

Managing the Best Acquisition Program in the Army — This Is Where It All Happens

COL Don Hazelwood

In 1999, one Hunter system was sent to support U.S. troops in the Balkans, becoming the first Army Unmanned Aircraft System (UAS) to support real-world operations. A year later, the UAS Project Office (PO) consisted of 70 people with an annual budget of \$60 million. Today, the PO manages more than \$1 billion annually and there are over 1,000 unmanned aircraft deployed supporting the global war on terrorism. In 1 month alone, Army unmanned aircraft flew more than 12,000 flight hours in support of *Operations Enduring and Iraqi Freedom (OEF/OIF)* — more flight hours than any other Army aviation platform. This exponential increase in demand has challenged Program Executive Officer (PEO) for Aviation Paul Bogosian to reassess how the UAS PO can best meet current and future UAS warfighter requirements.

A Shadow UAS launches from Jalalabad Airfield, Afghanistan, April 27, 2007. The Shadow is being used by the 82nd Airborne Division to perform critical reconnaissance missions in support of *OEF*. (U.S. Army photo by SGT Amber Robinson.)

UAS Concept of Operations has changed significantly since its early days in the Balkans to the high operations tempo (OPTEMPO) being experienced during *OEF/OIF* today. The immediate growth in flight hours is easily traced to the increased number of helicopters shot down from December 2006 through February 2007 and the current surge of counterinsurgent operations in Iraq. The insurgents sabotage and loiter around supply routes and oil pipelines. They know we will be patrolling those areas and they wait to shoot at our manned aircraft. Accordingly, the Army has shifted a lot of the surveillance work from manned aircraft to UAS. This shift takes our aviation crew members out of immediate danger and reduces flight hour costs.

UAS have fundamentally changed the way we fight. The Soldiers in theater consistently state, "We don't go out the gate without our UAS." Whether using UAS for route reconnaissance, reconnaissance on the march or persistent reconnaissance of the objective for 36 to 48 hours in advance of an action, our Soldiers are relying on their UAS for intelligence. The insurgents also recognize the importance of manned and unmanned aircraft to our security and intelligence capabilities making all aircraft increasingly high-value targets.

While the preceding explains the recent surge in unmanned aircraft flight hours, sustained OPTEMPO for Army UAS is directly attributable to two key factors:

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- Proliferation of UAS to all Army echelons.

- Overall dollar investment in UAS technologies that are being rapidly transitioned to systems and immediately fielded to warfighters.

Figure 1 graphically shows how the UAS community has only seen the tip of the iceberg with respect to how many more missions UAS will be accomplishing in the future.

Supporting the Warfight and Preparing for the Future

The UAS PO has established the following strategic plans to meet current operations requirements OPTEMPO (shown above the surface) while keeping what's below the surface in focus. Particular areas of emphasis in the future include:

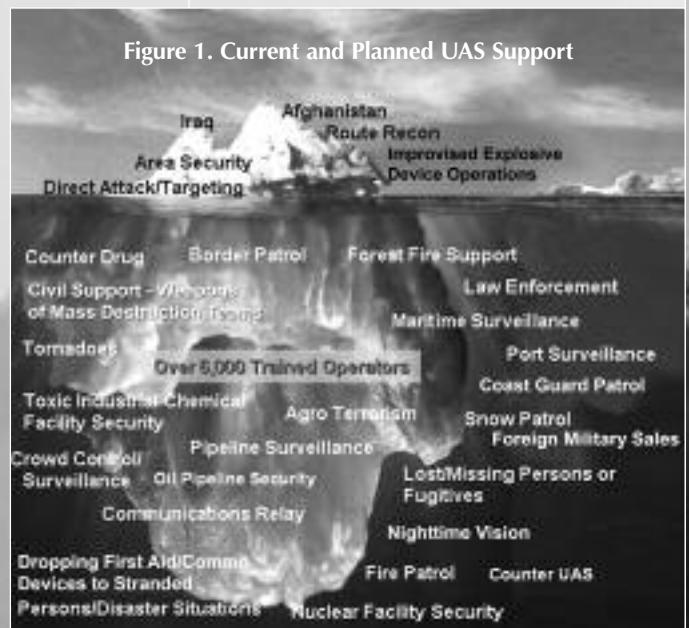
- Continue to focus on surge support to *OEF/OIF* combatant commanders and their Soldiers — ceaseless support to the warfighter.
- Safety/risk mitigation.
- File and fly in national airspace (NAS).
- Integrated logistics and total ownership cost reduction across UAS life cycles.
- Technology mapping.
- Counter and counter-counter UAS initiatives.

There are many things that compete for our attention as materiel developers. However, we must always keep

meeting the needs of our Soldiers first. This is true in peacetime, but absolutely required when the Nation is at war. If the focus is always on Soldier requirements, then cost, schedule and performance will fall into place.

Over the past year, the UAS PO reduced accidents by 64 percent. This significant reduction is a result of instilling an aviation discipline and culture that led to identifying a hierarchy of UAS failure modes. The PO then began instituting initiatives to reduce or eliminate those failures. Operators are better trained because their ground school training is now Federal Aviation Administration certified. All UAS units now have checklists for flight and maintenance operations. All new aircraft must undergo the rigors of airworthiness certification. UAS are currently down to 59 mishaps per 100,000 flying hours and will achieve another marked improvement in safety with the introduction of a heavy fuel engine and an airworthy fuel system. UAS are on track to achieve certified safety levels commensurate with the rest of Army aviation within 2 years.

With the proliferation of UAS and their associated operators, there is an



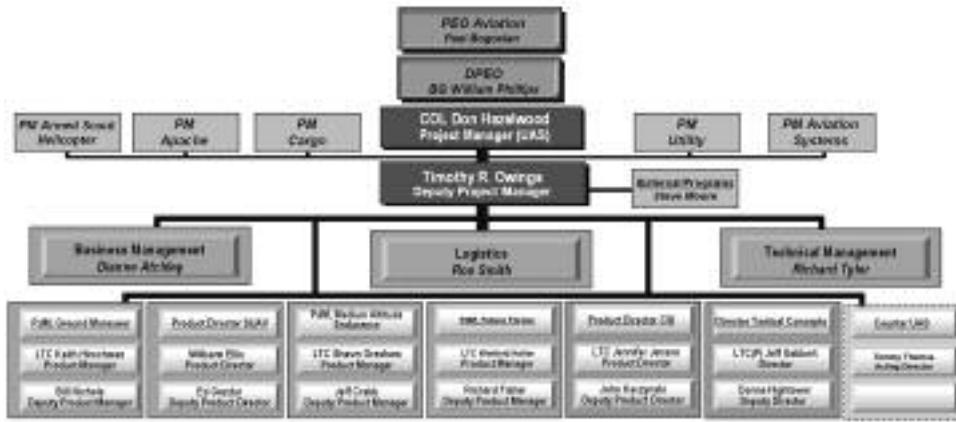


Figure 2. UAS Organization

The UAS PO's strategic plans were established to ensure that Soldiers' future needs are not just met, but greatly exceeded. Supporting those plans is an organization committed to excellence and organized for battle.

Structured for Success

To meet the explosive growth requirements of the past 7 years, the UAS PO has restructured to meet the immediate warfighting needs in Iraq and Afghanistan and to position the Army's UAS assets for the dynamic road ahead. The Army has made a single project manager responsible for the development, integration, acquisition and logistics support for the entire Army UAS fleet. The UAS PO manages the six product offices discussed below and illustrated in Figure 2.

Small Unmanned Aerial Vehicle (SUAV)

SUAV Product Director (PD) William Ellis is responsible for the SUAV program that was first fielded in October 2003 to meet urgent wartime requirements. He also manages the Raven RQ-11B SUAV Program of Record. The SUAV achieved a tremendous materiel development feat by going from program inception to a Full Rate Production decision in less than 15 months. Currently, more than 300 Raven systems are in theater with over 23,000 accumulated operational flight hours.

Product Manager for Ground Maneuver (PM GM)

PM GM LTC Keith Hirschman is responsible for managing the Army's Brigade UAS, the RQ-7B Shadow. This system has become the fastest growing Army aviation program in Iraq. As many as 21 systems have been deployed to support *OEF/OIF* at any given time, and accumulated more than 150,000 operational combat flight hours. Shadow is so essential to Soldier mission

ever increasing need to fly in NAS, whether for currency training or emergency situations such as homeland security, search and rescue or threatening weather. As warfighters return to their home stations from *OEF/OIF*, they will need to continue operating the systems in order to retain their proficiency. Many UAS units are part of the National Guard and do not have immediate access to restricted airspace. Retaining proficiency for these Soldiers and conducting the missions depicted below the surface of the iceberg require lifting NAS restrictions.

tactics discussed are from 2 years ago. Warfighter demands and technology maturation must continue to meet those needs. Current UAS PO technology requirements include the following:

- Firefinding, battle tracking and counter-fire.
- Onboard video processing/video compression.
- Sense and avoid.
- Electrical and hybrid propulsion.
- Foliage penetration.
- UAV-specific weaponization.
- Counter-camouflage.
- Non-lethals.

The UAS community is changing rapidly due to technology, advanced payloads, new propulsion systems and advances in system safety and survivability. The pace of technology advancement and the growing demand for UAS support will continue to outpace our ability to develop new training and doctrine. UAS are included in many Programs of Instruction for the first time this year, but the

- Anti-radiation missiles for network and counter-UAS.
- Signatures and survivability.
- Aero-efficiency.
- Adverse weather operations.
- Performance in NAS.
- Signals intelligence and Synthetic Aperture Radar.

SGT Dane Phelps, 2nd Battalion, 27th Infantry Regiment, launches a Raven UAS during a joint U.S./Iraqi cordon and search operation in the Hawijah district, Kirkuk, Iraq. (U.S. Army photo by SFC Michael T. Guillory, 982nd Signal Co. (Combat Camera).)

The Hunter has accumulated more than 20,000 operational flight hours in support of *OFI/OIF*. Here, an RQ-5A Hunter UAS supports ground operations in Afghanistan. (U.S. Army file photo.)



accomplishment that it is being used at 6 to 10 times the planned OPTEMPO.

PM Medium Altitude Endurance UAS, Extended Range/Multi-Purpose (ER/MP)

LTC Shawn Gresham's ER/MP program is in the System Development and Demonstration phase and is the first Army UAS designed from inception to be weaponized to gain the final significant reduction in sensor-to-shooter time lags or kill chain. Currently, once UAS operators identify a target, they can continue to track that target for hours while waiting for ground forces or armed aircraft to engage the target(s). With ER/MP, the kill chain can be reduced to a few seconds.

PM Future Forces UAS

LTC Winfield Keller manages the Army transformation efforts on all Future Combat Systems (FCS) UAS fleet

classes. Current emphasis is on the Micro-Air Vehicle (MAV), a surrogate Class I UAS, and the MQ8B Fire Scout, the Class IV UAS. Both systems are currently in development.

Common Systems Integration (CSI) PO

Established in February 2006, PD LTC Jennifer Jensen is challenged to increase Joint interoperability/commonality across the UAS PO programs through horizontal integration. Recent successes include the fielding of the One System Ground Control Station (OSGCS) and the One System Remote Video Terminal (OSRVT). The OSGCS has a common hardware and software architecture to control an air vehicle (AV) (one at a time) from many types of UAS rather than each type requiring a unique GCS to control its AV. The OSRVT has a common hardware and software architec-

ture that enhances situational awareness by providing near-real-time video and telemetry data from the AV to multiple manned and unmanned platforms.

Tactical Concepts PO

Established in June 2006, PD LTC Jeffrey Gabbert is responsible for providing corps- and division-level commanders with legacy UAS, which currently consists of the Hunter and Warrior "A" UAS programs. The Hunter has been used extensively in theater with more than 20,000 accumulated operational flight hours. The Warrior A UAS is currently filling the capability gap in theater until the ER/MP system is fielded in 2009.

The UAS PO's breadth of support is far wider than just the Army and fully supports Joint interoperability. It has truly become the DOD Materiel Center of Excellence for all UAS. The PO has procured Ravens and Shadows for the U.S. Marine Corps, Ravens for the U.S. Air Force and is currently working with the U.S. Navy for procurement of Shadow to replace their Pioneer UAS. UAS PO is fulfilling its mission for providing DOD with world-class UAS that are interoperable with Joint and coalition partners, common with other Army systems and affordable through excellence in program management. From the Balkans to *OFI/OIF* and into the future, the UAS PO is ready to meet our American Soldiers' requirements as warfighters, first responders and defenders of our Nation. The sky is truly the limit for future UAS.

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A Soldier prepares to launch an MAV from the airfield at FOB Anaconda, Afghanistan, to scout enemy movement in the vicinity. MAV is a key ongoing FCS UAS initiative. (U.S. Army photo by SGT Andre Reynolds, 55th Signal Co. (Combat Camera).)