UAS OPERATIONS MOST FREQUENTLY ASKED QUESTIONS

What is a "Drone"?

--- A drone is a term used by the media, to describe a remotely piloted aircraft also known as an unmanned aerial system or "UAS." The word drone comes from the 1970's when the military used to make radio controlled airplanes for target and practice shooting. In an attempt to better describe what we do, we prefer a more descriptive term—***Unmanned Aircraft System or "UAS."***

How do they work?

--- Unmanned aircraft use an autopilot that flies the aircraft while the operator on the ground uploads navigational information. The autopilot maintains stable flight using micro sized sensors, primarily developed for use in Smartphones, powered by Lithium Polymer batteries.

How many UAVs do you have?

--- Two systems. The first is a Draganflyer X6 helicopter that weighs just about two pounds. The second unit is a Falcon UAV, a small airplane that weighs about nine pounds and is launched into the air off of the shoulder (much like throwing a football).

What kinds of UAS are available to Law Enforcement?

--- There are many types, but in reality, the type used by the military are not practical for law enforcement purposes and are also cost prohibitive. Our agency is using UAS in place of manned aviation when appropriate, because of cost. However, for certain missions manned aircraft remains the most practical option.

Do other Law Enforcement Agencies have or use UAS too?

--- Not many law enforcement agencies are currently using UAS. Of the 19,000 agencies in the United States, we estimate less than ten agencies are actively pursuing and/or utilizing UAS.

How do we use UAS?

--- We most often use it for crime scene photography, and search and rescue missions. With aerial crime scene photography we can build three dimensional models useful for investigators, prosecutors and juries. In search and rescue missions, aerial views can be enhanced with the use of infrared technology, which provides a better view for anything with a heat signature. While less frequently used, we have used the system to attempt to locate dangerous fugitives in wooded areas and assisted arson investigators in identifying heat sources on structure fires.

How often do we use UAS?

--- Our first mission was in October of 2008 and we've flown just over 82 missions since then, not including training flights.

How much do they cost?

--- We've spent less than $25,000.00, on our entire program. As one of the first public safety agencies in the United States to explore this technology we have had the opportunity to Beta test our systems for little or no money. However, the retail price would be in the range of $25,000.00 to $50,000.00, per system. Actual operating cost(s), at this time are low for our agency, but in order to project long term operating cost to include replacement parts, batteries, etc., we have projected $25.00 an hour for operating cost (as a reasonable rate). In contrast, manned aviation can cost hundreds to thousands of dollars per hour. ***We feel this one fact is the largest driver behind utilizing UAS.***

What restrictions are in place to protect citizen's civil liberties and privacy concerns?

---– Historically, law enforcement has had the ability to have an aerial view with manned aircraft for many decades. As a result, case law has been established that guides our use and there is no effort here to use UAS to circumvent well established 4th Amendment protections. The technology in these civilian systems is appropriately limited. For example, our equipment does not allow us to see through walls, listen to conversations, monitor cell phone, etc. Our unmanned systems are mission and incident driven only. Images collected with the use of this technology are handled and retained within industry standards, consistent with images collected with any camera by law enforcement, and are subject to professional standards, codes of conduct, case law and ***with the public's trust in mind***.

Can you legally fly over my backyard and do you need a warrant?

--- Yes, we can legally fly our UAS over your backyard with the same guidelines used by manned aviation applying. However, if the subject of a search is your backyard, in the course of an investigation, we have taken the position as an agency to seek a warrant or consent from the property owner, until case law specific to UAS, can be established.

Do your systems carry weapons?

--- No. In our experience, and opinion, there is no use for weapons and UAS in civilian law enforcement.

Can your UAVs be hacked with the controls taken over?

--- No. The data that travels through the air is encrypted. In addition, safe guards are in place that if the technology fails, the aircraft slowly descends to the ground or returns to its launch site autonomously.

Can the Mesa County Sheriff's Office be hired by local residents to fly our system(s) for commercial use?

--- No. This would violate our flight approvals from the Federal Aviation Administration.

What is driving the use of UAS in law enforcement?

--- Thus far, UAS has demonstrated to be a practical, cost effective alternative to manned aviation. We have identified two core missions as crime scene photography, and search and rescue. However, the primary driving factor is the fact that these systems cost us just $25.00 per hour to operate as compared to $400.00 to $1,200.00 an hour for manned aviation. We have hired helicopters in the past for search and rescue missions, and paid $650.00 an hour.

Do you have Policy and Procedures or other guidance documents you operate under?

--- Yes, as is recommended with any tool used by law enforcement, use of a UAV is within the guidelines of a robust policy.

What training do your pilots have?

--- Our operators have received training from the manufacturer of each system, as well as instruction from our experienced instructional staff. However, the Federal Aviation Administration has not released any guidelines for operator certification for UAS, thus our current curriculum has been developed in-house. We are actively and directly working with the FAA to develop a standardized basic UAS operations course, which will become required training for all UAS operators at the Mesa County Sheriff's Office. Our operators also have a training schedule requiring them to maintain flight time and proficiency on our systems.

Do you have flight approval to operate UAS or is it required?

--- Yes, flight approval is required and the Mesa County Sheriff's Office has been granted flight approval by the Federal Aviation Administration to fly anywhere inside Mesa County, Colorado, daytime, no higher than 400 feet above the ground without flying any closer than five miles to the Grand Junction Regional Airport. The official document is referred to as a Certificate of Authorization/Waiver. It is the approval process by which the Federal Aviation Administration allows for public agencies (divisions of government) to operate UAS in the national airspace given there are no current regulations in place for UAS operations. For more information as to the Certificate of Authorization process please contact Dave Morton with the Federal Aviation Administration at david.morton@faa.gov.

What are the rules governing the use of unmanned systems in Mesa County?

--- To fly legally any public agency in the United States must obtain a Certificate of Authorization/Waiver (COA). This certificate comes after a significantly invasive process whereby the FAA evaluates everything from the training and medical condition of your UAS pilot to the specific system and airspace you can fly in. Along with providing numerous safety procedures addressing UAS operations, any agency is required to do an assessment of the airworthiness of the specific system they intend to fly.

Can citizens buy their own unmanned aerial system and fly them?

--- Yes. In fact, as long as the use is for recreation the requirements are far less strict than for civilian law enforcement. The use of UAS for monetary gain is prohibited given the lack of any specific regulation from the FAA. However, the use of UAS for monetary gain is widespread. For example, the real estate industry, aerial video production, survey and agriculture are commercial uses currently utilizing UAS. There are an estimated 50,000 UAS users in the United States.

What will be the economic impacts of using UAS in the United States?

--- It is projected that in the first three years of integration into the National Airspace more than 70,000 jobs will be created in the United States with an economic impact of more than $13.6 billion. This benefit will grow through 2025 when more than 100,000 jobs are created and economic impact of $82 billion. More specifically, as the Mesa County Sheriff's Office has had the opportunity to build a professional, publicly trusted and accepted UAS program. Mesa County has UAS experience and is an attractive location to UAS industry as a result of that experience. This will play a key role in attracting a piece of the billions of potential economic impact as a result.

Members of the UAS team have been invited to both the Colorado State Capitol and Washington, D.C., to speak to members of government, as well as numerous speaking engagements throughout the country as to the benefits of small UAS. This, as well as numerous national and international media highlights (National Geographic, TIME Magazine, NBC Nightly News, FOX, CNN) have made our program very visible to the public. This will be an advantage in attracting UAS business to Mesa County, and diversifying our local economy.