



Fixed-Wing Advantages: Technology Adds To Aerial Platform

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Picture this. A class of new pilots and tactical flight officers sit intently watching an infrared video taken by an aircrew. The video shows the aircrew leading ground officers to a dumpster where shooting suspects are hiding. It shows the team leading the ground officers to where a gun was tossed under a car by one of the suspects.

One observant student who knows how to read the display on the camera notices the aircraft is at 6,000 feet and 2 miles from the scene. The student asks, “why was the helicopter so high and far away?”

The answer? This video was not taken by a helicopter but by an airplane. Despite the perception airplanes are used only for transporting people and long, drawn-out surveillances, these days they are also capable of effectively handling active crimes in progress.

How is it possible that an airplane can carry out missions that in the past were reserved for helicopters? The answer is technology. Over the past 10 years, research developments have allowed airplanes to be equipped with devices to see, map and downlink from higher altitudes and from farther distances than ever before. Oftentimes, the airplane is so high and far away, the bad guys don't even know they are being watched. Yet, the quality of the imaging system allows the flight crew to see unprecedented detail.

Fixed-Wing Law Enforcement History

Police started using airplanes as early as 1918. At the time, the *New York Times* quoted Major Walter Fairchild, an official in charge of training the first police aviators for the New York Police Department, on the benefits of fixed-wing platforms.



Even back in 1918, Major Walter Fairchild saw the force-multiplier potential of airplanes for police work.

“Even those engaged in organizing the school cannot calculate how far the system may extend,” he said. “There will be many branches of police aviation. There is a possibility of the use of airplanes in seeking river thieves. Every year, millions of dollars worth of merchandise is stolen, and a few airplanes scouting overhead would be able to do more than the same number of motorboats. The scouting airplane will also be armed to prevent the escape of thieves.”

Even in 1918, Fairchild predicted the force-multiplier potential of airplanes for police work, and we've come a long way since then.

An Objective Comparison

An airplane cannot replace a helicopter, as there are some missions that only a helicopter can complete; however, if you consider the capabilities of a properly equipped fixed-wing aircraft, it is hard to dispute the economics. Fixed-wing platforms are simply less expensive to purchase and operate.

Airborne law enforcement units in California using airplanes and helicopters in the same unit have shown the two aircraft actually work quite well together. For example, the airplane may be overhead at 6,000 feet focusing on an area where suspects are likely to be hiding. The airplane crew may ask the helicopter crew to shine its spotlight on an area away from where the fixed-wing is searching. The helicopter can then be asked to fly away, causing the suspects to pop up from their hiding spot and allowing the airplane to find them. The airplane can be positioned high enough to escape notice. If suspects do detect the aircraft, they are unlikely to think it is a law enforcement vehicle.

Airplanes equipped with a high-powered, high-definition (HD), infrared imaging system are also excellent for search and rescue operations. The airplane can conduct an effective search for victims while working with a helicopter, which can then go in for the rescue.

Once again, technology is what allows an aircraft to be positioned at 6,000 to 8,000





feet yet still see a suspect toss a gun. How do I know this? Because the scenario presented actually happened, and there is video to prove it.

For many law enforcement units, it is difficult to overcome the helicopter-centric culture that has evolved. This culture often has the mentality that, “we are cops, and we use helicopters because that is the way it is.” But an objective look at the differences between the platforms shows the financial and tactical benefits of integrating fixed-wing aircraft into your fleet. Even those who have flown several thousand hours in helicopters on law enforcement, rescue and medevac missions (like myself) cannot ignore the benefits of a fixed-wing aircraft, including:

- Lower acquisition and operating costs.
- Longer loiter times.
- Double duty as personnel and equipment transport.

Selecting a Fixed-Wing Solution

What’s your budget? This will determine the aircraft and equipment package best suited to your agency. The good news is that even a department on a tight budget has airplane options available.

Let’s take a look at what you can get in terms of a fully-capable mission package on an airplane. Because the airplane is a vehicle for putting the best law enforcement equipment available to use, you’ll want to get the best technology you can afford. Be prepared to spend as much or more for the equipment than the aircraft itself.

For example, the base price of a single-engine turbine airplane averages around \$2 million; however, a 15-inch imaging system, moving map system, monitors, law enforcement radios, digital audio panels, satellite phone, aircraft tracking, microwave downlink, public address system and integration costs can add another \$1 million to \$2 million to the base price. Fully equipped on the high end, you may be looking at a \$3 million to \$4 million acquisition cost for a brand new aircraft with the latest and greatest equipment package. On the lower end, single-engine piston packages are available fully equipped in the \$800,000 to \$2 million range. Lower cost options are available in the \$300,000 to

\$700,000 range, still equipped with the latest law enforcement technology packages.

Consider that the direct operating costs of these fixed-wing aircraft are considerably less than a comparable helicopter. Even a high-end single-engine turbine airplane can operate for about half the cost of a turbine helicopter. A piston airplane can operate for about one-fourth the cost of a turbine helicopter.

Following are some fixed-wing aerial platforms to consider. This list is not all-inclusive, but rather intended to give you some ideas:

Large budget: Consider a turbine-powered Pilatus PC-6 or PC-12, Quest Kodiak or Cessna Caravan with the latest technology package installed, such as a 15-inch imaging system and moving map.

Medium to large budget: Consider a fully equipped Gipps Aero GA-8 Airvan, Diamond DA-42 MPP or Vulcanair P-68 with a 15-inch imaging system and moving map.

Medium budget: Look at a capable Cessna 182 or Cessna 206 equipped with a 9- or 10-inch imaging system and the latest moving map technology.

Low budget: Consider a light sport aircraft with less expensive imaging and mapping systems. While this less expensive option will give you some capabilities, there will be more limitations on what you can accomplish. For example, a light sport aircraft will have less weight capacity, a smaller cabin and less fuel endurance compared to larger, more expensive options. The smaller imaging system, while still yielding useful images, will not offer the detail of a more expensive system.

Imaging Before Aircraft

My recommendation is to purchase the best imaging system your agency can afford



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and then decide what aircraft can best carry it. The better the quality of the imaging system, the more effective you will be.

Some would point out you could simply purchase a base aircraft and equip it with a capable crew with a good pair of image-stabilized binoculars. That is, after all, how we have done business in airplanes for many years. While this setup can be effective, a modern imaging system is unmatched in its capabilities. To illustrate this point, the following statistics represent the activity of one



airplane equipped with a 15-inch imaging system operating over a metropolitan area in California for a recent one-year period:

- Felony arrests: 349
- Misdemeanor arrests: 154
- Pursuits: 202
- Searches: 1,686
- Officer backups: 695

■ Infrared missions: 1,324

These stats show arrests and pursuits where, in most cases, the presence of the airplane overhead was directly responsible for finding the suspects. These stats are backed up by video of the arrests and pursuits, and they are impressive—even for helicopter guys like me. 

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