

To man or not to man? The US Army's future scout mission

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While the US Army has made great strides in integrating UAVs with its rotorcraft to fulfil the armed aerial scout role, officials have yet to concede that a manned scout platform is no longer needed. Are UAVs the future, or will the Pentagon revive a manned scout requirement? *Beth Stevenson reports*

Unmanned aerial vehicles (UAVs) are increasingly taking on roles traditionally carried out by manned aircraft, with the US Army's decision to partially replace the Bell Helicopter OH-58D Kiowa Warrior rotorcraft in the armed aerial scout (AAS) role with remotely piloted vehicles a notable example of that.

Replacing the Kiowas in the AAS role with a manned aircraft was originally the plan, which resulted in a drawn-out procurement effort. However, a lack of suitable offerings and a force restructure driven by budget restraints led to the cancellation of that effort in 2013, at which point the army decided to invest in the manned-unmanned teaming (MUM-T) concept instead.



A US Army AH-64D Apache takes off at Dugway Proving Ground in Utah as a Shadow UAV is readied to join it. Apaches are being teamed with UAVs to fill the capability gap left by the army's divestment of Kiowa Warriors. (US Army)

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Budget realities bite

Sequestration played a part in the decision to go down this route, after the army determined that a new acquisition or a full-scale service life extension for the incumbent OH-58Ds would be too expensive at a time when cuts were being made across the US Department of Defense (DOD).

Between 2009 and 2011 the service's Training and Doctrine Command carried out an AAS analysis of alternatives study, which determined that the AH-64E Apache - while notably costly and having its limitations - could effectively be adapted to meet the AAS requirement. Following this, a 2013 Aviation Restructuring Initiative (ARI) concluded that in order to fulfil the AAS mission the US Army National Guard's (ARNG's) AH-64 fleet should be transferred to the regular army and, when teamed with UAVs, would effectively replace the OH-58Ds.



Although the US Army is retiring its Kiowa Warriors in favour of UAVs, it does still have a requirement for a manned scout helicopter. (IHS/Patrick Allen)

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The service gradually converted its manned units to MUM-T heavy attack reconnaissance squadrons and these have been carrying out the AAS role ever since. The Shadow is typically used by smaller tactical units, while the Gray Eagle is operated by higher-level force commands.

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Plans for renewal

Despite numerous variant developments and a series of modernisation efforts, the US rotorcraft fleet is ageing, with some models dating back to the 1960s. Under the Future Vertical Lift (FVL) effort all operational rotorcraft types currently in service will be replaced and, while the capabilities that make up the AAS role will inevitably be considered, what form this will take has yet to be determined.

The army is exploring what this family of systems will look like and, in parallel to the manned element, is also looking at future development of UAVs that will continue to carry out that MUM-T role.

"The other major portion of this future modernisation effort is that we are undergoing the beginning stages of a future UAV concept," Kelvin Nunn, chief of staff for the Program Executive Office Aviation (PEO Aviation), told the Defence IQ International Military Helicopter conference in London on 1 February. "We [know] the importance of unmanned air vehicles, and the manned-unmanned teaming associated with those, and how that is critical to be a force multiplier for the future fleet. In the UAV arena we've got to look at things like swarming and autonomous flights."

Speaking to *Jane's*, Nunn said that, where the future UAV replaced systems currently in service, it would also have to be able to carry out the MUM-T role for US Army operations.

"We're looking at what comes next," Nunn added. "Any UAV developed in the future that is above the size of the Shadow will certainly have a MUM-T element to it."

Nunn said that this will include UAVs that are medium sized and above, including in-service Gray Eagles.

While MUM-T will certainly play a part in future operations, the future of a manned AAS capability as was carried out by the OH-58D is still undecided, according to Nunn.

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Stretching out the Shadows

Planning is in place to support the current UAV fleet until the future programme pans out, which Bill Irby, Textron Unmanned Systems' senior vice-president and general manager, said will result in the Shadow UAV being in operation until the 2030 timeframe.

"The public documentation states that a Milestone B for that programme will likely happen in the 2023 timeframe, so it will move into an engineering, manufacturing, and development programme in the late 2020s, which tells us that the production will be sometime after that," Irby told *Jane's*.

"So until that time the Shadow is going to remain in mission receiving operation and support funding, and we're certainly trying to give the army ideas about new capabilities to add to the system to keep it relevant while they're structuring their new programme."

The Tactical Common Datalink (TCDL)-enabled Shadow V2 is currently being rolled out to the army, with 104 army-owned V1 systems on contract to be retrofitted to the new standard and a further 13 on contract for the US Marine Corps (USMC).

"In dialogue with the customer the feedback we've got is that it has been very successful," Irby said. "If you think about the common datalink that is on the Shadow system, which is a standard

that the army has been putting in its unmanned aircraft ... it has all of the standards defined, and we have met those standards to ensure that data can be shared between those systems."

Irby said that the Shadow is used to provide a persistent overwatch capability of the ground, transitioning the data back to the Apache pilot to inform decisions on effective countermeasures.



The RQ-7B V2 Shadow is the focus of the US Army's MUM-T arrangement. (US Army)

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"This has been very successful, and although I can't speak for them, I really don't see the army getting away from a manned-unmanned teaming environment anywhere in the near future," Irby said. As a result, Textron is incorporating MUM-T capabilities into all of its current and future UAV developments so that they can be used in this role as required.

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Extending the Gray Eagle

The Gray Eagle, meanwhile, is undergoing a modification effort to take it to an extended-range (ER) standard. The army is on contract to receive 19 of the new version, which provides some 40 hours of endurance.

GA-ASI declined to provide comment on the operational use of the systems in support of the AAS role, although it has previously been stated that the increased payload capacity of the ER variant could help expand the MUM-T role further.

The Gray Eagle is operated by a higher level of command than the Shadow, with the echelons above division level the first expected to receive the MQ-1C ER.



The increased payload capacity of the MQ-1C Gray Eagle Extended Range series UAV, which started flight testing in December 2016, could help further expand the MUM-T role. (General Atomics Aeronautical Systems Inc)

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There is also funding allocated by the army for the development of a new datalink for the MUM-T missions, which will expand it to other UAV types.

The army's TCDL is required for the AH-64E to communicate with the two UAVs, while the older V1 Shadows can only operate with the AH-64D. The service has, therefore, contracted L3 Technologies to develop the MUM-TX concept, which will provide a new datalink that will enable the Apache to communicate with more UAV types than just the Shadow and Gray Eagle. This will standardise the way the Apache communicates with the UAVs, which at the moment is fairly siloed. Only a limited number of V2 variants are fielded and, while the Shadow V1 did operate with the AH-64D over the C-band frequency at one point, the Gray Eagle and Shadow V2 communicate with the AH-64E over the Ku-band.

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The future of the Apache

While the unmanned element is significant, the availability of the Apache also needs to be considered and is an ongoing issue of dispute. The 2013 decision to transfer the ANG's AH-64s over to the regular army to support MUM-T did not come without opposition, as the guard claimed that the removal of the capability left the division without a full-scale combat fleet.

In response the ARNG proposed that, instead of 20 Apache battalions operating under the regular army as laid out by the ARI, the latter should only have 18 and the former 6, retaining some of the capability for the national guard.

Analysis carried out by the National Commission for the Future of the Army (NCFA) published in January 2016 claimed that both of these restructuring plans had their merits, but decided instead that the regular army should indeed get its 20 battalions, but that the ARNG should also receive four battalions of Apaches as well.

Regular battalions would all have 24 aircraft, while ARNG battalions would have 18. Under this plan 24 Apaches would have to be converted from D- to E-models so that they could operate with the UAVs.

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