Army upgrading Unmanned Aerial Systems

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By **Kris Osborn**

The 3,200-pound Gray Eagle Unmanned Aircraft System waits for its mission at sunset during Operation Enduring Freedom in Afghanistan. Ten of the UAS are currently deployed as part of a Quick Reaction Capability and the QRC has helped refine requirements before the next Low-Rate Initial Production of the Gray Eagle.

NASHVILLE, Tenn. (Army News Service, April 4, 2012) -- The U.S. Army is moving along with a series of upgrades and technological improvements to its Unmanned Aerial System platforms, or UAS, Program Office officials said April 3.

The UAS improvements are part of a broader effort to bring increased sensing and surveillance capability to deployed forces, officials said at the Army Aviation Association of America's 2012 Professional Forum and Exhibition in Nashville.

Some of the key activities include:

-- the addition of a new Synthetic Aperture Radar, or SAR Ground Moving Target Indicator sensor, known as GMTI, to the Gray Eagle UAS,
-- plans to build and deliver a new engine for the Shadow UAS,
-- and the development of a Universal Ground Control Station, or UGS, able to show video
feeds from Gray Eagle, Shadow and Hunter UAS on a single system.

At the same time, PM UAS is approaching these activities with a mind to finding efficiencies, lowering costs wherever possible and increasing competition among vendors as part of a broader strategy to implement the tenets of the Pentagon's Better Buying Power program, said Richard Kretzschmar, deputy project manager, UAS.

"The challenge we put across to our programs is to look for opportunities to increase better buying power. That was the command guidance. The specifics are going to be unique to various programs. We're doing things like looking at the elements of cost and examining what is driving reliability so maybe we can increase the sustainment growth curve and increase competition," said Kretzschmar.

Kretzchmar pointed to two upcoming Indefinite Delivery Indefinite Quantity, or IDIQ, contracts PM UAS is planning for its Family of Small UAS, an effort to refine requirements and deliver a group of small UAS such as the Raven, Puma and various micro-sized UAS.

Related Links

- FAA: Fact Sheet -- Unmanned Aircraft Systems
- Congressional Research Service: U.S. Unmanned Aerial Systems
- Army Aviation Association of America
- Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
- Army.mil: Science and Technology
- STAND-TO!: U.S. Army Roadmap for Unmanned Aircraft Systems: 2010-2035

"The intent of these IDIQ contracts is to increase competition, drive costs down and get a better value. One of these contracts is for UAS-related services and one is for products and material," he added.

The Army is still working on a capabilities document outlining the parameters of the Family of Small UAS, service officials explained.

At the same time, PM UAS has recently released a Request for Information, or RFI, to industry in order to solicit technical solutions for a new engine for the Shadow UAS aimed at improving reliability, said Lt. Col. Scott Anderson, product manager, ground maneuver, UAS.

"The Shadow UAS engine replacement is designed to improve reliability and add additional capability and decrease sustainment cost. It's a multi-phase program to open up the competition to multiple vendors. We have issued an RFI and we're very excited about the response we got. We got 14 responses," said Anderson.

Also, the Army is observing Marine Corps efforts to weaponize the Shadow UAS and may pursue a similar course of action, Anderson added.

The medium-altitude Gray Eagle UAS program , deployed currently in Afghanistan as part of what's called a Quick Reaction Capability, or QRC, is preparing for an upcoming Initial Operational Test and Evaluation slated for this summer, said Col. Tim Baxter, project manager, UAS.

The Gray Eagle recently participated in the AH-64 Apache Block III attack helicopter IOT&E at Fort Irwin, Calif., in which the UAS were able to successfully demonstrate Level IV Manned-Unmanned Teaming, or MUM. Level IV MUM allows Apache pilots to not only view the live video feeds from nearby UAS from their cockpits, but it allows pilots to control the sensor payload and UAS flight path as well.

"This is a substantial capability we are providing. For the first time the Apache pilots were able to see their targets before they even took off," said Baxter, referring to the Apache Block III IOT&E.

In fact, Apache and OH 58 Kiowa Warrior scout aircraft currently in Afghanistan have the ability to perform Level II MUM, meaning pilots can view video feeds from nearby UAS in real-time from their cockpits.

Meanwhile, the Gray Eagle QRC, which brought two small groups of four Gray Eagle's to Afghanistan, is designed to help inform and refine requirements for a concurrently developing Program of Record; the QRC brings the added advantage of getting valuable emerging technology to the force more quickly.

"The Gray Eagle UAS are providing unprecedented value to the operators. The feedback we're getting from the QRCs is that this is a game-changing capability," said Kretzschmar.

A full company of 12 Gray Eagle UAS have deployed as part of a newly reconfigured, full-spectrum Combat Aviation Brigade, he added.

The Gray Eagle UAS is also slated for a Defense Acquisition Board, or DAB review by the middle of next month in order for the program to receive authorization to proceed with another Low-Rate Initial Production purchase.

By the spring of 2013, PM UAS plans to deploy a new, more versatile and efficient Universal Ground Control Station, or UGS, said Lt. Col. James Kennedy, product manager, Common Systems Integration.

"This is a ground control station that will be able to fly the Shadow, the Gray Eagle and the Hunter - all of those different aircraft. The Army will be able to deploy a single person able to fly all three of these UAS," Kennedy added.

PM UAS is also getting ready to field a next-generation One System Remote Video Terminal, or OSRVT, with portable, laptop computer-like display screens able to show real-time feeds from nearby UAS. Current OSRVTs are only able to receive or view incoming video, however the next-generation systems will be "bi-directional," meaning they will allow the operator to control the sensor payload of a nearby UAS as well, Kretzschmar indicated.

The Army is also hoping to develop a universal control station for its now-in-development Family of Small UAS, he added.

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