

# Affordable Aviation: No Longer an Oxymoron!

By Tim Adelman, Sheriff's Association of Texas Project Manager

Imagine explaining to your Sheriff or Chief that you could start an aviation program and it would be affordable. Well, that is exactly what the Sheriffs' Association of Texas (SAT) is evaluating. SAT is participating in a new program sponsored by the United States Department of Justice's Office of Science and Technology. In a cooperative agreement with the Operational Technologies Division of the Department of Justice, SAT is working with numerous agencies across the country to explore the use of light sport aircraft (LSA) and unmanned aircraft systems (UAS).

The light sport aircraft being evaluated include powered parachutes and fixed wing aircraft, such as the Sky Arrow 600 Sport, Flight Design CTSW and Rans S-6. The powered parachutes range in price from \$11,500 to \$28,000 and the fixed-wing aircraft range in price from \$50,000 to \$115,000. The real advantage on these aircraft is the operating cost. Most of the LSAs use the Rotax 912 (100hp) engine that burns 4.5 gph of automotive or aviation gasoline. Program participants are seeing hourly operating cost near \$30 per hour which includes fuel, maintenance reserve and engine reserve.

Many of the LSA cruise between 100-120 knots and have stalls speeds as low as 28 knots. In order to qualify as a light sport aircraft, it must have a maximum of two occupants and a gross weight of 1,320 pounds. With most of these planes weighing between 600-800 pounds, the useful loads are as high as 480 pounds with four hours of fuel. The fact that LSAs have relatively simple systems, no constant speed propellers or retractable gear, make them easy to learn to fly.

While these aircraft are easier to fly and more affordable, they are still very sophisticated. For example, the Sky Arrow is a carbon composite Kevlar reinforced airframe. It has a GPS with weather reporting capabilities, transponder, radio, and electric flaps and trim. SAT has explored the use of lightweight cameras and FLIR. In fact, SAT is currently testing a digital video camera that affixes to the wheel strut. The camera has a wireless LCD monitor operated by the observer. The observer is able to pan/tilt/zoom the camera. In addition, the camera feed is relayed real time to the ground.

To date, the program has over ten agencies participating and many more looking to participate. The participating agencies have used the aircraft for search and rescue, searches for illegal drug operations, patrolling the Texas border and surveying critical infrastructure.

Sheriff Thomas in McMullen County, Texas has been using a powered parachute for the past six months. He says the aircraft has already begun to pay off. During training flights over McMullen County, he has located several

staging areas for human smuggling activities. Sheriff Thomas believes the ability to observe his area of responsibility from the air will serve as a force multiplier and ultimately reduce the response time for surveillance and search and rescue operations by his limited staff.

In addition to testing manned aircraft, SAT is investigating the use of UASs. As you may already know, UAS use has been controversial. Many UASs can be operated with very little training, but that does not necessarily mean they are operated in a safe manner. UAS operators not only need to understand how to fly their craft, but also be aware of various airspace and FAA regulations, communication procedures and the limitations of their systems.

Many agencies are enamored with the idea of “eyes in the sky” for less than \$30,000. However, the \$30,000 price is only cost effective if you are able to get many missions out of the same unit. The military has been testing UASs extensively and are discovering numerous glitches, such as the signal to the aircraft being walked on or payload electronics interfering with lost-link procedures. Anyone of these glitches can mean a totaled unit.

UASs are an exciting new technology that should play a significant role in law enforcement. However, there are steps that must be taken before that can happen. SAT is working with the DOJ and the FAA to draft regulations for the operation of very small UASs by law enforcement. Hopefully, these proposals will soon allow law enforcement agencies to use UASs weighing less than four pounds.

With the positive results to date, SAT is optimistic that safe, low cost aviation alternatives are now available for law enforcement duty. While there are over 19,000 law enforcement agencies in the United States, many lack an aviation capability. The Aviation Technology Program works diligently to discover new affordable technologies for those agencies with limited resources.

Editor’s Note: This article is meant to present a number of alternative aircraft being evaluated for airborne law enforcement. For more information on the Aviation Technology Program, please contact Tim Adelman at [tim@txsheriffs.org](mailto:tim@txsheriffs.org).