to reset to baseline. The results of the patrols were: the baseline periods averaged 1.28 burglaries per day and the experimental periods 0.33 per day (Whitehead , 2001, p. 15).

Also worth noting, the average number of burglaries in the target zones was 2.8 per day and during the baseline periods averaged 1.28. This would appear to be a 54% decrease (Whitehead , 2001, p. 15).

Nashville, Tennessee 1980

Two years following the first study in Nashville, a second one was conducted. This time the target areas would be divided into high density areas and low density areas. The period of helicopter patrols in the high density areas were 9 and 10 days; the low density areas were 14 and 21 days. The report results were, "...the average number of burglaries per day decreased in the areas of high density, compared to the baseline and returned to baseline days, but that they, in fact, increased in the areas of low density... the deterrent value of helicopter patrols exists in high density areas, but not in low density areas" (Whitehead , 2001, p. 16). It would appear that once again in

Nashville, the helicopter patrols were effective in deterring crimes in the higher crime areas assuming that the high density areas were the higher crime areas.

England 1988

A study conducted by the Wiltshire Constabulary in England examined the aerial patrol on a cost effective scale as opposed to a crime deterrent scale. This study included fixed-wing (airplanes), rotor-wing (helicopters) and foot patrol officers. The study was to determine if aviation assets were cost effective. The following table illustrates the findings:

Search Party	Time to Search 1 Sq. Mile	Cost to Search 1 Sq. Mile
Bolkow 105 (helicopter)	12 minutes	\$105
Optica (fixed wing)	18 minutes	\$27
Islander (fixed wing)	22 minutes	\$77
Persons on Foot	454 hours	\$6946

Note. The cost is in British Pounds, today's conversion rate is 1 GBP = 1.83 USD.

Note. From "The Eye in the Sky: Evaluation of Police Helicopter Patrols," by P.C. Whitehead, 2001, TR-01-2001R, p. 17. Copyright 2001 by Canadian Police Research Centre. Adapted with permission.

This study indicates that helicopters are, in fact, an efficiently effective tool used for law enforcement. The largest efficiency is on saving manpower and time. Time can be very critical following a crime in the apprehension of a criminal. It could also be very critical in the search of a victim or in the role of a search and rescue mission. One of the greatest benefits that this study reveals is that the helicopter can be used to search an area with only two police officers onboard and thus relieve other officers to conduct their daily duties (Whitehead, 2001, p.17).

Effectiveness of Police Helicopters in Canada

In 1999 a study was completed at the University of Toronto. The emphasis of this study was to demonstrate the effectiveness of the police helicopter as a tool in deterring crime and helping police with their clearance rates (Marz, 2000, p. 2). The study was conducted in Calgary, Canada and used Edmonton, Canada as a comparison city. Both cities are approximately the same size but Calgary used a police helicopter to help with its patrols and Edmonton did not.

Before discussing the effectiveness of the police helicopter in Calgary, it is important to list a couple of fact findings. In 1968, "Operation Sky Night" was adapted to assist the New York City Police Department with night patrolling using a helicopter. A finding from the study conducted on "Operation Sky Night" found that crime decreased by 11% at night where the police helicopter was patrolling and also revealed that crime actually went up by 8% in areas where the police helicopter was not used (Marz, 2000, p. 7).

Another study was conducted by the National Aeronautics and Space Administration (NASA) in Los Angeles, CA and found that, "districts where police helicopters had patrolled regularly the incidents of robberies, automotive thefts and other types of thefts had decreased dramatically" (Marz, 2000, p. 8). It also concluded that when the police helicopter was used to assist ground officers, the apprehension rate went up to 40% as opposed to 18% (Marz, 2000, p. 8).

The objectives of the police helicopter are twofold, one is to assist the police officers on the ground when a crime has already occurred and the other is to deter crime from ever happening. In Calgary, Canada, the city purchased a McDonnell Douglas 520N NOTAR turbine powered helicopter to assist the police and apply the aforementioned objectives. A brief statement about the helicopter is that it comes equipped with forward looking infrared (FLIR), a Nightsun very powerful search light and the helicopter itself is built without a tail rotor which makes it much quieter. The advantages of a no-tail rotor (NOTAR) helicopter will be discussed later.

The typical response time of the helicopter was two minutes to be on scene assisting the ground officers. This was meeting the first the objective, the second objective was being met when it was noticed that some burglaries and break-ins were being conducted when ever the helicopter had to land for refuel. It would appear that the helicopter was in fact acting as a deterrent. The problem is the helicopter acting alone; left the city "vulnerable" when it landed for refuel. This could be solved by providing another helicopter and having it airborne when the other is refueling (Marz, 2000, p. 11). Having two helicopters not only provides a helicopter airborne when one is refueling but it also provides a greater chance of having a helicopter when the other is grounded for maintenance. Helicopters, unlike airplanes, need more maintenance because of their complex design. There are many more moving parts on a helicopter compared to an airplane and over time, these parts must be replaced or inspected. Also, helicopters are subjected to greater "dangerous" working environments such as unimproved fields for take-offs and landings or exposed to "bird strikes," the unintentional act of hitting a bird in flight, more often than their fixed-wing (airplane) counterparts.

Law enforcement units in the U.S. have reported that when response time is decreased from four to two minutes for crimes where a high probability of flight from the crime scene is most likely, then the probability of apprehension is increased by 100% (Marz, 2000, p. 12). In Calgary, the response time was about three minutes. During this same time, 1995 to 1996, the response time in Edmonton by ground vehicles was under fourteen minutes (Marz, 2000, p. 12). This is a large gap considering the lead that the suspect would have on the officers. Not only would the physical presence of the helicopter being on the crime scene prove beneficial but also having it there faster would allow the airborne officers to assess the situation and then call for back-up if needed or conserve the ground officers for the next call that is waiting.

Results from Canada

Having now discussed the importance of the police helicopter, the following results highlight the effectiveness of the police helicopter in Calgary, Canada. The results were gathered from Canada's Uniform Crime Reports (UCR) and compare Calgary (which has a police helicopter) to Edmonton which does not have a police helicopter (Marz, 2000, p. 22). The period used for comparison was from 1990 to 1994 (before Calgary bought the helicopter) and 1995 to 1997 (after Calgary bought the helicopter). The comparison is made by measuring the crime rates before and after the helicopter purchase. Comparison of Calgary to Edmonton Based on UCR Reports The trends in break and enter offenses decreased by 15% for Calgary and there was no change for Edmonton. However, the clearance rate was 4% higher in Calgary compared to Edmonton (Marz, 2000, p. 22).

The trends in motor vehicle theft were quite significant in Calgary compared to Edmonton. The trend of vehicle theft in Calgary decreased by 80% compared to an increase of 17% in Edmonton. There was no significance in clearance rates between both cities following the use of the helicopter; they both increased their clearance rates by about 50% (Marz, 2000, p. 23). The trend in robbery statistics for Calgary were decreased by 27% while Edmonton increased by 5%. The clearance rates for Calgary increased by 16% compared to Edmonton which only increased by 12%. What is also noteworthy is that while Calgary's robbery rates decreased by 27% when they added the helicopter, Canada's robbery rate as a whole only decreased by 1% during this same time (Marz, 2000, p. 24).

Comparison of Calgary to Edmonton Based on Crimes per 100,000 Population Scale.

The number of break and enter rates for Calgary decreased by 5% and increased by 31% for Edmonton. Although not a significant difference between the two cities, the clearance rate for Calgary went up 30% and 27% for Edmonton (Marz, 2000, p. 25).

The trend in motor vehicle theft rate decreased by 67% in Calgary and increased by 25% in Edmonton. However, the clearance rate for Calgary was only increased by 33% and 49% for Edmonton. It should be noted though that during this period Calgary's motor vehicle theft rate was 40% below national average (Marz, 2000, p. 26).

The trend for robbery rates decreased by 20% for Calgary and increased 9% for Edmonton. The clearance rate for Calgary was 20% higher and only 8% for Edmonton (Marz, 2000, p. 27).

The trend in municipal police departments in Calgary was only an increase in personnel by 1% and in Edmonton it increased by 18%. The population per police officer during this period was decreased by 4% for Calgary and an increase by 13% for Edmonton. What should be noted is that "Calgary has always had a significant higher population per police officer than Edmonton, even though Edmonton had a greater increase in its police personnel from 1996" (Marz, 2000, p. 31).

Based on UCR reports from Canada, the number break and entry rates between Calgary and Edmonton was a 12% difference. The difference in the number of motor vehicle thefts was 63% and the difference in robberies was 22%. With these significant differences between the two cities it can be assumed that the police helicopter made the difference.

Calgary maintained a significantly less number of police personnel compared to Edmonton, however, Calgary's crime rates had dropped significantly compared to Edmonton. Also, the clearance rates were higher for Calgary than that of Edmonton during the study. It can then be suggested that the police helicopter's use provided an apparent contribution to the police force in Calgary. It should also be considered hard to believe that these results could have happened without it being for the police helicopter.

Police Helicopters Making Pursuits Safer

When police officers get into high speed pursuits, this can provide for an extremely dangerous situation for the general public, the officers involved and the suspect. Many police departments have restrictions on high speed pursuits. For example, Baltimore has a discouragement policy for vehicle pursuits and Miami-Dade County has a policy to only chase violent felons (Alpert, 1998, p. 1). When police officers do not want to let fleeing suspects escape because of policies restricting them from pursuing suspects in their police vehicles, they can choose to call in a police helicopter to assist with the pursuit.

Normally, when a suspect starts to flee at a high speed, the police officer will slow down and turn off all emergency equipment; this leaves a strong probability of losing the suspect. If a helicopter unit is available, the officer will call for its assistance and stay in radio contact with the helicopter. While the helicopter is following the suspect, sometimes unbeknown to the suspect, the police officer in the ground vehicle is waiting for the opportunity to resume the chase and or make an arrest when the suspect stops. This is the case in Miami-Dade County and Baltimore, the two cities in which Alpert conducted his studies.

Most of the time, the helicopters will fall back and pursue the suspect passively, unless the suspect is driving erratically, running through intersections or endangering people. In any of these cases, the pilot or airborne observer may take one of the following actions: (1) communicate to the ground units that the

subject is accelerating, fleeing activity; (2) make the suspect aware of the helicopter's presence in hope that the suspect will cease fleeing; and (3) use the searchlight to illuminate the suspect's position during night pursuits (Alpert, 1998, p. 2).

The helicopters are not permitted to shine the spotlight into the fleeing suspect's eyes but instead use the spotlight to illuminate the suspect's vehicle and make it easier for other police on the ground to see the vehicle. Also, the spotlight serves to alert the general public of the danger and also illuminates the vehicle should its lights be turned off during the pursuit, avoiding detection. Not only do the helicopters of the two cities have very powerful spotlights but also radios, FLIR and cameras (Alpert, 1998, p. 2). With the use of all this equipment, the helicopter serves as an invaluable tool for officers in a pursuit.

The study by Alpert concluded that out 89 pursuits in Baltimore, there were 74 arrests made; that is an 83% success rate. The study also confirms that in Miami-Dade County, out of 43 pursuits conducted by a helicopter, there were 39 arrests made; that is a 91% success rate. The most common pursuit that a police helicopter was engaged in was that of a stolen vehicle and the second most common was that of a robbery (Alpert, 1998, p. 2). The following table indicates the effectiveness of the pursuit helicopter.

Pursuits Involving Helicopters

Site	Year	Number	Arrested	% Success
Baltimore	1995-1996	89	74	83
Miami-Dade	1996	43	39	91

Note. From "Helicopters in Pursuit Operations," by G.P. Alpert, 1998, Research in Action, NCJ 171695, p. 2. Adapted with permission.

There were many pursuits that didn't involve ground crews until the suspect had already left the fleeing vehicle (Alpert, 1998, p. 3), this would also allow the helicopter to provide its assistance even more by keeping an "airborne eye" on the suspect until the ground crews could make an arrest. As Alpert states, "...the data indicate that when a helicopter became involved in a pursuit, the most likely outcome was an arrest" (Alpert, 1998, p. 3).

During this study, a sample was taken of seven pursuits. Five of the pursuits resulted from stolen autos and six resulted in "bail-outs" (procedure that suspect use; they leave the vehicle and continue evasion on foot). The ground patrol units were able, in most cases, to turn off all emergency equipment and follow at a safe distance. The helicopter was able to continue following the suspects and report important information back to the ground officers like whether or not the suspect had a weapon. The information, as well as the continued surveillance that the helicopter crew was able to provide, was very helpful for public safety and led to the quick arrest of the suspects (Alpert, 1998, p. 3).

Probably one of the greatest technological advantages of the police helicopter is the helicopter itself. The aircraft provides one or two sets of eyes to see from an angle what ground police officers cannot. They can see around corners, see further down roads where suspects may be traveling, have greater fields of view, and see over obstacles that ground officers are limited by. The newer helicopters today have greater speeds and better "all weather" technology than older helicopters. Newer technology is allowing helicopters to fly faster and safer by advances in rotor blades and rotor systems. Along with technological advances in the helicopter itself, newer avionics (aviation electronics) are allowing helicopters to navigate safer in day and night time scenarios. Also, advancements like global positioning systems (GPS) are allowing helicopters to get on the scene where needed faster. This type of system would allow officers on the ground to call for assistance, give a street address, and the helicopter crews could pinpoint where the officer is and be overhead in a shorter amount of time.

Another advancement in helicopter technology is the no-tail rotor (NOTAR) system. All helicopters, with the exception of helicopters with more than one main rotor system, must have a tail rotor. The tail rotor allows controlled flight by providing anti-torque which opposes the main rotor system. The tail rotor system, although needed, provides most of the noise produced by helicopters and noise complaints are frequent with police agencies. Greater community support could be gained for police aviation units if the noise that they produced was decreased. The NOTAR system which is only on McDonnell Douglas Helicopters like the MD520N discussed earlier in Calgary, Canada is much quieter than those on conventional helicopters. NOTAR helicopters do not use a tail rotor; instead they use a pressurized tail boom to provide anti-torque for the helicopter. Because the helicopter doesn't have a tail rotor, it is much quieter than conventional helicopters thus being friendlier to the community and more of a surprise to suspects. The NOTAR helicopters are the quietest helicopters on the market today (Eurocopter, 2004, p. 1).

Along with advancements in helicopter technology, advancements in avionics have also been useful for ground officers. Equipment such as forward looking infrared (FLIR) can spot people based on their body heat. This could be very useful for suspects that retreat to woodland areas in order to evade capture or also assist ground units in searching for children who are lost or had been abducted. This could also provide use in searching for Alzheimer patients that may be wandering around in rural areas.

Other advances in technology include the night vision goggles (NVG). These devices use ambient light and amplify it over 10,000 times which allow aviators to see in the dark. This has made flying at low levels at night safer for helicopter crews and has also aided pilots/tactical flight officers (TFO) in searching for suspects in low lit areas. Although not a perfect system to make day out of night

in terms of vision it does, however, give the helicopter crews a greater advantage at night time.

Lastly, one great advantage that the helicopter has provided officers on the ground is the powerful "Night Sun" spotlights. This spotlight can serve by identifying a suspect hiding in the dark or illuminate an area for the ground officer's protection. It can also be used in pursuits to follow fleeing autos and provide an alert for civilian motorists about oncoming danger (Alpert, 1998, p. 2).

Conclusions

In accordance with Whitehead (2001, p. 95), "The operational benefits of the helicopter policing stem directly from the unique dimensions that it provides: aerial perspective, speed, mobility and ability to light and area. It facilitates many types of searches, saves time, adds to citizen and officer safety and increases apprehensions." Also according to Whitehead (2001, p. 92), it is claimed that there was a concern about noise complaints coming from the community in which the helicopter operated in and suggested that the helicopters operate at an altitude of 1000 feet or higher. This altitude could be too high to be effective and would be suggested that police departments turn to newer technology and purchase quieter helicopters like those equipped with NOTAR. This would allow the police to fly lower on the scenes for which they have been called to and should also allow them to fly in weather that has lower cloud ceilings. By having lower clouds, the police may not be able to fly at higher altitudes but with helicopters that are less noisy, pilots should be able to fly lower and not be of a nuisance to the community.

The results that came from Marz's (2000) study illustrated the fact that the police helicopter did indeed lower the crime rate in Calgary as compared to Edmonton and found the following:

Therefore based on this data, it can be stated that while Calgary was operating with fewer police personnel, Calgary still managed to surpass both Edmonton's actual number of offence reductions and Edmonton's increase in clearance rates where the three crimes were concerned. Hence, in view of this information, Calgary's pre-post reform differences (when compared to Edmonton) need to be regarded as more statistically significant because the police helicopter treatment effect must have been the cause why Calgary managed to produce such high pre-post differences in all the categories of crime. (p.32)

The results that were found in Marz's study cannot be discounted because her study based on two cities in Canada approximately the same size and in the same province had quite a significant difference in crime after the implementation of a police helicopter in Calgary.

The police helicopter has proven itself to be a remarkable tool in not only making dangerous pursuits safer but also contributing to an incredible apprehension rate. Police helicopters can provide a platform to observe, track and illuminate people or places on the ground (Alpert, 1998, p. 3). The police helicopter can be provided as an excellent backup for ground forces and also provide another perspective of the scene that the ground officers can't get (Alpert, 1998, p. 3). Police helicopters have made pursuits much safer in allowing ground units to slow down, turn off their emergency equipment and relieve some of the anxiety of the fleeing suspect which could in turn lead to a safer pursuit. However, as easy as the helicopter can be used to follow a fleeing suspect it can also be used as a "show of authority and a show of force" (Alpert, 1998, p. 3) which has the potential of reducing the drama in a tense situation. This would be a very useful tool in breaking up a riot that could become violent and uncontrollable in a short amount of time.

Police helicopters are not always credited with their usefulness, however, their usefulness has been very important to police departments. Helicopter operations can cost a police department millions of dollars which operate on a budget that is very tight; however, according to Lt. Scott Dunklee of Prince George County in Maryland, "Prince George's two helicopters responded to more than 4,000 calls in 2001 and were the first to arrive on the scene 80% of the time, with an average response time of 2 min[utes]" (Croft, 2002, p. 11). Croft also states, "Dunklee, the unit's commander, said teams were credited with more than 200 criminal arrests, the seizure of more than \$5 million in drugs and finding 54 stolen vehicles" (2001, p.11).

In Huntington Beach, CA, the HBPD found that, "its helicopters were 'first on the scene' 97 percent of the time in 2000, ... participated in 152 felony arrests, 406 misdemeanor arrests and 440 traffic citations" (Richfield, 2001, p. 45). Not only were the helicopters the first on the scene in most of the calls and assisting ground units but also, "...credited with breaking up 689 'potential crimes' while making possible the cancellation of 575 ground unit call-outs...[and] responded to 3,789 radio call in total last year... [and] on scene 808 times when no police cars were available...[and] usually within 60 seconds of the call" Richfield (2001, p. 45). It would be very difficult to rationalize the importance of the helicopter's contribution when comparing it to its accomplishments in Prince George County and Huntington Beach.

The helicopter has been verified effective in Calgary, Canada and has demonstrated its use in making policing safer in Baltimore and Miami-Dade. It has also illustrated its variety of techniques in which it can fight crime or be a very invaluable tool for police officers to use. Its only limitations in the future are that of the imaginations of the aviators who fly them.

References

Alpert, G. P. (1998). *Helicopters in Pursuit Operations* (NCJ 171695). Washington, DC: U.S. Government Printing Office. Retrieved October 13, 2004, from National Institute of Justice Web Site: <http://www.ncjrs.org/pdffiles/171695>

Croft, J. (2002, September 2). Aerial Policing: Training, Gadgetry and Gut Instinct. *Aviation Week and Space Technology*, 157, 10-11.

Eurocopter. (2004). *Actions for Fly Neighborly Proposals*.

Retrieved November 11, 2004, from MD Helicopters Web Site:
<http://www.mdhelicopters.com/rotorcraft/Models/EC%20%20HAI%20FN%20W%20Mar%2004%202004.png>

Marz, R.M. (2000). *Time-Series Analysis 1990-1997 The Impact of Police Helicopters on Criminal Behaviour and on Clearance Rates*. Unpublished thesis, University of Toronto, Toronto, Ontario, Canada.

Richfield, P. (2001, January). Flying Behind the Orange Curtain. *Business & Commercial Aviation*, 88, 44-45.

Whitehead, P. C. (2001 January 22). *The Eye in the Sky: Evaluation of the Police Helicopter*

Patrols (TR-01-2001R). Retrieved October 15, 2004 from <http://www.alea.org/members/restricted/studies/london.pdf>

ABLE Annual Statistics

FY 10/11 July 1 - January 31 (1500 Annual Flight Hours)

Vehicle Pursuit	Foot Pursuit	GTA	Fire	Call Out	Canceled Response	Initiated Arrests	Total Arrests	Initiated Response	Total Incidents
17	23	25	37	35	78	164	234	1192	1721

FY 09/10 (3000 Annual Flight Hours)

Vehicle Pursuit	Foot Pursuit	GTA	Fire	Call Out	Canceled Response	Initiated Arrests	Total Arrests	Initiated Response	Total Incidents
52	56	80	136	96	220	451	639	3566	5278

FY 08/09 (3000 Annual Flight Hours)

Vehicle Pursuit	Foot Pursuit	GTA	Fire	Call Out	Canceled Response	Initiated Arrests	Total Arrests	Initiated Response	Total Incidents
46	60	99	119	118	245	532	688	3582	5132

FY 07/08 (3000 Annual Flight Hours)

Vehicle Pursuit	Foot Pursuit	GTA	Fire	Call Out	Canceled Response	Initiated Arrests	Total Arrests	Initiated Response	Total Incidents
62	61	94	166	139	208	510	698	4005	5511

FY 06/07 (3000 Annual Flight Hours)

Vehicle Pursuit	Foot Pursuit	GTA	Fire	Call Out	Canceled Response	Initiated Arrests	Total Arrests	Initiated Response	Total Incidents
88	79	96	162	150	206	637	937	4084	5613