POLICE HELICOPTERS
Effectiveness, Cost & Crime Prevention

Police helicopters as an integral feature of modern policing is well accepted in some communities and a contentious issue in others. North American communities fall into three broad categories: those that have police helicopters; those that don't and are determined to stay that way; and those that do not have police helicopters, but have divided opinion as to whether there should be helicopters in their police services in the future. And in the latter, those opinions are often fiercely divided.

In 1999, London, Ontario was a community of about 300,000 population, with most of that population living in an area of about 100mi^2 (though the actual boundaries make it almost twice than large). Its police service obtained a number of grants and donations in order to fund the use of a police helicopter for one year to conduct a study of the contributions that a helicopter could make to a police service. I was commissioned to design and conduct the study. This is article provides an overview of some of the results from that research.

The London Police Helicopter Research Project set out to answer two broad questions: 1) do police helicopter patrols reduce rates of crime; and 2) does a police helicopter contribute to the operational effectiveness and/or efficiency of the police. A number of narrower questions (such as noise levels) were also addressed, but they pale in importance to the first two. The impact on rates of crime, efficiency and effectiveness were selected because they form the basis for some of the strongest arguments that are made in favour of a police helicopter service.

Police helicopters have been in use since 1929, when one was put into service by the New York City Police Department. Since that time, a number of other American cities have used helicopters and, more recently, a small number of Canadian cities have joined the list. Many large cities in North American still do not have police helicopters and this is true in Europe as well.

Previous Research

There is a body of systematic research on the effectiveness of police helicopters, though most of it was conducted prior to 1980. More recent reports of the utility of police helicopters have largely been testimonials about their performance on the part of police services. However, scientific information offers contradictory findings on the questions of whether helicopter patrols deter crime, and there are methodological difficulties with the design of some studies that lead to serious questions about the validity of their findings.

The London study is an initiative to improve upon past research on the questions of the impact on rates of crimes and evidence on operational efficiency and effectiveness.

Impact on Rates of Crime

Testing the impact on rates of crime within the city of London involved experimental areas with helicopter patrols, and control areas which did not receive the patrols. Changes in rates of crime in the two areas were compared before and after three month periods of patrols to determine whether changes in rates of crime could be attributed to the presence of helicopter patrols.

Based on past research, helicopter patrols are expected to have an impact on crimes such as: residential break and enter; commercial break and enter; theft from auto; auto theft; property damage; robbery; and suspicious persons.

There is no reason to expect that the rates of some of these types of occurrences are more likely to be affected than others, so the results must be examined principally in terms of what we learn from and examinations of all of them rather than from only one. This list of occurrences was selected at the beginning of the study rather than selected from among a broader array of statistics on crime at some later time.

The principal conclusion of the London study is that there is no impact of helicopter patrols on rates of crime. We found that rates of crime increase or decrease independently of whether police helicopter patrols are taking place. On the other hand, the results suggest that rates of commercial break and enter may be affected, but this needs to be tested in a future study focussed on this question.

Efficiency and Effectiveness

Three questions have been addressed with respect to whether police helicopters contribute to operational efficiency and effectiveness of the police. Is police time saved by having a police helicopter involved in an occurrence? Does a police helicopter increase effectiveness with respect to making apprehensions more likely? What is the monetary value of whatever efficiency or effectiveness there is?

Timing: All reports of the use of police helicopters make mention of the frequency with which it is first at the scene. It should be noted that such counts are only for those occurrences when the helicopter was available to be first on the scene, that is, not involved in another occurrence and already in the air. What really counts is whether being first on the scene translates into efficiency or effectiveness. Our study made a systematic attempt to measure some of these things rather than simply relying on whether the helicopter was first at the scene, which it was 56% of the time.

Efficiency: Two indicators of efficiency are used: 1) whether other police officers were called off because the officer in the helicopter was able to report that there was no occurrence or that it was cleared up or well in hand; and 2) whether the police helicopter had an impact on the amount of police time needed to deal with occurrences.

During the one year period of the study (1000 flight hours) a total of 106 officers were cancelled by the police helicopter, thereby leaving them available to respond to other occurrences. We estimated the time saved as 83 hours, based on the actual average amount of time spent per officer for that type of occurrence.

As a second measure of efficiency, we calculated the amount of police officer "down time" (not available to respond) associated with certain occurrences. We focussed on occurrences that either were "in progress" or had just happened. We then compared the average amount of police officer down time for such occurrences, when the helicopter was involved, with similar occurrences, and when the helicopter was not involved. We found a net savings of 12,136 police officer minutes (203 hours) on a total of 563 occurrences.

The greatest savings came on occurrences involving weapons, assisting the Fire Department, and break and enters.

Some types of occurrences had more police officer time devoted to them when the helicopter was involved, such as: disturbance; suspicious person; and suspicious vehicle. It is noteworthy that such occurrences are less specific than other types and the findings suggest that the search may have been abandoned earlier if there had not been the additional capability of the helicopter.

Effectiveness. To measure effectiveness, we examined whether occurrences were cleared by an apprehension. We compared occurrences that were "in progress" or "just occurred" in terms of whether the helicopter was involved or not. In general, apprehensions were much more likely to occur if the police helicopter was involved than for similar occurrences when the helicopter was not involved: assault 36% vs. 22%; weapons 46% vs. 13%; missing persons 28% vs. 2%; residential break and enter 29% vs. 6%. In addition, for the occurrences mentioned earlier, as reducing the net efficiency because more policing time was devoted to them, we find an increase in effectiveness. Apprehensions were more likely to occur with respect to the following: disturbance 25% vs. 13%; suspicious persons 33% vs. 5%; and suspicious vehicles 41% vs. 4%.

Cost Benefit Analysis

We estimated the monetary value of the operational efficiencies (officers cancelled and average down time) and effectiveness of the police helicopter. Details of the methods are available in a published paper. We estimate that the efficiency of the police helicopter produced savings in police time of 338 hours and that its effectiveness amounted to 1,320 hours in saved police officer and detective time to make the "excess" apprehensions attributable to the helicopter. We then translated these hours into financial units based on the actual cost of police and detective time for the City of London in 2001. The operational value of the savings comes to $90,014.

The one year cost of the helicopter (rental and operation) was $354,344. Therefore, the benefit of $90,014 is 23.4% of the cost.

We have estimated that in a situation of normal deployment, somewhat unlike the restrictions that were placed on its use due to the parameters imposed by the study, that the helicopter could have attended at more occurrences. Given what we now know about the types of occurrences where its efficiency and effectiveness are most likely to occur it would be possible to focus its deployment to a greater extent than was the case. The estimate is that the value of efficiency and effectiveness could reach $138,463 or 42% of the cost.

Three caveats need to be kept in mind. First, "apparent savings" only occur if there are other occurrences on which police time can be spent. Second, the dollar value of the savings may differ a bit from place to place and over time. Third, the percentage of cost saving is influenced by the cost of the helicopter. The equipment used in London was a Schweizer 300C piston helicopter, which is used by a number of other police services. Many communities, however, use larger and far more expensive helicopters. The dollar value of their apparent savings may be similar, but as a proportion of their cost it will be much smaller.

Conclusions

The London study reveals that police helicopter patrols probably do not reduce rates of crime, but that there are operational gains in terms of efficiency and effectiveness in the use of a police helicopter. These gains can be quantified and translated into their monetary value as well as compared to the cost of a police helicopter.

It must be noted that there are limitations associated with the use of such equipment in urban areas (such as noise) as well advantages (such as speed and safety in searching areas such as roof tops and railroad tracks). FL

Paul C. Whitehead, Ph.D is a professor with the Department of Sociology at the University of Western Ontario. He can be reached at Paulcw@uwo.ca

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Results of the study are presented in greater detail in the following papers by Paul C. Whitehead: *The Eye in the Sky: Evaluation of Police Helicopter Patrols, The London Police Service Helicopter Research Project* and *Operational Value of Police Helicopters: A Cost-Benefit Analysis.*