Office of Aviation Services (OAS)
Briefing Paper – For Information

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Issue/Topic

The Problems with Predators for DOI

Key Messages

- DOI's UAS program is a leader in domestic UAS space, recognized by industry, WH, others.
- DOI UAS program leveraged business startup best practices; 2006-present, second to only DOD in size/scope/reputation. Developed with **zero** additional OAS staff/funding.
- DOI's UAS program is a **finalist** from among 400 entries for a 2018 Samuel J Heyman Service to America Medal from the Partnership for Public Service (Close Hold until 7 May announcement).
- DOI's UAS program enjoys a high reputation across government. Currently, Customs and Border Protection, Army Corps of Engineers, National Guard Bureau, Oregon Department of Forestry, the District of Columbia, Naval Sea Systems Command, and others have reached out to OAS for assistance in developing similar UAS programs in their organizations. DOD's Innovation Unit Experimental (DIUx) chose OAS as their excluseive "trusted agent" for the testing of a potential fix to a documented cyber security issue with a large COTS UAS company.
- OAS leveraged ~$25M in excess DOD sUAS (zero cost) in 25+ operational test and evaluation applications to hone strategy/mission/system/sensor requirements. Findings:
  - Demil/repurpose cost far greater than commercial off-the-shelf (COTS) equipment.
  - DOD UAS spectrum authorization difficult, time consuming, incompatible for DOI ops.
  - DOD sUAS lacked the sensor resolution and sensor versatility required for DOI missions.
  - DOD sUAS over engineered in areas of no concern to DOI operations.
  - DOD sUAS built for a different mission and area of responsibility (AOR) where concerns for civilian safety, privacy, civil rights, civil liberties, and interference with civilian/commercial radio frequencies is less or non-existent. Most coming to DOI from DOD do not get this.
- Early in forming DOI's UAS Integration Strategy, challenges with "runway-dependent UAS in a CONUS environment informed a decision toward "runway independence."
- Runway dependent UAS issues include National Airspace System (NAS) integration, public acceptance of UAS flying from airports, infrastructure costs, and response time.
- FAA approval for on-demand large scale UAS in the NAS is still years away.
- UAS like Predator put one sensor over one location at high cost. Distributed low cost COTS UAS = many sensors over a larger area at a lower cost.
- **$1.2M** cost of **433** DOI purchased COTS sUAS **<** cost of many single DOI manned aircraft.
- A 2014 DHS-OIG audit: *U.S. Customs and Border Protection's Unmanned Aircraft System Program Does Not Achieve Intended Results or Recognize All Costs of Operations* was very critical, putting Predator operating costs at **>$12K/hour**, citing significant infrastructure costs.
- If DOI leadership directed the acceptance of "free" retired Predators from DOD, it would require significant cost and infrastructure investments and would without a doubt generate GAO and DOI OIG audits that would certainly be as unfavorable (if not more so) than the DHS-OIG audit of CBP. The public optics and political fallout would undermine the superb reputation of the current DOI UAS program and present another unwanted distraction for DOI leadership.

Background

OAS Director initiated the DOI UAS program in 2006. OAS Director is a TOPGUN and Test Pilot School trained carrier fighter pilot (retired Navy CAPT) with 30 years of UAS policy, acquisition, testing, and operations experience. He has an aerospace engineering degree, MBA, Navy/Joint Staff financial management subspecialty, Navy Acquisition Professional Corps member, Defense Acquisition Workforce Improvement Act (DAWIA) certifications in program management and test and evaluation, and is an award-winning commander of two squadrons and a major Navy test installation. Without additional OAS personnel or funding, he built the DOI UAS program into an industry award-winning program that is second only to DOD's in size, scope, and diversity. He leveraged ~$25M in excess sUAS from DOD for operational test and evaluation (OT&E) with zero acquisition or maintenance costs. Initial fleet: RQ-11A Raven and RQ-16C T-Hawk. OT&E revealed DOD sensors were ill suited for science work; insufficient resolution for HD mapping or photogrammetry requirements. Installed radios used DOD frequencies, requiring a 3-6 month approval process to fly at a specific CONUS location. Cost to change radios was $22K each. By comparison, the new COTS systems DOI is buying cost $15K; fully loaded with sensors and latest precision GPS technology. OT&E informed OAS-Bureau collaborative requirements determination process resulting in development of the ***DOI Master sUAS Specification*** and DOI UAS Integration Strategy (2015-2020).

Current Status

We are beginning a flight-testing program for a DIUx developed patch that promises to fix the cyber security issue currently preventing the use of commercial-off-the-shelf (COTS) equipment. We also are preparing to award the fire Call-When-Needed UAS contract. The aircraft we will be bringing into the fleet over the next 12 months will produce better results for the bureau field user and their documented requirements, at a much lower operational and lifecycle cost than using excess DOD equipment like retired Predators.

Point of Contact

Mark L Bathrick, Director, OAS: mark_bathrick@ios.doi.gov, 208 867-6987 (cell)