

SIGAR

**Special Inspector General for
Afghanistan Reconstruction**

SIGAR 19-18 Audit Report

Afghan Air Force: DOD Met the Initial Date
for Fielding UH-60 Helicopters, but the
Program Is at Risk of Not Having Enough
Trained Pilots or the Capability to Maintain
Future UH-60s



**JANUARY
2019**

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WHAT SIGAR REVIEWED

In January 2015, the Afghan National Defense and Security Forces (ANDSF) assumed responsibility for the security of Afghanistan. Potential shortfalls in the Afghan Air Forces' (AAF) lift and close air support capability became evident. The Department of Defense (DOD) and the Commander of Resolute Support and U.S. Forces-Afghanistan identified filling these capability gaps as essential for the AAF to support ANDSF ground forces as they conduct operations in defense of their country.

To address these gaps, DOD proposed a program to modernize the AAF. A key component of this modernization would be the addition of 159 UH-60 Black Hawk helicopters, of which 119 will be for the AAF and 40 for the Afghan Special Mission Wing (SMW) that is part of the Afghan Special Security Forces. The estimated cost for fiscal years 2017 through 2023 of providing the UH-60s to the AAF and the SMW has varied from \$5.75 billion to approximately \$7 billion, such as procuring, and sustaining the aircraft, and training pilots, and crewmembers. DOD has reported to Congress concerns about recruiting, training, and sustainment challenges facing the AAF.

The objectives of this audit were to assess the extent to which DOD (1) met its planned initial operational capability date of June 2018; (2) developed a training program to ensure that the AAF and the SMW will make full use of the UH-60s; and (3) identified and addressed maintenance challenges.

January 2019

Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but the Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s

SIGAR 19-18 AUDIT REPORT

WHAT SIGAR FOUND

The Army's Utility Helicopter Project Office met the Combined Security Transition Command-Afghanistan's (CSTC-A) required June 2018 fielding date by:

- providing 4 UH-60s to use for training and 12 mission capable UH-60s;
- using contractors to provide both pilot training and aircraft maintenance;
- obtaining UH-60 airframes and some parts and equipment before the program was fully funded; and
- installing equipment that had already been approved for use on the UH-60.

UH-60 qualification training began in Afghanistan in October 2017. In May 2018, just ahead of the requested fielding date, 15 fully qualified pilots had completed advanced training to fly the UH-60 in support of combat operations. According to DOD officials, the AAF flew its first UH-60 operational mission in May 2018.



AAF UH-60 Helicopters

Source: U.S. Army Program Executive Office Aviation.

While DOD delivered the first 16 of the 159 UH-60s on time, challenges put DOD's efforts to train enough pilots to fully utilize all the UH-60s at risk. SIGAR found that based on the current UH-60 delivery schedule, it is unlikely that there will be enough pilots trained before all the 159 UH-60s are delivered. DOD has expressed concerns about the speed at which it can train pilots to keep pace with the new aircraft joining the AAF and has made some decisions that have hindered pilot development. For example, the decision to hold UH-60 qualification training only in Afghanistan may cause dozens of pilots who complete their initial pilot training outside of Afghanistan to wait up to a year to complete the required additional training. CSTC-A also assumes that future training classes will have no attrition, even

though current pilot training has an attrition rate of about 26 percent. In addition, CSTC-A raised the required English language proficiency score from 55 to 80 before potential pilots could head to training outside of Afghanistan. CSTC-A has since lowered the required score back to 55. Train, Advise, Assist Command-Air (TAAC-Air) began to implement a new English language program that they anticipate will better prepare students to meet the English requirements for pilot training than the previous program did. However, according to a June 2018 DOD report to Congress, the program “is at less than 50 percent of planned efficiency due to force protection shortages at the primary training location.” CSTC-A originally intended to train 477 pilots, but the command now plans to train 320 UH-60 pilots. However, CSTC-A may not achieve the 320-pilot target because the number of pilots going through training is already falling behind planned class sizes.

In addition, by obtaining UH-60s from the Army instead of buying new production aircraft, DOD can more easily reduce the number of aircraft provided to the AAF and the SMW if program assumptions changed. Despite the fact that pilot development is not keeping pace with original program assumptions, DOD has yet to establish benchmarks it can use to determine whether it should pause the deliveries of UH-60s or reduce the number of aircraft to deliver to the Afghan government. As a result, DOD runs the risk that the aircraft it delivers will sit idle in Afghanistan without enough pilots to fly them.

Furthermore, DOD does not currently have a program in place to train Afghan personnel to maintain UH-60s. Both CSTC-A and TAAC-Air have identified the need for a program to train AAF and SMW personnel to maintain the UH-60s and to help control maintenance costs, but a formal maintenance training program is not expected to be in place until mid-2019. DOD estimates that the cost of contractor maintenance from 2019 through 2023 will be more than \$2.8 billion. This cost is likely to grow the longer it takes to develop the AAF's and SMW's maintenance capabilities. According to TAAC-Air officials, it takes 5 to 7 years to develop a fully qualified helicopter mechanic, but lack of English and basic literacy in the enlisted force makes training difficult. TAAC-Air estimates that the AAF will start performing some UH-60 maintenance in September 2025. Also, lack of Afghan maintenance personnel limits the locations where UH-60s can operate because DOD policy bars U.S. contractors from working where there is no U.S. or coalition control. However, TAAC-Air's basing plan includes locating six UH-60s in Shindand, Herat Province, an Afghan base where there is currently no U.S. or coalition military presence.

Finally, SIGAR found that TAAC-Air, CSTC-A, and the AAF have not developed a flying hour program for the UH-60s. DOD intended to place conditions on the AAF to continue fielding the UH-60 to the AAF. These conditions included requiring the AAF to implement a flying hour program specific to the UH-60. Without a flying hour program that limits the hours the UH-60s fly each month to the 35 hours per month assumed in the UH-60's maintenance strategy, there is a risk that the UH-60s will be flown excessively and require additional maintenance at an increased cost.

WHAT SIGAR RECOMMENDS

To ensure that the Afghan Air Force (AAF) has pilots available to fly the UH-60, SIGAR recommends that the Combined Security Transition Command-Afghanistan (CSTC-A) Commander and Train, Advise, Assist Command-Air (TAAC-Air) Commander work to:

- 1. Take steps to reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots.**
- 2. Fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training.**

To ensure that the AAF develops a maintenance capability that will help defray costs of contractor logistic support, SIGAR recommends that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office:

- 3. Develop and implement a program to train AAF personnel to maintain the UH-60s.**

To ensure that the UH-60s are properly maintained, SIGAR recommends that the CSTC-A Commander, the TAAC-Air Commander, and the Utility Helicopter Project Office:

- 4. Develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S contractors from working, such as Shindand, Herat Province.**

To ensure that the UH-60s are not flown more than the 35 hours per month assumed in the maintenance strategy, SIGAR recommends that the TAAC-Air Commander:

- 5. Work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible.**

To ensure that DOD does not provide the AAF and SMW with aircraft they cannot use, SIGAR recommends that the Under Secretary of Defense for Policy:

- 6. Link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan.**

SIGAR received written comments on a draft of this report from the Office of the Under Secretary of Defense for Policy (OUSD-P), CSTC-A, and TAAC-Air. OUSD-P concurred with all of the recommendations and referred to TAAC-Air's and CSTC-A's comments for a description of the actions being taken in response to them.

In its written comments, CSTC-A partially concurred with recommendations 1 through 4, which were directed to both TAAC-Air and CSTC-A. CSTC-A requested that SIGAR rewrite the recommendations to require TAAC-Air to coordinate with CSTC-A instead of directing the recommendations to CSTC-A because TAAC-Air is the primary command tasked with guiding the efforts to develop the AAF. While this is true, CSTC-A is responsible for funding the requirements that TAAC-Air develops to fulfill this mission. As a result, TAAC-Air cannot take the actions needed to implement the recommendations unless CSTC-A approves the necessary funds. Because of this, SIGAR believes that the recommendations should stand as written. TAAC-Air also provided written comments and concurred with the recommendations.

TAAC-Air concurred with all six recommendations and discussed the actions it is taking to implement them. In response to the first recommendation, TAAC-Air said it is working with CSTC-A and the Program Executive Office for Simulation, Training, and Instrumentation to develop an aircraft qualification training course outside of Afghanistan to reduce the time between initial pilot training and aircraft qualification training. In response to the second recommendation, TAAC-Air said the English language training program is in full execution. However, DOD's December 2018 report to Congress on *Enhancing Security and Stability in Afghanistan* states, "Force protection requirements for English language instructors and classes limit the number of opportunities available to candidates and challenge advisors to keep enough personnel in the training pipeline." In its response to the third recommendation, TAAC-Air said it has developed a plan to begin maintenance training at two aircraft maintenance development centers outside of Afghanistan. However, TAAC-Air did not provide any details on this plan, such as the number of students anticipated to attend each year or the development of courses needed to train advanced maintainers. TAAC-Air concurred with the fourth recommendation but did not provide any information on how DOD will maintain UH-60s in locations where U.S. contractors are not permitted to work due to security considerations.

In response to the fifth recommendation, TAAC-Air said the current maintenance contractor is responsible for scheduling aircraft for daily operations and does not schedule aircraft that exceed the 35-hours-per-month limit. TAAC-Air advisors then vet the operational requests and track that the number of hours flown does not exceed the monthly limit per aircraft. In addition, the AAF commanding general has issued a message limiting the use of each UH-60 to 35 hours per month. However, while the actions taken by the maintenance contractor and TAAC-Air advisors may help limit the number of hours each UH-60 is flown, they do not fully replace a flying hour program. Furthermore, Afghan National Army commanders have ignored a similar message from the AAF commanding general intended to limit the number of hours flown by the MI-17. TAAC-Air also said the Commander of NATO Air Command-Afghanistan delivered an overuse warning memo to the Afghan Minister of Defense outlining future penalties if aircraft are flown excessively. However, TAAC-Air did not provide a copy of the memo. Therefore, SIGAR could not determine whether it is responsive to the recommendation.

OUSD-P concurred with the sixth recommendation. According to the office's comments, the Afghan UH-60 program was designed to allow flexibility to either accelerate or slow aircraft fielding to adjust to the pace of pilot and maintainer generation. However, the office did not provide any details as to how it would link the deliveries of UH-60s to training for pilots and maintenance personnel.

These six recommendations will remain open until OUSD-P, CSTC-A, and TAAC-Air provide evidence that they have fully implemented them.



SIGAR

Office of the Special Inspector General
for Afghanistan Reconstruction

January 30, 2019

The Honorable Patrick M. Shanahan
Acting Secretary of Defense

General Joseph L. Votel
Commander, U.S. Central Command

General Austin S. Miller
Commander, U.S. Forces-Afghanistan
Commander, Resolute Support

Lieutenant General James E. Rainey
Commanding General, Combined Security Transition Command-Afghanistan

Brigadier General Joel L. Carey
Commanding General, Train, Advise, Assist Command-Air

This report discusses the results of SIGAR's audit of the Department of Defense's (DOD) plan to provide 159 UH-60 Black Hawk helicopters to the Afghan Air Force (AAF) as part of its larger modernization plan for the AAF. The estimated cost for fiscal years 2017 through 2023 of providing the UH-60s to the AAF and the Special Mission Wing (SMW) has varied from \$5.75 billion to approximately \$7 billion for the aircraft, logistics support, and pilots and crew training.

We are making six recommendations in this report. Specifically, we recommend that the Commander of Combined Security Transition Command-Afghanistan (CSTC-A) and Commander of Train, Advise, Assist Command-Air (TAAC-Air) (1) take steps to reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots, and (2) fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training. Additionally, to ensure that the AAF develops a maintenance capability that will help defray costs of contractor logistic support, we recommend that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office, (3) develop and implement a program to train AAF personnel to maintain the UH-60s. To ensure that the UH-60s are properly maintained, we recommend that the CSTC-A Commander, the TAAC-Air Commander, and the Utility Helicopter Project Office (4) develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province. To ensure that the UH-60s are not flown more than the 35 hours per month assumed in the maintenance strategy, we recommend that the TAAC-Air Commander (5) work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible. Lastly, to ensure that DOD does not provide the AAF and SMW with aircraft they cannot use, we recommend that the Under Secretary of Defense for Policy (6) link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan.

We received written comments on a draft of this report from the Office of the Under Secretary of Defense for Policy (OUSDP), CSTC-A, and TAAC-Air, which are reproduced in appendices II, III, and IV, respectively. OUSD-P concurred with all of the recommendations and referred to TAAC-Air's and CSTC-A's comments for a description of the actions being taken in response to them. CSTC-A partially concurred with four recommendations, while TAAC-Air concurred with all of our recommendations and described the actions it is taking to implement them.



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OUSDP, the U.S. Central Command, CSTC-A, and TAAC-Air provided technical comments, which we incorporated into this report, as appropriate.

SIGAR conducted this work under the authority of Public Law No. 110-181, as amended, and the Inspector General Act of 1978, as amended and in accordance with generally accepted government auditing standards.

John F. Sopko
Special Inspector General
for Afghanistan Reconstruction

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ABBREVIATIONS

AAF	Afghan Air Force
ANDSF	Afghan National Defense and Security Forces
AQC	UH-60 Aircraft Qualification Course
CSTC-A	Combined Security Transition Command-Afghanistan
DOD	Department of Defense
IERW	Initial Entry Rotary Wing
MQT	UH-60 Mission Qualification Training
OUSDP	Office of the Under Secretary of Defense for Policy
SMW	Special Mission Wing
TAAC-Air	Train, Advise, Assist Command-Air
UHPO	Utility Helicopter Project Office

A key U.S. objective in Afghanistan has been to build the Afghan government's capacity to provide for its own security. In December 2014, the United States ended the combat mission in the country and moved to a train, advise, and assist mission.¹ On January 1, 2015, the Afghan National Defense and Security Forces (ANDSF) assumed security responsibility for all of Afghanistan. Potential shortfalls in the Afghan Air Forces' (AAF) lift and close air support capability became evident to the Department of Defense (DOD) and the ANDSF.² DOD and the Commander of Resolute Support and U.S. Forces-Afghanistan identified filling these capability gaps as essential for the AAF to support ANDSF ground forces as they conduct military and security operations in defense of their country.

To address these capability gaps, in 2015 DOD proposed a program to modernize the AAF. A key component of this modernization is the addition of 159 UH-60 Black Hawk helicopters, of which 119 will be for the AAF and 40 for the Afghan Special Mission Wing (SMW).³ Of the 159 UH-60s that DOD plans to deliver, 101 will be lift helicopters and 58 will be a fixed forward-firing variant designed to address the close air support gap.⁴ DOD plans to deliver 81 lift aircraft and 38 fixed forward-firing aircraft to the AAF, and 20 of each variant to the SMW. The estimated cost for fiscal years 2017 through 2023 of providing the UH-60s to the AAF and the SMW has varied from \$5.75 billion to approximately \$7 billion, such as procuring, and sustaining the aircraft as well as training pilots, and crewmembers. Since 2015, DOD has reported to Congress on the recruiting, training and sustainment challenges facing the AAF.⁵

The objectives of this review were to assess the extent to which DOD (1) met its planned initial operational capability date of June 2018; (2) developed a training program to ensure that the AAF and the SMW will make full use of the UH-60s; and (3) identified and addressed maintenance challenges.

To accomplish these objectives, we reviewed DOD program and budget documents related to the AAF's modernization, as well as DOD policies and contract documents for UH-60 aircraft delivery, modifications, maintenance, and training. We interviewed officials from the Office of the Under Secretary of Defense for Policy (OUSD-P); Combined Security Transition Command-Afghanistan (CSTC-A); the Train, Advise, Assist Command-Air (TAAC-Air); the Utility Helicopter Project Office (UHPO); U.S. Army Training and Doctrine Command; the Program Executive Office for Simulation, Training, and Instrumentation; Army Contracting Command-Redstone Arsenal; Army Contracting Command-Orlando; and the U.S. Army Security Assistance Training Management Organization. We interviewed the contractors responsible for UH-60 training and maintenance. We also interviewed officials from the AAF. We visited and assessed each of the training sites where AAF pilots receive training to become UH-60 pilots. In addition, we analyzed training cost data to estimate the long-term costs of pilot training. We conducted our work in Washington, D.C.; Kabul and Kandahar, Afghanistan; Fort Rucker and Huntsville, Alabama; Orlando, Florida; Al-Fujairah, United Arab Emirates; Hradec Králové, Czech Republic; and Košice, Slovakia, from April 2017 to January 2019, in accordance with generally accepted government auditing standards. Appendix I has a more detailed discussion of our scope and methodology.

¹ The Train, Advise, and Assist mission is intended to help the Afghan security forces and institutions develop the capacity to defend Afghanistan and protect its citizens in a sustainable manner.

² DOD defines close air support as air action by rotary wing or fixed wing aircraft against hostile targets that are in close proximity to friendly forces.

³ The AAF is a component of the Afghan National Army, while the Special Mission Wing is part of the Afghan Special Security Forces.

⁴ In its technical comments in response to a draft of this report, DOD indicated that the number of aircraft might change.

⁵ For example DOD, *Report on Enhancing Security and Stability in Afghanistan*, December 2015, pp. 55-56; and DOD, *Report on Enhancing Security and Stability in Afghanistan*, June 2016, p. 60; and DOD, *Report on Enhancing Security and Stability in Afghanistan*, June 2018, p. 69.

BACKGROUND

The MI-17 helicopter has been the backbone of the Afghan Air Force's (AAF) helicopter fleet since the Soviet Union developed it for use in Afghanistan (see photo 1).⁶ As recently as 2013, DOD procured MI-17s from Rosoboronexport, a Russian government agency, to bring the total AAF and Special Mission Wing (SMW) MI-17 fleet to 86 aircraft, with the last MI-17 arriving in Afghanistan in October 2014. However, due to battle damage, excessive flying hours, and U.S. sanctions against Russia that prohibit additional U.S. purchases of this aircraft and its spare parts, the fleet has gone from 86 aircraft capable of flying missions to 35 aircraft as of November 2018. DOD is providing the UH-60 Black Hawks to the AAF and SMW to increase the Afghan National Defense and Security Forces' (ANDSF) lift capability and eventually replace the entire MI-17 fleet.

Photo 1 - AAF MI-17 Helicopter



Source: U.S. Air Force.

The UH-60 Black Hawk helicopter is a medium-lift utility helicopter that has been in the U.S. Army's inventory since 1978.⁷ The U.S. Air Force, U.S. Navy, U.S. Coast Guard, and militaries around the world fly variants of this aircraft. The UH-60 is used to deliver supplies, carry troops, and provide medical evacuation. The U.S. Army is replacing its original UH-60A models with the more advanced UH-60M models and selling non-excess "A" models through its Black Hawk Exchange and Sales Transaction program. Combined Security Transition

⁶ The MI-17 helicopter is a Russian designed and produced aircraft. Aircraft and aircraft parts must be purchased from Rosoboronexport.

⁷ A medium-lift helicopter is capable of carrying internal loads of roughly between 10,000 and 15,000 pounds.

Command-Afghanistan (CSTC-A) is using the Afghanistan Security Forces Fund to buy the used UH-60s for the AAF and SMW for \$1.32 million per aircraft (see photo 2).⁸

Photo 2 - AAF UH-60 Helicopter



Source: U.S. Army Program Executive Office Aviation.

The UH-60 Selection Process

Before selecting the UH-60 for the Afghan Air Force (AAF), the Office of the Under Secretary of Defense for Policy (OUSD-P) commissioned the MITRE Corporation to issue a report analyzing AAF requirements and identifying suitable aircraft for the force.⁹ The analysis focused primarily on replacing the AAF's MI-17 helicopter fleet. The report, issued on November 12, 2015, outlined multiple options and included an estimate of the 9-year cost of each option. This 9-year cost estimate included the cost of facilities and support services, training, aircraft attrition replacements, operations and support, and aircraft procurement. The MITRE Corporation identified refurbished U.S. Army UH-60A helicopters as the most cost-effective alternative to replace the MI-17s. In addition to cost, DOD selected the UH-60 because the aircraft is American-made and has an established, reliable logistics chain from U.S. sources, given the worldwide use of the aircraft. Additionally, the refurbished UH-60s were available more quickly than new production aircraft and the procurement was scalable. That is refurbished aircraft would allow DOD to decrease the number of aircraft provided to the AAF more easily than new production aircraft, should the need for aircraft be reduced during the program.

DOD has acknowledged that the UH-60 has performance limitations when compared with the MI-17, which can fly higher and carry more passengers. However, according to DOD, most missions that the AAF flies do not need the additional capability provided by the MI-17. DOD personnel further stated that the larger UH-60 fleet would mitigate the capacity differences between the MI-17 and the UH-60. The MITRE Corporation report noted that the UH-60 would fulfill the majority of the AAF's medium-lift requirements.

According to DOD officials, the Office of the Secretary of Defense's Office of Cost Assessment and Program Evaluation, and the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics reviewed the program and concurred with OUSD-P's intention to provide UH-60s to the AAF. In 2016, the U.S.

⁸ The U.S. Army established the Black Hawk Exchange and Sales Transaction program to divest itself of UH-60A model Black Hawk helicopters and make these aircraft available to other U.S. government agencies, states, and private individuals through direct sale or auction.

⁹ The MITRE Corporation, *Afghanistan Air Force Study*, November 2015.

President, the Secretary of Defense, the Chairman of the Joint Chiefs, and the Commander of Resolute Support and U.S. Forces-Afghanistan approved the overall AAF modernization program, according to OUSD-P officials.

DOD Organizations Involved in the Afghanistan UH-60 Program

Multiple DOD organizations are managing the introduction of the UH-60 into the Afghan Air Force (AAF). Specifically,

- Office of the Under Secretary of Defense for Policy (OUSD-P) was instrumental in identifying and developing the strategy to address the AAF's capability gaps.
- Combined Security Transition Command-Afghanistan (CSTC-A) is the primary U.S. command that manages the Afghanistan Security Forces Fund, which DOD used to purchase the UH-60s and modify them for the Afghan environment.¹⁰
- Train, Advise, Assist Command-Air (TAAC-Air) is the primary command tasked with advising AAF senior leadership and guiding the AAF's efforts to produce the necessary pilots, aircrews, and maintainers to operate and support the UH-60s.
- Utility Helicopter Project Office (UHPO) is responsible for obtaining the aircraft from the U.S. Army and overseeing the aircraft modification process and aircraft qualification training.
- U.S. Army Security Assistance Training Management Organization is responsible for developing and implementing advanced UH-60 training in Afghanistan.
- The U.S. Army Training and Doctrine Command is responsible for training some Afghan pilots at the U.S. Army's rotary wing training base at Fort Rucker, Alabama.
- Program Executive Office for Simulation, Training, and Instrumentation is responsible for AAF Initial Entry Rotary Wing (IERW) training at sites in Europe and the United Arab Emirates.

In 2005, Congress appropriated funds for the Afghanistan Security Forces Fund to train, equip, and provide related assistance to the ANDFS, including the provision of equipment, supplies, services, facility repair, renovation, and construction.¹¹ DOD requested \$814.5 million in additional fiscal year 2017 funds to finance the AAF modernization program, of which \$264 million was designated for the UH-60. Congress appropriates these funds and makes them available in 2-year increments. Chapter 15, "Building Partner Capacity," of the *Security Assistance Management Manual* provides guidance for using the Afghanistan Security Forces Fund to provide aircraft to the AAF. Under Chapter 15, CSTC-A develops the aircraft capability, training, and sustainment requirements in consultation with the implementing agency, which is the U.S. Army in the case of the UH-60, and the benefiting country, Afghanistan.

UH-60 Pilot Development

The UH-60 program relies on a mix of new recruits and MI-17 pilots who will be trained to fly the UH-60. The majority of UH-60 pilots will be new recruits and graduates of the Afghan Air Force's (AAF) Air Academy, which is the primary commissioning school for AAF pilots.¹² The Air Academy is a 1-year, nondegree commissioning school that trains students in English and military science. According to Train, Advise, Assist Command-Air (TAAC-Air) officials, the Air Academy generally enrolls one class per year for the 1-year program. After completing the Air Academy, graduates generally complete an additional 6 months of English training while

¹⁰ CSTC-A is a subordinate command of the North Atlantic Treaty Organization-led Resolute Support Mission, which began on January 1, 2015. CSTC-A's mission is to help the Afghan government develop a sustainable, effective, and affordable ANDSF.

¹¹ Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005, Pub. L. No. 109-13, 119 Stat. 231, 235.

¹² Some pilot candidates will be graduates of the National Military Academy of Afghanistan, which DOD described as the "Afghan West Point" and offers a 4-year degree.

they are vetted by the Afghan Ministry of Defense. Following their completion of the Air Academy and English training, new pilots enter the Initial Entry Rotary Wing (IERW) training through one of two tracks: (1) at a commercial facility in the Czech Republic, Slovakia, or the United Arab Emirates,¹³ or (2) at the U.S. Army Aviation Center at Fort Rucker, Alabama.¹⁴

Pilots on the commercial IERW track receive English instruction and ground, flight, and instrument training over 15 months. During ground training, pilots study flight planning, meteorology, communications, and operating procedures. In flight training, pilots learn to fly, land, and hover a helicopter during the day and at night. During this phase, pilots complete training missions and solo flights, and practice on flight simulators. Instrument training teaches pilots to navigate using the instruments in the cockpit. At the completion of IERW, pilots are qualified to fly small civilian helicopters, such as MD-500 helicopters.

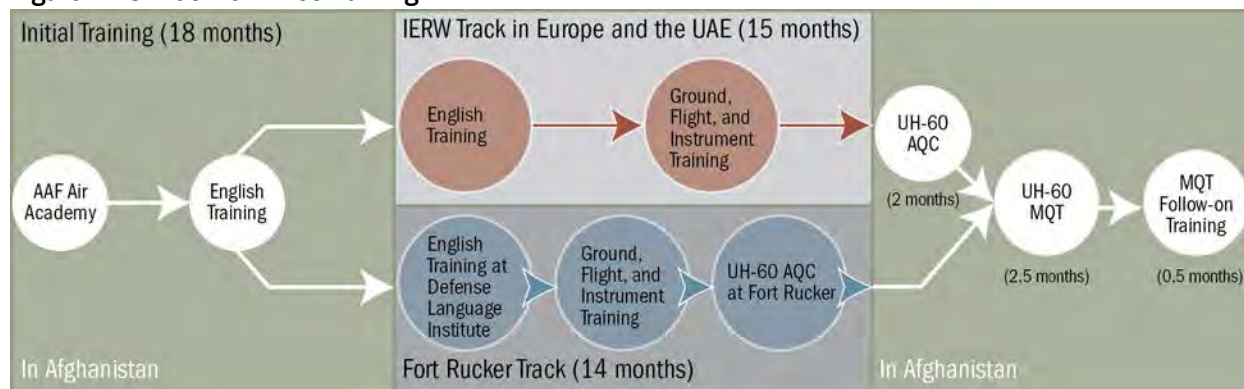
IERW graduates then attend the UH-60 Aircraft Qualification Course (AQC), a 2-month course at Kandahar Air Field, Afghanistan, where which pilots qualify to fly the UH-60. Last, they also complete UH-60 Mission Qualification Training (MQT) at Kandahar Air Field. MQT qualifies pilots to fly the UH-60 in support of combat operations and other missions.

Pilots trained through the Fort Rucker track receive English instruction at the Defense Language Institute, followed by ground, flight, and instrument training at Fort Rucker, and they initially qualify on a UH-72 training helicopter. They then qualify on the UH-60 at Fort Rucker before returning to Afghanistan for MQT.

Combined Security Transition Command–Afghanistan’s (CSTC-A) goal is to train 25 Afghan pilots each year at Fort Rucker and a similar number at each of the other locations. According to officials at Fort Rucker, the site does not have the capacity to train additional international students. However, each of the commercial locations could train up to 30 students per session, according to an official responsible for the commercial training locations. Additionally, Raytheon, the contractor responsible for IERW, can run several sessions at the same time.

Figure 1 shows both training tracks and the time expected to develop new UH-60 pilots.

Figure 1 - UH-60 New Pilot Training



Sources: TAAC-Air, Program Executive Office for Simulation, Training, and Instrumentation, U.S. Army Security Assistance Training Management Organization, and U.S. Army Training and Doctrine Command

In addition to training new pilots, the AAF and TAAC-Air are retraining MI-17 helicopter pilots to fly the UH-60 as the MI-17s are divested from the AAF fleet, according to CSTC-A officials. These MI-17 pilots take only AQC and MQT. TAAC-Air originally planned to train 36 MI-17 pilots on the UH-60, but according to TAAC-Air officials, that

¹³ DOD officials refer to IERW training in the Czech Republic and Slovakia as IERW-Europe.

¹⁴ As of December 2018, DOD no longer plans to send AAF pilot candidates to the United States for training, due to absconson problems. See DOD, *Report on Enhancing Security and Stability in Afghanistan*, December 2018, p. 80.

number was reduced to 24 as the divestiture of the MI-17 fleet occurred slower than anticipated. TAAC-Air has stated that eventually all MI-17 pilots will be trained and transferred to the UH-60.

Each UH-60 also requires two non-pilot crewmembers. These crewmembers are essential to the successful operations of the aircraft during missions, according to TAAC-Air officials. Crewmembers' training consists of pre- and post-flight duties, loading and unloading passengers and equipment, operating and maintaining the M240 machine gun, and serving as the door gunner to provide aircraft security. The training takes place at Kandahar Air Field.

DOD MET COMBINED SECURITY TRANSITION COMMAND-AFGHANISTAN'S REQUESTED INITIAL OPERATIONAL CAPABILITY DATE FOR THE UH-60

By modifying the UH-60s and relying on two contractors, Science and Engineering Services LLC and Mag Aerospace, to provide maintenance and training, the U.S. Army met the Combined Security Transition Command-Afghanistan's (CSTC-A) requirement for initial operational capability in June 2018.¹⁵ To meet the initial operational capability date for the Afghan Air Force (AAF), CSTC-A requested aircraft, trained pilots and crewmembers, and aircraft maintenance. The Army met the date by (1) obtaining airframes from the Black Hawk Exchange and Sales Transaction program and some parts and equipment before Congress funded the AAF modernization effort, (2) modifying the configuration of some of the UH-60 aircraft the Army was sending to Afghanistan, and (3) using contractors to provide training and maintain the aircraft.

According to DOD documents, the Army's initial UH-60 delivery schedule projected that the first UH-60s would arrive in Afghanistan 21 to 24 months after Congress appropriated funds, due to contracting and aircraft modification requirements. Congress appropriated funds for the AAF modernization in May 2017, and DOD made those funds available to the Army on June 22, 2017.¹⁶ The Army provided mission-capable aircraft 19 months earlier than originally anticipated, according to an Army document.

However, in May 2017, CSTC-A notified the Army of the need for the June 2018 initial operational capability date. The Army met this date, in part, because of actions it had taken prior to receiving CSTC-A's request. According to a February 2017 memo to the Secretary of Defense from the Office of the Under Secretary of Defense for Policy (OUSD-P), DOD procured some parts and equipment for the UH-60 using previously available funding from the Afghanistan Security Forces Fund. Additionally, DOD used money from the Special Defense Acquisition Fund to store 53 UH-60 airframes identified as most suitable by the U.S. Army for the AAF, with the understanding that the Army would reimburse the acquisition fund when Afghanistan Security Forces Funds became available.¹⁷ The Army Contracting Command signed a delivery order on June 28, 2017, to begin the refurbishment process, and Science and Engineering Services began refurbishing the first aircraft shortly thereafter.

Also, the Utility Helicopter Project Office (UHPO), in consultation with CSTC-A, developed a hybrid version of the UH-60 to send to the AAF. According to UHPO officials, the hybrid version included some, but not all, of the equipment the AAF requested. Specifically, the Army removed communication and navigation equipment that could not be exported for national security reasons, and replaced it with equipment that could be exported and had previously been approved for use on the UH-60. According to a UHPO official, the hybrid version and the Afghan-unique lift version have the same range, carry the same payload, and have the same altitude

¹⁵ According to the Defense Acquisition University, initial operational capability is the time when an organization has received a new system and has the ability to use and maintain it.

¹⁶ Consolidated Appropriations Act, 2017, Pub. L. No. 115-31, 131 Stat. 135, 280, Division C—Department of Defense Appropriations Act, 2017, Title IX, Afghanistan Security Forces Fund.

¹⁷ The airframes were stored at the Science and Engineering Services facility in Huntsville, Alabama. Science and Engineering Services manages the Black Hawk Exchange and Sales Transaction program for the Army.

limitations. Table 1 shows the equipment included on the hybrid, Afghan-unique, and the fixed forward-firing version of the UH-60.

Table 1 - Equipment on the AAF's UH-60 Versions

Type of UH-60	Navigation Equipment	Communications Equipment	Weapons
Hybrid	Commercial mobile/iPad Global Positioning System	<ul style="list-style-type: none"> • ARC-186 very high frequency radios • No high frequency capability • APX-100 transponder 	M240 machine gun
Afghan-unique	2 Garmin 750 Global Positioning Systems	<ul style="list-style-type: none"> • ARC-186 very high frequency FM radio • ARC-220 high frequency radio • APX-117A transponder • Multiband radios 	M240 machine gun
Fixed forward-firing	ASN-128 C Doppler Global Positioning System	<ul style="list-style-type: none"> • ARC-186 very high frequency AM/FM radio • ARC-220 radio • APX-117A transponder • Multiband radio (to be determined in the future) 	<ul style="list-style-type: none"> • M240 machine gun • .50 caliber machine gun • External rocket pods

Source: UHPO.

Note: The U.S. Army delivered four UH-60As to the AAF for training in 2017 that may be upgraded in the future.

UHPO delivered the first hybrid aircraft in January 2018, and the Army continued to deliver UH-60s between January and June 2018, with the last of the 12 UH-60s required for initial operational capability arriving on June 2, 2018. According to DOD officials, the AAF flew its first UH-60 operational mission in May 2018.

Additionally, to meet the initial operational capability date, CSTC-A requested that the Army begin pilot training no later than October 1, 2017, to ensure that trained UH-60 aircrews were available to meet the initial operational capability date. The Army's decision to provide four UH-60 aircraft in October and November 2017, and to use contractors to conduct the Aircraft Qualification Course (AQC) allowed it to meet CSTC-A's request. Specifically, UHPO selected four U.S. Army-configured aircraft from the Black Hawk Exchange and Sales Transaction program, refurbished them, and delivered them to the AAF to begin AQC.¹⁸ In October 2017, the first class of former MI-17 pilots began AQC on the UH-60 at Kandahar Air Field. The 2-month course is designed to familiarize and qualify pilots to fly the UH-60, and is provided by experienced Science and Engineering Services instructor pilots. According to UHPO, 24 AAF pilots had completed AQC by the June 2018 initial operational capability date.

Furthermore, as of May 2018, 15 pilots had completed Mission Qualification Training (MQT), which is provided by Mag Aerospace, and follows AQC in the pilot training process. However, according to Train Advise, Assist-Air (TAAC-Air) advisors and AAF officials, completing MQT qualifies personnel only to be copilots, not aircraft commanders. TAAC-Air officials stated that the aircraft commander position is normally obtained through experience gained at the unit level. Since the AAF does not have any existing UH-60 units to provide this experience, TAAC-Air advisors recognized this potential pitfall and developed follow-on training for the top students in MQT to become aircraft commanders. Advisors explained that the follow-on training focuses on judgment, decision-making, mission planning, and the importance of payload management for long haul

¹⁸ The Army initially intended to deliver the four aircraft prior to October 1, 2017. The Army delivered two of the aircraft in September 2017. However, the U.S. government's response to Hurricanes Irma and Maria resulted in the cancellation of C-17 flights supporting the AAF modernization program and delayed the delivery of the two remaining aircraft.

flights. The follow-on training also tries to instill in the pilots that the aircraft commander is in charge of the aircraft regardless of the copilot's rank.

In addition to the 24 pilots who completed AQC and 15 who completed MQT by June 2018, the first 16 crewmembers completed training in May 2018. According to TAAC-Air officials, UH-60 crewmembers are essential to operational missions because they provide security for the aircraft.

To meet the initial operational capability date, CSTC-A also requested that the Army provide contractor logistics support for the UH-60s because the AAF does not have the capacity to maintain them. To meet this need, which CSTC-A described as urgent, UHPO developed requirements for contractor maintenance, and the Army Contracting Command awarded a delivery order for UH-60 maintenance under an existing logistics support contract with Science and Engineering Services in June 2017.¹⁹ The contractor is responsible for maintaining 16 UH-60s—4 for AQC, 6 for MQT, and 6 available for combat missions—delivered by June 2018 to meet the initial operational capability date at an operational availability rate of 75 percent. DOD defines operational readiness as the ability of a weapon system to undertake its mission.²⁰ In addition, the contractor is required to provide on-the-job maintenance training to at least four Afghans to develop a maintenance capability. Specifically, according to the statement of work, the contractor is to provide training and mentorship to develop awareness of what is required for unit level maintenance, and training on general aviation maintenance practices.

THE CURRENT UH-60 TRAINING PLAN MAY NOT PRODUCE ENOUGH PILOTS TO USE ALL AIRCRAFT EXPECTED TO BE DELIVERED OVER THE FIELDING SCHEDULE

Certain program decisions have hindered the development and future availability of UH-60 pilots. As a result, the AAF may not be able to fully use the UH-60s DOD plans to deliver. These problems include locating the Aircraft Qualification Course (AQC) in Afghanistan; requiring pilot candidates to meet an unrealistic English proficiency level, which prevented them from entering pilot training; reducing the number of UH-60 pilots to be trained; and assuming no student attrition will occur. Currently, TAAC-Air is at least 16 pilots, or 8 crews, short of the level CSTC-A expected it would achieve. Although pilot development is not keeping pace with original program assumptions, DOD has yet to determine whether it should pause deliveries of the UH-60s or reduce the number of aircraft to deliver to the AAF. This shortfall comes despite the fact that DOD selected the UH-60, instead of new production aircraft, for the Afghan Air Force (AAF) because the department thought it would be easier to limit the number of aircraft delivered to the AAF and the Special Mission Wing (SMW) if they did not develop the required number of pilots.

Locating Aircraft Qualification Training in Afghanistan Causes Some Graduates to Wait Months to Qualify as UH-60 Pilots

Combined Security Transition Command-Afghanistan's (CSTC-A) decision to require that UH-60 AQC training occur only in Afghanistan has created a bottleneck for pilots who completed Initial Entry Rotary Wing training (IERW) outside of Afghanistan. Our analysis shows that some IERW graduates will wait 6 months to a year to begin AQC training. According to Train, Advise, Assist Command-Air (TAAC-Air) and CSTC-A documents we reviewed, the original program plans intended AQC training to be held in Slovakia. However, in 2017, CSTC-A

¹⁹ The Army Contracting Command awarded the delivery order without competition to SES because the maintenance contractors needed to be in place by October 1, 2017, to support training. The other potential contractor was not equipped to be in Afghanistan by that date.

²⁰ DOD, *DOD Dictionary of Military and Associated Terms*, June 2018, p. 173.

decided that AQC training would occur only in Afghanistan. Current CSTC-A officials could not explain the rationale behind this decision.

According to CSTC-A, as of June 2018, there were 36 IERW graduates waiting for UH-60 AQC training. However, the next scheduled six-student session of AQC for IERW graduates was to begin in October 2018 and end in December 2018.²¹ TAAC-Air had eight-pilot AQC sessions scheduled to begin in December 2018, February 2019, and April 2019, and another six-pilot AQC session scheduled for June 2019. Based on this schedule, the last graduate of the 2018 IERW training season will not complete AQC until August 2019, more than a year after completing IERW.

The gap between IERW and AQC extends training time and delays pilots' availability for UH-60 missions. TAAC-Air officials said the IERW, AQC, and Mission Qualification Training (MQT) schedules did not align, but provided no details on how they plan to better align them. During our visit to the AQC training location in Afghanistan, a contracting official responsible for AQC training noted that training at Kandahar Air Field is challenging because there is often a wait to use runways and airspace as other aircraft frequently use them. According to an official in the Program Executive Office for Simulation, Training, and Instrumentation, the delay between potential UH-60 pilots graduating from IERW and continuing to AQC in a timely manner can erode both English skills and flying skills. He added that the delay could result in increased training costs. The former Commander of TAAC-Air said training in Afghanistan required extra force protection at a hidden cost. During our visit to IERW sites in Europe, we learned that AQC could be still be offered at the site in Slovakia. According to an official from the Program Executive Office for Simulation, Training, and Instrumentation, Raytheon could add AQC to the IERW training already taking place in there. In response to a draft of our report, CSTC-A said TAAC-Air had requested funding for additional AQC training locations to help reduce the waiting time between IERW and AQC.

An Unrealistic English Language Requirement Delayed Pilot Development

Before students can attend IERW in Europe or the United Arab Emirates, or helicopter training at Fort Rucker, they must demonstrate the ability to understand and speak some English by scoring a 55 on their English language test. Students attending pilot training at Fort Rucker first attend English language training at the Defense Language Institute for 22 weeks and must score an 80 on their English test to continue on to Fort Rucker and UH-60 training. Students headed to IERW continue English language training as part of the 15-month training program. According to DOD officials, the former CSTC-A leadership determined that students leaving Afghanistan for aviation training would need to score 80 on their English language tests. However, most pilot candidates could not attain this score prior to leaving Afghanistan, according to an official of the Program Executive Office for Simulation, Training, and Instrumentation. In March 2018, CSTC-A identified 83 students awaiting pilot training; a CSTC-A official said English language issues delayed these students.

According to an official in the Program Executive Office for Simulation, Training, and Instrumentation, the inability of potential pilots to demonstrate the required English competency level is a principal reason why past IERW sessions have had fewer students than the 25 to 30 students that Raytheon can train in each location. For example, the IERW sessions that began in the United Arab Emirates in February 2018 had 16 students, and the session in Europe had 17 students. While CSTC-A wants to send 25 pilots a year to Fort Rucker for training, the command, to date, has not done so, in part because of inadequate English skills. Since the departure of the former leadership, CSTC-A reduced the requirement to 55. According to an official in the Program Executive Office for Simulation, Training, and Instrumentation, they anticipate having more students in IERW because of this change. However, the IERW session that began in July 2018 had only 15 students.

²¹ The October 2018 AQC training sessions did not begin until November 2018. As a result, the AQC training sessions that follow will likely be delayed.

Combined Security Transition Command-Afghanistan Reduced the Number of Pilots to Be Trained Based on a Faulty Cost Estimate

According to the former CSTC-A official responsible for developing CSTC-A's training schedule, CSTC-A had intended to train 477 pilots to support 159 aircraft for a crew ratio of 1.5 pilots for each aircraft, which would require three pilots for each aircraft. However when developing the budget for IERW training, CSTC-A officials told us they were directed to assume a crew ratio of 1.25, which would require 2.5 pilots for each aircraft. A crew ratio of 1.25 means that CSTC-A would need to train only 398 UH-60 pilots. Additionally, CSTC-A assumed a 75 percent aircraft availability rate as a planning factor. Therefore, CSTC-A determined that only 75 percent of the UH-60s would be available at any given time to undertake missions. Using the 75 percent aircraft availability rate further reduces the number of pilots CSTC-A needs to train. In July 2018, CSTC-A said the command's goal is to train 357 UH-60 pilots.

According to CSTC-A officials, CSTC-A decided to reduce the number of pilots trained as a cost-saving measure. However, based on our analysis of actual training costs, CSTC-A overestimated its cost for rotary wing training by as much as \$1 billion. In 2017 CSTC-A estimated the cost of rotary wing training at \$1.3 billion over 7 years. Using the IERW training track cost of \$1.048 million, we estimate the cost to train the 477 pilots CSTC-A originally planned to train at about \$500 million.²² Furthermore, we estimate the cost to train the command's current goal of 357 UH-60 pilots at approximately \$374 million, which is nearly \$1 billion less than the CSTC-A estimate. In April 2018 we asked CSTC-A for data to explain its \$1.3 billion cost estimate, but it could not provide the data to explain the estimate.

According to the former deputy commander of CSTC-A, the decision to reduce the number of pilots trained came after the command accelerated the introduction of the UH-60s by 20 months to the AAF in an effort to produce decisive combat power for the 2018, 2019, and 2020 fighting seasons. The former deputy commander said helicopters are the decisive platform in Afghanistan, where moving troops is essential to combating the insurgency. Moreover, it came at a time when a heightened AAF operational tempo will strain resources as the force applies "unrelenting pressure" on the insurgent groups to reconcile with the Afghan government, according to TAAC-Air strategic plan.²³

Some of Combined Security Transition Command-Afghanistan and Train, Advise, Assist Command-Air's Training Assumptions Are Unrealistic

DOD guidance requires that training associated with security cooperation programs be planned realistically, taking into account the skills to be developed and the background and experience of the students. We found that CSTC-A and TAAC-Air have made unrealistic assumptions regarding student or pilot attrition and the English language program, thus decreasing the likelihood that the commands will achieve their training targets.

Combined Security Transition Command-Afghanistan Assumes There Will Not Be Student or Pilot Attrition

According to the CSTC-A official responsible for scheduling training, CSTC-A assumes there will be no attrition from pilot training, even though data from the training locations show that not all students complete the training. However, according to data CSTC-A provided us, 2 of the 14 students who attended training at Fort Rucker between August 2016 and July 2018 absconded from the training. This number does not include the 56 Afghan students who absconded from English language training at the Defense Language Institute before attending training at Fort Rucker or other U.S. training locations.²⁴ Additionally, as of March 2018, data from the Program Executive Office for Simulation, Training, and Instrumentation show that IERW has a graduation

²² The IERW track is the most expensive way to train UH-60 pilots. Our cost estimate consists of \$795,600 for IERW, \$220,599 for AQC, and \$32,206 for MQT; the total for these three phases is \$1.048 million

²³ TAAC-Air, *Strategic Guidance Version 1*, April 2018, p. 6.

²⁴ SIGAR, *U.S.-Based Training for Afghanistan Security Personnel: Trainees Who Go Absent Without Leave Hurt Readiness and Morale, and May Create Security Risks*. SIGAR-18-03-SP, October 19, 2017, p. 8.

rate of 74 percent: 26 percent of students who began training did not graduate. Reasons for this attrition include a lack of English comprehension skills; medical issues, such as color blindness and cataracts; security issues; cheating; and academic failure. If Raytheon, the contractor providing IERW training, identifies medical issues during student in-processing, TAAC-Air may be able to replace students in that training class, according to a Raytheon official. Generally, however, it is difficult to replace students who leave training during ground or flight training.

According to CSTC-A and AAF officials, the AAF does not require pilots to commit to serve for a specified period after completing training. The former Commander of the 9th Air and Space Expeditionary Task Force-Afghanistan said TAAC-Air needs to assume some pilot attrition when developing a pilot generation goal.

Combined Security Transition Command-Afghanistan and Train, Advise, Assist Command-Air Training Assumptions Are Based on the Success of an English Language Program Not Yet Fully Implemented

AAF pilots must be able to speak and understand English because, according to the International Civil Aviation Organization, English is the official language of aviation. However, developing pilots with the requisite English skills has challenged CSTC-A. In the past, CSTC-A has tried a variety of programs and approaches to improve the English language capabilities of the AAF, including using an English immersion program, English speaking Afghans as instructors, and an English teacher from the DOD Education Agency Schools through a contract with the Defense Language Institute, according to a 2012 report from the DOD Office of Inspector General.²⁵ The current contractor, Raytheon, began English language instruction in 2013. The TAAC-Air official responsible for the new English program said the last iteration of English training was not successful in preparing students for IERW because different contractors provided the training with different standards. This made it hard to ensure consistent training. Furthermore, the program was not outcome-based and did not require the contractor to report student attendance, and students did not always attend classes, according to a TAAC-Air official responsible for English training.

In November 2017, the TAAC-Air official responsible for the English program told us he was working with Raytheon to improve the English language training program to better prepare the AAF pilots for flight training. In April 2018, TAAC-Air had partially implemented the improved program, according to the same TAAC-Air official, but he did not know when the command would implement all four phases of the program. Nonetheless, the current UH-60 pilot schedule is predicated on the assumption that potential pilots will be better prepared to meet the requirements of the English test with the implementation of this program. TAAC-Air and Program Executive Office for Simulation, Training, and Instrumentation officials said the new program will better prepare students for pilot training because it provides intensive English language instruction of at least 20 hours a week and establishes measureable standards for student selection, assessment, and management, among other things. TAAC-Air has consolidated all AAF English training into one location, and CSTC-A has begun administering proficiency exams every 2 weeks. In addition, according to a CSTC-A official, the initial feedback on the training shows that it has begun to improve the English skills of some students. However, according to DOD's June 2018 *Report on Enhancing Security and Stability in Afghanistan*, the new English program is "operating at less than 50 percent efficiency due to force protection shortages at the primary training location."²⁶

DOD Has Not Developed Benchmarks to Pause or Terminate UH-60 Deliveries as Pilot Training Numbers Decline and Assumptions Change

DOD officials have identified training and developing pilots as one of the biggest challenges to the successful integration of the UH-60s into the AAF. In its June 2018 report to Congress, DOD expressed concerns about the

²⁵ DOD Office of Inspector General, *Assessment of U.S. Government and Coalition Plans to Train, Equip and Field the Afghan Air Force*, DODIG-2012-141, September 28, 2012, pp. 47-48.

²⁶ DOD, *Report on Enhancing Security and Stability in Afghanistan*, June 2018, p. 76.

speed at which it can train pilots to keep pace with the new aircraft joining the fleet. According to CSTC-A officials, the command has further reduced its training goal from 357 pilots to 320 pilots over the next 5 years, leaving the AAF and SMW 37 pilots short of CSTC-A's earlier goal.

Furthermore, CSTC-A may not achieve the 320-pilot target because the number of pilots going through training is already falling behind planned class sizes. Class sizes for IERW training and training at Fort Rucker have been smaller than DOD's original assumptions and AQC at Kandahar trained only 34 pilots in fiscal year 2018 instead of the 36 expected. Additionally, MQT has not produced the 64 pilots that TAAC-Air and CSTC-A assumed it would between February 2018 and January 2019. According to the MQT schedule, each MQT session was to produce 16 pilots, but DOD data showed that the first class of MQT graduated 15 pilots, and the second class graduated 10 pilots. According to information from the U.S. Army Security Assistance Training Management Organization, the third class of MQT had only nine students. The fourth class that began in November 2018 included only 14 students. As a result, TAAC-Air is at least 16 pilots, or 8 crews, behind the level CSTC-A thought it would achieve in November 2018, raising concerns that CSTC-A's training plan may not produce enough pilots for the 159 aircraft the Army expects to deliver by 2023.

According to Chapter 10 of the Defense Security Cooperation Agency *Security Assistance Management Manual*,

Training is an integral part of a total program approach to building partner capability or capacity, and must be considered when estimating delivery dates of equipment . . .

Adjustments to deliveries may be necessary to ensure that foreign personnel have the training and skills to meet operational requirements. Training programs must consider the absorption capacity of the host nation; the availability of qualified personnel; the skills to be developed, to include English Language Training; and the time required to plan, implement, and complete any additional individual and unit training once equipment is delivered.²⁷

As noted earlier, DOD selected the UH-60 in part because it could more easily reduce the number of aircraft provided to the AAF and SMW if program assumptions changed. Program assumptions have changed, however. When DOD initiated the AAF modernization program, it did not establish the benchmarks it would use to determine when to delay or terminate aircraft delivery. Examples of benchmarks include the number of students who successfully complete English training; the number of students in IERW, AQC, or MQT; and the number of pilots available to complete UH-60 missions. According to the Utility Helicopter Project Office (UHPO), while there would be some costs associated with scaling back production of the UH-60s, the Army could sell UH-60s to other customers. If DOD delayed deliveries, storage in the United States would be less expensive and safer than storage in Afghanistan. Furthermore, DOD has withheld aircraft to the AAF in the past. For example, in 2012, the DOD Office of Inspector General reported that the North Atlantic Treaty Organization Air Training Command²⁸ withheld the delivery of 21 MI-17s to the AAF until the Afghan government exercised greater professionalism.²⁹

²⁷ Defense Security Cooperation Agency, Chapter 10, "International Education and Training," *Security Assistance Management Manual*, April 30, 2012, p. 1.

²⁸ The North Atlantic Treaty Organization Air Training Command-Afghanistan was renamed TAAC-Air in January 2015.

²⁹ DOD Office of Inspector General, *Assessment of U.S. Government and Coalition Plans to Train, Equip and Field the Afghan Air Force*, DODIG-2012-141, September 28, 2012, p. 21.

DOD HAS NOT DEVELOPED A MAINTENANCE PLAN OR FLYING HOUR PROGRAM TO SUSTAIN THE UH-60

DOD Has Not Developed a Formal Course of Study to Train the Afghan Air Force and Special Mission Wing to Maintain the UH-60

Combined Security Transition Command-Afghanistan (CSTC-A) and Train, Advise, Assist Command-Air (TAAC-Air) have identified the need to establish a program to train Afghan Air Force (AAF) and Special Mission Wing (SMW) personnel to maintain the UH-60, but as of November 28, 2018, there was no maintenance training course in place. TAAC-Air estimates that the AAF and SMW will need to recruit and train approximately 835 maintenance personnel. DOD's long-term vision for UH-60 maintenance is similar to the U.S. Army's three-level aircraft maintenance program—unit level, intermediate level, and depot level. AAF and SMW maintainers will complete some maintenance tasks at the unit level, the lowest level of maintenance required for an aircraft. Unit level maintenance is high frequency, “on-aircraft” maintenance tasks that generate minimal aircraft downtime. Tasks associated with unit level maintenance include minor repairs, replacing parts, and cleaning the aircraft. AAF and SMW personnel will also complete some intermediate level maintenance. Intermediate maintenance includes repairing and replacing aircraft components, diagnosing and testing aircraft components, repairing airframes, and fabricating airframes if the required skills and equipment are available. The U.S. Army's maintenance guidance characterizes depot level activities as aircraft overhaul, repair, retrofit, and modernization. According to DOD, this level of maintenance will continue to be a contractor's responsibility for the long term.

The U.S. Army Security Assistance Training Management Organization and TAAC-Air officials are working to develop a UH-60 rotary wing maintenance program that might begin in mid-2019. TAAC Air estimates that unit level maintenance will begin in September 2025. However, because it takes 5 to 7 years to develop fully qualified helicopter maintainers, recruitment and training would need to begin immediately for the AAF to have any trained maintainers available by 2025. Furthermore, maintenance personnel must complete approximately 9 months of English before beginning entry-level maintenance training. According to DOD, maintainers need to speak and read English because there are cost, legal, and feasibility difficulties that make it impossible to translate maintenance manuals into Dari. To complicate matters, TAAC-Air officials pointed out that many of the enlisted personnel in the ANDSF do not read or write in their native languages, making training difficult. In addition, attendance at maintenance training has been a problem in the past. In response to a draft of our report, TAAC-Air and CSTC-A stated that TAAC-Air had requested funding for aircraft maintenance development centers to be established in the United Arab Emirates, Slovakia, and Afghanistan. According to a discussion document of the proposed training plan, the Slovakia center will focus specifically on developing entry-level UH-60 maintenance personnel. DOD plans for these centers to be operational in early 2019.

DOD estimates that the cost of contractor maintenance for the UH-60s from 2019 to 2023 will be more than \$2.8 billion. This cost is likely to grow the longer it takes to develop the AAF and SMW maintenance capabilities because, according to a DOD contracting official, using U.S. contractors to maintain aircraft is more expensive than using Afghan maintainers. Because DOD has yet to develop a formal maintenance training course and has not begun training AAF or SMW maintainers, it is likely that the AAF and SMW will continue to rely on contracted maintenance to support the UH-60 beyond 2023.

However, DOD policy bars U.S. contractors from working at AAF bases where there is no U.S. or coalition control. According to the 9th Air and Space Expeditionary Task Force-Afghanistan, to be fully effective, the UH-60 will need to be able to fly to areas currently serviced by the MI-17. Because many of those areas are outside coalition control, retrieving a UH-60 from such areas, for example, in the event the aircraft experiences a malfunction and is unable to depart, would be a significant challenge. This constraint, according to the 9th Air and Space Expeditionary Task Force-Afghanistan, would limit the viable locations from and to which the UH-

60 could operate in the near- to mid-term. A TAAC-Air official acknowledged that DOD and the AAF's dependence on contractors to maintain the UH-60 would limit where the helicopters could be based. According to an April 2018 TAAC-Air document, DOD plans to have a UH-60 squadron at Shindand Airbase in Herat Province by 2020. However, there is currently no U.S. or coalition military presence at Shindand, which prevents both TAAC-Air advisors and U.S. contractors from residing there. It is unclear how DOD plans to support the UH-60s at Shindand before September 2025, when TAAC-Air estimates that the AAF will start unit level maintenance.

The Afghan Air Force Has Not Developed a Flying Hour Program for the UH-60 to Limit the Number of Hours Flown and Help Control Maintenance Costs

According to DOD officials familiar with the initial planning for the AAF modernization, DOD intended to place conditions on the AAF to continue fielding the UH-60 to the AAF. These conditions included requiring the AAF to implement a flying hour program specific to the UH-60. Despite DOD identifying this condition, neither TAAC-Air nor CSTC-A required the AAF to develop a flying hour program to identify how the UH-60s will be used and limit the average number of hours the aircraft fly each month.

According to DOD, overuse and abuse of the MI-17 has been a principal factor in its reduced availability, and overuse of the UH-60 could result in a similar situation. In its December 2016 *Report on Enhancing Security and Stability in Afghanistan*, DOD noted that the lack of a disciplined flying hour program for the MI-17 contributed to increased maintenance demands, a high accident rate, and lower aircraft availability rates.³⁰ Although the Ministry of Defense issued a directive in February 2017 limiting MI-17 flying to 25 hours per month per aircraft, the AAF is flying the aircraft more than the allotted hours. According to an AAF official, the AAF flew the MI-17s located in Kabul and Kandahar between 45 and 50 hours in April 2018. According to AAF officials, there are three reasons for the high number of flying hours. First, Afghan National Army commanders ignore the 2017 directive with impunity. Second, ground commanders call on the MI-17s to deal with fighting situations that the ground forces should be able to handle without air support. Finally, and most importantly, ground commanders do not request resupply early enough to allow for ground transportation of supplies, such as firewood and ammunition.

The high number of flying hours per month on the MI-17 will likely ground the aircraft sooner than planned, particularly during the height of the fighting season, because the aircraft will have reached their operational limit. One AAF official we interviewed said ground commanders want the helicopters today and do not care that they will not be available tomorrow. However, this AAF official also said that although the AAF continues to fly the MI-17 more hours than the February 2017 directive permits, the situation was much worse before the Ministry of Defense issued the directive. According to another AAF official, if overuse of the UH-60 is to be prevented, the AAF must establish a flying hour program to restrict the use of the UH-60 to strategic missions before the aircraft are fielded.

Developing a realistic program that manages the use of aircraft has been a well-established element of ensuring that aircraft are available and ready for operational missions. For example, U.S. Air Force Instruction 11-102, "Flying Hour Program," requires that all major commands have a flying hour program. UH-60s, like other aircraft, require inspections based on the number of hours flown. The UH-60 requires inspections after 40, 120, and 480 hours of flying. These inspections make the aircraft unavailable for missions. Additionally, the maintenance strategy for the UH-60 operational aircraft assumes that each aircraft flies 35 hours per month with the capability of supporting short duration surge requirements. According to a DOD document, the cost to operate the UH-60 is \$6,070 per hour. Without a limit on the number of hours flown each month, the cost to maintain the aircraft would increase in part because more labor would be needed to keep the UH-60s in a combat-ready status to meet the AAF's operational requirements, and more parts would be purchased and used than originally planned.

³⁰ DOD, *Report on Enhancing Security and Stability in Afghanistan*, December 2016, p. 62.

CONCLUSION

Although the Army met Combined Security Transition Command-Afghanistan's (CSTC-A) requested initial operational capability date of June 2018, serious concerns remain over how it will be able to sustain the program over the long term and provide reasonable assurance that taxpayer dollars will not be wasted if DOD delivers aircraft that the Afghan Air Force (AAF) and Special Mission Wing (SMW) do not have enough pilots to fly and do not have the ability to maintain.

According to UH-60 delivery schedules, it is likely that all of the UH-60s will be delivered before CSTC-A and Train, Advise, Assist Command-Air (TAAC-Air) can produce enough trained pilots to operate the aircraft. DOD has expressed concerns about the speed at which it can train pilots to keep pace with the new aircraft joining the fleet, but cannot explain the rationale for some decisions made by former and current CSTC-A and TAAC-Air officials that have caused delays in training. For example, CSTC-A's decision to conduct the Aircraft Qualification Course only in Afghanistan has created a bottleneck of Initial Entry Rotary Wing (IERW) graduates, raising the possibility of increased costs and an erosion of critical English and flying skills as pilots wait months for this training. Furthermore, CSTC-A's unrealistic assumptions about training attrition and the success of TAAC-Air's yet to be fully implemented English training program could result in aircraft being delivered before pilots are available for operational missions given the history of attrition and the difficulties TAAC-Air has had with the previous English program.

Additionally, TAAC-Air and the AAF have not started to train AAF personnel to maintain the UH-60, particularly in areas where there is no U.S. or coalition control. Based on current plans, the AAF will not start unit level maintenance until 2025. To meet this deadline, maintenance training would have to begin immediately because TAAC-Air documents indicate that it takes 5 to 7 years to develop a fully qualified helicopter maintainer. Despite this, TAAC-Air plans to establish a squadron of UH-60s at Shindand, Herat Province, in 2020, at least 5 years before Afghan maintainers will be available. Because DOD policy bars U.S. contractors from working at AAF bases where there is no U.S. or coalition control, it is unclear how the AAF and DOD intend to maintain the UH-60s expected to be at Shindand, increasing the risk that the money spent to acquire these aircraft will be wasted if the aircraft are not used or do not receive proper maintenance. Furthermore, the lack of a flying hour program to govern the use of the UH-60 increases the likelihood that the aircraft will be flown excessively, requiring additional maintenance at increased costs beyond what DOD has currently budgeted.

Given concerns that the AAF and SMW may not be able to fully use all 159 aircraft when delivered, DOD runs the risk of wasting U.S. taxpayer dollars to purchase aircraft the AAF and SMW cannot fly or maintain. Despite this risk, DOD has not yet developed benchmarks to determine when to pause or terminate the delivery of UH-60s if the AAF and SMW cannot carry out these critical tasks.

RECOMMENDATIONS

To ensure that the Afghan Air Force (AAF) has pilots available to fly the UH-60, we recommend that the Combined Security Transition Command-Afghanistan (CSTC-A) Commander and Train, Advise, Assist Command-Air (TAAC-Air) Commander work to:

- 1. Take steps to reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots.**
- 2. Fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training.**

To ensure that the AAF develops a maintenance capability that will help defray costs of contractor logistic support, we recommend that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office:

3. Develop and implement a program to train AAF personnel to maintain the UH-60s.

To ensure that the UH-60s are properly maintained, we recommend that the CSTC-A Commander, the TAAC-Air Commander, and the Utility Helicopter Project Office:

4. Develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province.

To ensure that the UH-60s are not flown more than the 35 hours per month assumed in the maintenance strategy, we recommend that the TAAC-Air Commander:

5. Work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible.

To ensure that DOD does not provide the AAF and SMW with aircraft they cannot use, we recommend that the Under Secretary of Defense for Policy:

6. Link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan.

AGENCY COMMENTS

We provided a draft of this report to DOD for review and comment. We received written comments from the Office of the Under Secretary of Defense for Policy (OUSD-P), the Combined Security Transition Command-Afghanistan (CSTC-A), and the Train, Advise, Assist Command-Air (TAAC-Air), which are reproduced in appendices II, III, and IV, respectively. We also directed a recommendation to the Army's Utility Helicopter Project Office, but that office did not provide written comments on the report. OUSD-P, the U.S. Central Command, CSTC-A, OUSD-P, and TAAC-Air also provided technical comments, which we incorporated into this report, as appropriate.

OUSD-P concurred with all of the recommendations and referred to TAAC-Air's and CSTC-A's comments for a description of the actions being taken in response to them. CSTC-A partially concurred with four recommendations, while TAAC-Air concurred with all of our recommendations.

CSTC-A partially concurred with recommendations 1 through 4, which were directed to both TAAC-Air and CSTC-A. CSTC-A requested that we rewrite them to recommend that TAAC-Air coordinate with CSTC-A instead of directing the recommendations to CSTC-A. CSTC-A's rationale for this change is based on its position that TAAC-Air is the primary command tasked with advising the AAF's senior leadership and guiding the efforts to develop the AAF. While this is true, CSTC-A is nonetheless responsible for funding the requirements that TAAC-Air develops to fulfill this mission. As a result, TAAC-Air cannot take the actions needed to implement the recommendations unless CSTC-A approves the necessary funds. Because of the key role CSTC-A will play in implementing these recommendations; we contend that they should stand as written.

TAAC-Air concurred with our first recommendation and said that it is working with CSTC-A and the Program Executive Office for Simulation, Training, and Instrumentation to develop an aircraft qualification training—referred to in our report as Aircraft Qualification Course (AQC)—course outside of Afghanistan to reduce the time between initial pilot training and UH-60 aircraft qualification training. In its comments, CSTC-A said it is exploring establishing an aircraft qualification training course in Slovakia to streamline the pilot training. CSTC-A also noted that TAAC-Air has requested funding from the Afghanistan Security Forces Fund for training outside of Afghanistan but did not indicate whether CSTC-A has approved the request. We will keep this recommendation open until we receive documentation that TAAC-Air and CSTC-A have initiated changes to the AQC and that the backlog of pilots waiting to attend the course has been reduced.

TAAC-Air concurred with our second recommendation to implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training. TAAC-Air said the English Language Training program is in full execution and can train up to 1,000 students per year. However,

DOD's December 2018 report to Congress on *Enhancing Security and Stability in Afghanistan* states, "Force protection requirements for English language instructors and classes limit the number of opportunities available to candidates and challenge advisors to keep enough personnel in the training pipeline."³¹ CSTC-A reiterated TAAC-Air comments on the second recommendation. We will keep this recommendation open until TAAC-Air or CSTC-A provides us with documentation showing that it has fully implemented the English language training program and pilots and maintenance personnel are matriculating into the program to the level required to meet requirements for pilot training.

TAAC-Air concurred with our third recommendation to develop and implement a program to train AAF personnel to maintain the UH-60s and noted that the command has developed a plan to begin initial maintenance training by establishing two aircraft maintenance development centers outside of Afghanistan. TAAC-Air said training at one location focuses on training entry-level UH-60 maintenance personnel. TAAC-Air did not provide any program details, such as the number of students anticipated to attend each year or the follow-on programs needed to develop the advanced maintainers for the UH-60s. CSTC-A said TAAC-Air had requested funding for the aircraft maintenance development centers, but did not indicate whether it had approved the request. We will keep this recommendation open until we receive evidence from TAAC-Air or CSTC-A showing that the two development centers are operating and that TAAC-Air has developed a plan to provide the required advanced level training.

TAAC-Air concurred with our fourth recommendation to develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province. Although TAAC-Air concurred with this recommendation, it did not provide any information on how DOD would maintain UH-60s in locations where U.S. contractors are not permitted to work due to security considerations. As we stated in our report, DOD intends to locate UH-60s at Shindand in 2020. Although TAAC-Air indicated that it is going to implement a maintenance training program, the training program will not produce the required number of intermediate and supervisory level aircraft maintenance personnel needed to maintain the UH-60s without contractor assistance by 2020. We continue to recommend that, if TAAC-Air and the AAF still plan to locate UH-60s at Shindand before AAF maintenance capability is available, it is critical that they develop a plan that outlines how they plan to maintain these aircraft.

TAAC-Air concurred with our fifth recommendation to work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible. However, TAAC-Air did not provide any details on what actions the command is taking to work with the AAF to develop this program. According to TAAC-Air's comments, the current maintenance contractor is responsible for scheduling aircraft for daily operations and does not schedule aircraft that exceed the 35-hours-per-month limit. Also, TAAC-Air advisors vet the operational requests and track that the number of hours flown do not exceed the monthly limit per aircraft. While these actions may help limit the number of hours flown, they are not a long-term solution or a replacement for a flying hour program. In addition, TAAC-Air said the AAF commanding general has issued a message limiting the use of each UH-60 to 35 hours per month. We support the AAF commanding general's issuance of a message limiting the number of hours flown, but as we noted in our report, the Afghan National Army commanders have ignored a similar message intended to limit the number of hours the AAF flies the MI-17. Finally, according to TAAC-Air, the Commander of NATO Air Command-Afghanistan delivered an overuse warning memo to the Afghan Minister of Defense outlining future penalties if aircraft are overflown. TAAC-Air did not provide us with a copy of the memo. Therefore, we could not determine whether the warning memo is responsive to our recommendation. We will keep this recommendation open until we receive evidence that TAAC-Air has worked with the AAF to develop a flying hour program.

In its written comments, OUSD-P concurred with our sixth recommendation to link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan. OUSD-P said the Afghan UH-60 program was designed to allow flexibility to either accelerate or slow aircraft fielding to adjust to

³¹ DOD, *Report on Enhancing Security and Stability in Afghanistan*, December 2018, p. 51.

the pace of pilot and maintainer generation. However, it did not provide any details as to how it would link the deliveries of UH-60s to the training of pilots and maintenance personnel.

In addition to responding to the recommendations, OUSD-P commented that the title of our report—*Afghan Air Force: DOD Met the Initial Date for Fielding UH 60 Helicopters, but Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s*—is misleading. Specifically, according to OUSD-P, our title implies that AAF maintainers will be fully responsible for the maintaining the fleet and does not acknowledge that contracted logistic support will remain critical for much of the maintenance of the fleet. We disagree with OUSD-P. In our report, we point out that because of the length of time it takes to develop the AAF's maintenance personnel, it is likely that the AAF and SMW will continue to rely on contracted maintenance to support the UH-60 beyond 2023. DOD has not estimated the costs beyond this date. We also state that the UH-60 basing plan calls for locating UH-60s at AAF bases where security conditions prevent U.S. contractors from working before any AAF maintainers would be trained to maintain the aircraft. Because of this, we continue to believe our title conveys the concerns we have about the AAF's ability to maintain the aircraft.

APPENDIX I - SCOPE AND METHODOLOGY

This report provides the results of SIGAR's audit of the Department of Defense's (DOD) introduction of the UH-60 Black Hawk helicopter into the Afghan Air Force (AAF) and Special Mission Wing (SMW). The objectives of this audit were to assess the extent to which DOD (1) met its planned initial operational capability date of June 2018; (2) developed a training program to ensure that the AAF and SMW will make full use of the UH-60s; and (3) identified and addressed maintenance challenges.

To assess the extent to which DOD met its planned initial operational capability date of June 2018, we reviewed DOD program documents detailing initial operational capability requirements and analyzed contracts, delivery orders, and data for UH-60 aircraft, equipment, maintenance, modifications, and pilot and crewmember training. We interviewed officials from the Office of the Under Secretary of Defense for Policy (OUSD-P), the Combined Security Transition Command-Afghanistan (CSTC-A), the Train, Advise, Assist Command-Air (TAAC-Air), the Utility Helicopter Project Office (UHPO), and Army Contracting Command-Redstone Arsenal. We also interviewed officials from Science and Engineering Services LLC, which is responsible for UH-60 training and maintenance. We reviewed documents covering the period from November 2015 to December 2018.

To assess the extent to which DOD developed a training program to ensure that the AAF and the SMW make full use of the UH-60s, we analyzed training documents and data provided by CSTC-A, the Program Executive Office for Simulation, Training, and Instrumentation, and the U.S. Army Security Assistance Training Management Organization, as well as DOD budget documents and reports to Congress related to the AAF's modernization. We also used DOD training cost data to estimate the total cost for UH-60 pilot training. In addition, we visited each of the training facilities where AAF pilots receive Initial Entry Rotary Wing training or UH-60 aircraft and mission qualification training, located at Fort Rucker, Alabama; Al-Fujairah, United Arab Emirates; Hradec Králové, Czech Republic; Košice, Slovakia; and Kandahar, Afghanistan. We interviewed officials from OUSD-P, CSTC-A, TAAC-Air, UHPO, U.S. Army Training and Doctrine Command, and the Program Executive Office for Simulation, Training, and Instrumentation. We also interviewed officials from Raytheon, which is responsible for UH-60 training.

To assess the extent to which DOD identified and addressed maintenance challenges, we reviewed DOD policies and guidance on maintaining aircraft and managing flying hours, and program documents on UH-60 maintenance training and contractor maintenance costs. We interviewed CSTC-A, TAAC-Air, UHPO, and Army Contracting Command-Orlando officials. We also interviewed AAF officials on the implementation of a flying hour program for the UH-60.

In addition, we met with representatives from the U.S. Army Program Executive Office-Aviation's Non-Standard Rotary Wing Office, which is responsible for the AAF's MI-17 and MD-530 programs. We also met with program managers from MD Helicopter, the manufacturer of the MD-530.

We did not rely on computer-processed data for the purpose of the audit objectives. To assess internal controls, we analyzed contract requirements related to DOD's use of contractors to provide UH-60 pilot training and aircraft maintenance. The results of our assessment are included in the body of this report.

We conducted our audit work in Washington, D.C.; Kabul and Kandahar, Afghanistan; Fort Rucker and Huntsville, Alabama; Orlando, Florida; Al-Fujairah, United Arab Emirates; Hradec Králové, Czech Republic; and Košice, Slovakia, from April 2017 through January 2019, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. SIGAR performed this audit under the authority of Public Law No. 110-181, as amended, and the Inspector General Act of 1978, as amended.

APPENDIX II - COMMENTS FROM THE DEPARTMENT OF DEFENSE



ASIAN AND PACIFIC
SECURITY AFFAIRS

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
2700 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-2700

The Honorable John Sopko
Special Inspector General for Afghanistan Reconstruction
1550 Crystal Drive, 9th Floor
Arlington, VA 22202

Dear Mr. Sopko:

This is the Department of Defense (DoD) response to SIGAR's draft audit report, "Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s."

DoD appreciates the collaboration and recommendations provided by the audit team during its review of the initial stages of the Afghan UH-60 training program. DoD concurs with all six recommendations. As noted in the responses from Combined Security Transition Command-Afghanistan and Train-Advise-Assist Command-Air (TAAC-Air), these commands are taking steps to address the issues identified. Their efforts and continued oversight of the program mitigates the risk of not having enough pilots. In addition, the inference in the title of the report that the Afghans will not have the "capability to maintain future UH-60s" is misleading because it implies that Afghan Air Force (AAF) maintainers will be fully responsible for maintaining the fleet. In fact, contracted logistic support (CLS) will remain critical for much of the maintenance of the fleet. Over time, this reliance will be reduced as more Afghan maintainers are trained and gain experience, but it will remain important for the AAF—just as CLS is critical to sustaining the readiness of the U.S. Army's UH-60 fleet. DoD understands the importance of ensuring the UH-60 CLS contract supporting the AAF is effectively managed and that its costs are reasonable and affordable.

DoD's effort to modernize the AAF is central to ensuring the Afghan Government's defense forces are capable of projecting combat power throughout the country; the goal is to build the AAF's capability to meet its aerial fires and lift requirements and diminish the reliance on U.S. forces as an aviation combat enabler. The AAF provides mobility; aerial fires; and intelligence, surveillance, and reconnaissance critical to the Afghan Army's efforts to place pressure on the Taliban and drive them toward reconciliation as well as defeat the multiple terrorist organizations which operate in Afghanistan and threaten the United States and our allies. The UH-60 program is a major part of these efforts, providing modernized aircraft that are critical to air mobility. The UH-60 is also the primary platform for ending Afghanistan's dependence on—and DoD's funding for sustainment of—Russian-made Mi-17 helicopters by 2023.

It is important to note that the initial fielding of the first Afghan UH-60 in October 2017 was nearly two years earlier than had been anticipated. Consequently, while TAAC-Air had developed plans for pilot and maintainer training, full implementation of the plans lagged the



accelerated fielding schedule. SIGAR's insights during the course of this audit in early 2018 were of particular value in enabling TAAC-Air to identify and close these gaps.

The Afghan UH-60 program was designed to allow flexibility to either accelerate or slow aircraft fielding in order to adjust to the pace of pilot and maintainer generation. Since early 2018, DoD has been planning for expanded pilot and maintainer throughput by increasing the number of Afghans trained out-of- country and streamlining training. This includes a significant expansion of maintainer training capacity that will come on line in the next few months. Currently, 30 UH-60s have been fielded, of which 29 are in use conducting combat and training operations; one aircraft crashed and is damaged beyond repair. Developing proficient pilots and maintainers is a multi-year project. DoD will continue to assess and adjust the program to build AAF organic training and maintenance capacity.

DoD welcomes the opportunity to remain engaged with SIGAR to perform effective oversight of current programs and ensure U.S. taxpayers' money is spent wisely through U.S. Forces-Afghanistan's support for the NATO Resolute Support (RS) train, advise, and assist mission.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. F. Jackson', with a long horizontal flourish extending to the right.

Colin F. Jackson
Deputy Assistant Secretary of Defense for
Afghanistan, Pakistan, and Central Asia

“AFGHAN AIR FORCE: DOD MET THE INITIAL DATE FOR FIELDING UH-60 HELICOPTERS, BUT PROGRAM IS AT RISK OF NOT HAVING ENOUGH TRAINED PILOTS OR THE CAPABILITY TO MAINTAIN FUTURE UH-60S”

DEPARTMENT OF DEFENSE COMMENTS ON THE RECOMMENDATIONS

DoD submits the following response to SIGAR’s recommendations –

To ensure that the Afghan Air Force (AAF) has pilots available to fly the UH-60, SIGAR recommends that the Combined Security Transition Command-Afghanistan (CSTC-A) Commander and Train, Advise, Assist Command-Air (TAAC-Air) Commander work to:

Recommendation 1: Take steps to reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots.

DoD response: Concur. TAAC-Air, in conjunction with CSTC-A and other DoD Components, is creating a 3rd country pipeline for UH-60 Aircraft Qualification Training (AQT). Training is currently accomplished at Kandahar along with Mission Qualification Training (MQT) resulting in delays as classes are using the same resources, instructors and equipment. Training at separate facilities will allow both the AQT and MQT pipelines to coordinate efforts rather than contending for resources in a single location. This should also reduce the waiting time between initial pilot training and UH-60 qualification.

Recommendation 2: Fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training.

DoD response: Concur. The AAF English language training (ELT) program is in full execution in Afghanistan. The current contract can support up to 1,000 trainees per year, which greatly exceeds the UH-60 pilot training requirement. Pilots must achieve the required English proficiency level to attend and succeed at initial pilot training. Additionally, Afghan ELT instructors are currently receiving advanced training and will eventually become responsible for conducting ELT.

To ensure that the AAF develops a maintenance capability that will help defray costs of Contractor Logistic Support (CLS), SIGAR recommends that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office:

Recommendation 3: Develop and implement a program to train AAF personnel to maintain the UH-60s.

DoD response: Concur. TAAC-Air, in conjunction with CSTC-A and other DoD Components, has developed a three-prong pipeline approach to creating the required UH-60 maintenance corps, referred to as the Aircraft Maintenance Development Center (AMDC). This approach includes conducting basic maintainer training at commercial schools in Slovakia and the UAE and similar training by contractors in Afghanistan. Training in Slovakia is focused on initial UH-60 maintainer skills. Training in Slovakia will conclude once the required number of initial UH-60 maintainers is created. Training

in Afghanistan will continue as the long-term approach. Additional in-country training over the next several years will include providing training to develop the expertise level of AAF maintainers and maintenance trainers, reducing reliance on consolidated logistic support and on contracted training.

To ensure that the UH-60s are properly maintained, SIGAR recommends that the CSTC-A Commander and TAAC-Air Commander and the Utility Helicopter Program Office:

Recommendation 4: Develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province.

DoD response: Concur. The National Maintenance Strategy-Air that was developed by CSTC-A, TAAC-Air, and the Special Mission Wing Special Operations Advisory Group in 2018 is focused on developing an operationally capable and sustainable organic Afghan maintenance force. The current UH-60 maintenance force is nascent and lacks the required quantity of basic, intermediate, and supervisory level aircraft mechanics to operate without on-site CLS. However, over the next few years, the maintainer training program will generate a cadre that will be increasingly able to perform organic maintenance. As the organic Afghan aircraft maintenance capacity matures, the Afghans will be increasingly capable of accomplishing maintenance operations in areas without adequate protection for U.S. contract support.

To ensure that the UH-60s are not flown more than the 35 hours per month assumed in the maintenance strategy, SIGAR recommends that the TAAC-Air Commander:

Recommendation 5. Work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible.

DoD response: Concur. While the AAF does not have a flying hour program that mirrors the U.S. Air Force or U.S. Army flight hour programs, the AAF's UH-60s are limited to a 35-flying hour per month utilization. This utilization rate is tracked and enforced in several ways.

- The CLS contract. The CLS contractor is committed to supporting a 35 hour per month per aircraft flying schedule. The contractor schedules aircraft availability to meet this requirement and tracks individual and fleet flying hour statistics monthly against a 35-hour standard.
- Advisors. The AAF vets mission taskings for UH-60 operational sorties through coalition advisors for concurrence. The hours flown are tracked so advisors can ensure that the 35 hour per month maximum per aircraft is not exceeded.
- Shorab and Kandahar UH-60 detachments. These AAF detachment are given a monthly allowance of 35 hours per aircraft. Once an aircraft exceeds 35 hours it is no longer available to fly missions.
- Command Direction. The AAF Commanding General has issued an official order stating that each UH-60 will not be flown more than 35 hours a month. This order has been sent to the corps commanders that the Kandahar UH-60s support and will be provided to additional corps as mission taskings expand outward from Kandahar.

- Finally, the NATO Air Command-Afghanistan Commander has delivered an overuse warning memo to the Afghan Minister of Defense (MoD) outlining future penalties if aircraft are flown beyond prescribed limits. This should reduce upper level MOD pressure to exceed the 35 hour standard.

To ensure that DoD does not provide the AAF and SMW with aircraft they cannot use, we recommend that the Undersecretary of Defense for Policy:

Recommendation 6: Link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan.

DoD response: *Concur.* There currently is sufficient training capacity to meet anticipated requirements, and so far there has been no shortage of trained flight crews for the 29 UH-60s already fielded and conducting combat and training operations. Policy will, however, continue to closely monitor the UH-60 program to ensure there is adequate pilot generation. The inference in the recommendation regarding maintainer training, however, is misleading because it implies that if there is a direct relationship between the number of maintainers trained and the ability to maintain AAF UH-60s. In fact, CLS is the primary means of maintaining the UH-60s. While the goal is to train an Afghan maintainer cadre to increase the share of overall maintenance done organically, CLS will remain an enduring requirement—just as it is critical to the U.S. Army to sustain the readiness of its own UH-60 fleet. DoD is mindful of the importance of ensuring the UH-60 CLS contract supporting the AAF is effectively managed and that its costs are reasonable and affordable.

APPENDIX III - COMMENTS FROM THE COMBINED SECURITY ASSISTANCE COMMAND-AFGHANISTAN



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DEPUTY CHIEF OF STAFF SECURITY ASSISTANCE
COMBINED SECURITY TRANSITION COMMAND-AFGHANISTAN
KABUL, AFGHANISTAN
APO AE 09320

DCOS SA/CSTC-A

27 December 2018

MEMORANDUM THRU

United States Forces – Afghanistan DCDR-S, APO AE 09356
United States Central Command (CCIG), MacDill Air Force Base, FL 33621

FOR Special Inspector General for Afghanistan Reconstruction, 2530 Crystal Drive, Arlington,
VA 22202-3940

SUBJECT: Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but
Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future
UH-60s SIGAR 19-XX Audit Report (Project Code SIGAR-120A)

1. The purpose of this memorandum is to provide a Management Response to SIGAR 19-XX
Draft Audit Report (Project Code SIGAR 120A) dated January 2019.

2. CSTC-A partially concurs with Recommendations 1-4 and submit the below Management
Responses for consideration.

a. *CSTC-A recommends the following changes –*

(1) As Reads – To ensure that the Afghan Air Force (AAF) has pilots available to fly the UH-60, SIGAR recommends that the Combined Security Transition Command-Afghanistan (CSTC-A) Commander and Train, Advise, Assist Command-Air (TAAC-Air) Commander work to:

(a) Take steps to reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots (Recommendation 1).

(b) Fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training (Recommendation 2).

(2) Amend to Read – To ensure that the Afghan Air Force (AAF) has pilots available to fly the UH-60, SIGAR recommends “Train, Advise, Assist Command-Air (TAAC-Air) Commander” in coordination with the Combined Security Transition Command-Afghanistan (CSTC-A) Commander work to implement (Recommendations 1 and 2).

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DCOS SA/CSTC-A

SUBJECT: Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s SIGAR 19-XX Audit Report (Project Code SIGAR-120A)

(3) Rationale –

(a) Recommendation 1 –

(1) TAAC-Air is the primary command tasked with advising the AAF senior leadership and guiding the AAF efforts to produce the necessary pilots, aircrews, and maintainers to operate and support the UH-60s.

(2) TAAC-Air has drafted and submitted an Afghan Security Forces Fund (ASSF), Letter of Justification (LOJ), to fund follow-on UH-60 Aircraft Qualification Training (AQT) outside of Afghanistan.

(3) CSTC-A is exploring the establishment of an AQT training site in Slovakia to enable the streamlining of pilot throughput and ready students for Mission Qualification Training in Afghanistan.

(b) Recommendation 2 –

(1) Per TAAC-Air, the AAF English Language Training (ELT) program is in full execution. The current contract can support up to 1000 trainees per year, which greatly exceeds the UH-60 pilot training requirement.

(2) AAF ELT instructors are currently being trained to fill the ELT requirements in order to provide an organic capability; thereby, ensuring an enduring Afghan solution.

b. CSTC-A recommends the following change –

(1) As Reads – To ensure that the AAF develops a maintenance capacity that will help defray cost of contractor logistic support, SIGAR recommends that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office: Develop and implement a program to train AAF personnel to maintain the UH-60s (Recommendation 3).

(2) Amend to read – To ensure that the AAF develops a maintenance capacity that will help defray cost of contractor logistic support, SIGAR recommends that the "TAAC-Air Commander" in coordination with CSTC-A Commander and the Army Security Assistance Training Management Office: (Recommendation 3).

(3) Rationale –

(a) TAAC-Air is the primary command tasked with advising the AAF senior leadership and guiding the AAF efforts to produce the necessary pilots, aircrews, and maintainers to operate and support the UH-60s.

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SUBJECT: Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s SIGAR 19-XX Audit Report (Project Code SIGAR-120A)

(b) TAAC-Air has drafted and submitted a LOJ to fund the establishment of three Aircraft Maintenance Development Center (AMDC) pipelines in Kabul, Afghanistan, Fujahria, UAE, and Kosice, Slovakia, to train AAF general aviation and Level 3 maintainers. TAAC-Air will monitor maintenance personnel training levels and inform CSTC-A when to adjust and terminate the maintenance support contract.

(c) NATO Special Operations Component Command-Afghanistan (NSOCC-A) has drafted and submitted a LOJ to fund aircraft maintainers, aircrews and English proficiency training for AAF and Special Mission Wing (SMW) personnel. The objective of the program is to develop a sustainable elite training program, led by SMW instructors, that enables the successful transition to a fully mission capable, self-sustaining, and self-reliant aviation unit led by Afghan qualified maintainers and logisticians.

c. CSTC-A recommends the following change –

(1) As Reads – To ensure that the UH-60s are properly maintained, SIGAR recommends that the CSTC-A Commander and Train, Advise, Assist Command-Air (TAAC-Air) Commander and the Utility Helicopter Program Office: Develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province (Recommendation 4).

(2) Amend to Read – To ensure that the UH-60s are properly maintained, SIGAR recommends that the “Train, Advise, Assist Command-Air (TAAC-Air) Commander” in coordination with the CSTC-A Commander and the Utility Helicopter Program Office: (Recommendation 4).

(3) Rationale –

(a) TAAC-Air is the primary command tasked with advising the AAF senior leadership and guiding the AAF efforts to produce the necessary pilots, aircrews, and maintainers to operate and support the UH-60s.

(b) TAAC-Air addressed the issue of maintaining aircraft in locations where security conditions prevented U.S. contractors from working such as Shindand, Herat Province in their Discussion Draft comments (Lines 409-418).

(c) Per TAAC-Air, organic AAF aircraft maintenance operations will be enabled by personnel trained at the AMDC.

3. To ensure the factual accuracy of the report, CSTC-A has embedded comments in the enclosed SIGAR 19-XX Audit Report with substantiating documents (enclosures).

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SUBJECT: Afghan Air Force: DOD Met the Initial Date for Fielding UH-60 Helicopters, but Program Is at Risk of Not Having Enough Trained Pilots or the Capability to Maintain Future UH-60s SIGAR 19-XX Audit Report (Project Code SIGAR-120A)

4. CSTC-A appreciates SIGAR's assessment of the extent to which DOD met its planned initial operational capability date, developed a training program to ensure that the AAF and the SMW will make full use of the UH-60s and identified and addressed maintenance challenges.

5. Point of contact is Mr. Billy Elbert, billy.d.elbert.civ@mail.mil, DSN 318-449 9939.

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DCOS SA CSTC-A Chief of Staff

4 Encls

1. SIGAR 19-XX-Audit Report
w/embedded comments
2. CSTC-A RFI Response dtd April 2018
3. Mr. Zielinski Email dtd 31 May 2018
w/RFI Response dtd April 2018
4. Discussion Draft Comments

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APPENDIX IV - COMMENTS FROM THE TRAIN, ADVISE, ASSIST COMMAND-AIR



TRAIN, ADVISE, ASSIST COMMAND – AIR KABUL, AFGHANISTAN

4 January 2019

MEMORANDUM THROUGH NAC-A

FROM: TAAC-Air/CoS

SUBJECT: SIGAR Recommendations

This memo provides responses to SIGAR Report 19-XX recommendations to the Commander of Combined Security Transition Command-Afghanistan (CSTC-A) and Commander of Train, Advise, Assist Command-Air (TAAC-Air) to work to:

1. Reduce the waiting time between initial pilot training and the UH-60 qualification course to speed development of UH-60 pilots

CONCUR: TAAC-Air in conjunction with PEO-STRI, CSTC-A, and AFSAT are creating a 3rd country pipeline for UH-60 Aircraft Qualification Training (AQT). This AQT pipeline will remove the requirement for Kandahar to accomplish AQT and Mission Qualification Training (MQT) at the same location, with the same instructors, and the same equipment. This training location adjustment will allow both the AQT and MQT pipelines to work in coordination with one another instead of competing with one another for required resources in one location. This will in turn reduce much of the waiting time between initial pilot training and UH-60 qualification.

2. Fully implement the AAF English language program to ensure that potential UH-60 pilots have the necessary English skills to attend pilot training. Additionally, to ensure that the AAF develops a maintenance capability that will help defray costs of contractor logistic support, we recommend that the CSTC-A Commander and TAAC-Air Commander, in coordination with the Army Security Assistance Training Management Office.

CONCUR: The AAF English Language Training (ELT) program is in full execution in Afghanistan. The current contract can support up to 1000 trainees per year which greatly exceeds the UH-60 pilot training requirement. The pilots achieve the required proficiency level of ELT in Afghanistan through this contract solution in order to attend and excel at initial pilot training. AAF ELT instructors are currently being trained by this same contract to fill the ELT requirement in the future organically to relieve the contract solution and leave an enduring Afghan solution in place.

3. Develop and implement a program to train AAF personnel to maintain the UH-60s.

CONCUR: TAAC-Air in conjunction with PEO-STRI, CSTC-A, and AFSAT have developed a three prong pipeline approach to creating the required UH-60 maintenance corps. The model is called the Aircraft Maintenance Development Center (AMDC). This approach includes two third

country locations for basic maintainer training and an Afghan solution for initial production and future sustainment. One of the third country locations is dedicated solely to initial UH-60 maintainer production. Once the required number of UH-60 maintainers are created, the contract for the location will be terminated and the sustainment pipeline will maintain in operation to support the UH-60 program in Afghanistan. The required experience levels will be achieved over the course of the next few years eventually allowing the organic AAF aircraft maintenance work force to replace the current contracted logistical support that maintain the aircraft for the AAF.

4. Develop and implement a plan for maintaining aircraft in locations where security conditions prevent U.S. contractors from working, such as Shindand, Herat Province.

CONCUR: TAAC-Air CJ7 and the National Maintenance Strategy-Air are focused on developing an operationally capable and sustainable organic AAF maintenance force. The current maintenance force lacks the required number of basic, intermediate, and supervisory level aircraft mechanics. However over the course of the next few years the basic level human capital will be created through the AMDC. The intermediate and supervisory levels of aircraft mechanics will be developed as technician experience grows. Organic AAF aircraft maintenance operations will be enabled through this process of maintainer development thereby allowing operations in areas where force protection for US contract support are prevented.

5. To ensure that the UH-60s are not flown more than the 35 hours per month assumed in the maintenance strategy, we recommend that the TAAC-Air Commander work with the AAF to develop a flying hour program to limit the number of hours the UH-60s fly each month, to the extent possible.

CONCUR: While the AAF do not have a flying hour program in the sense of AFI 11-102, the UH-60s are limited to a 35 flying hour per month utilization. This utilization rate is tracked and enforced in different ways. The first way is thru the CLS contract and SES is on contract to support a 35hr per month per aircraft flying schedule. SES will schedule aircraft on the daily flying schedule to meet this requirement and tracks individual and fleet flying hour stats monthly against a 35 hour standard. The second way of enforcing the 35hr monthly flying is through the advisors. As mission ciphers come down for UH-60 operational sorties, they are vetted thru the advisors for concurrence, and the hours flown get tracked as to not exceed a maximum of 35 hours a month per operational tail. In the case of the Shorab UH-60 detachment, they are given a monthly allowance of 140hrs (4 tails x 35hrs) to fly and once they run out of hours the aircraft are no longer available to fly missions. Missions flown from Kandahar are currently tracked against a 105 hour pool, based on 3 aircraft tasked to missions out of KAF. Most importantly, to further help keep a limit on the hours flown on the UH-60, the Afghan Air Force Commanding General has issued a cipher stating that the UH-60s cannot be flown more than 35 hours a month. This cipher has been sent to the Corp commanders that KAFUH-60s currently support, and will be sent to additional corps as mission taskings expand outward from Kandahar. Finally, the NAC-A Commander has delivered an overuse warning memo to the Afghan Minister of Defense outlining future penalties if aircraft are flown beyond prescribed limits.

6. Ensure that DOD does not provide the AAF and SMW with aircraft they cannot use, we recommend that the Under Secretary of Defense for Policy link the deliveries of UH-60s to the training of pilots and maintenance personnel so UH-60s will not sit idle in Afghanistan.

CONCUR: However, the delivery schedule of UH-60 aircraft to the AAF will not be adversely affected by a lack of pilots created to fly them with the reduced number of aircraft that will be delivered to the AAF. The current number of pilots is almost three-quarters of required number of pilots to support all of the aircraft. The remaining number of pilots required will become fully developed in 2019 as final aircraft arrive to the AAF fleet.

The delivery schedule of UH-60 aircraft to the AAF will finish delivering aircraft to the fleet before the required number of aircraft maintainers are developed. However the AMDC will create the required number of basic maintainers by the end of 2020 and the required number of intermediate maintainers by the end of 2024. Supervisory level maintainer requirements should be reached between 2025 and 2026. Until the required number of UH-60 mechanics are created, a contract logistical support solution will be required to sustain the AAF UH-60 fleet.

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PATRICK C. DALEY, Colonel, USAF
Chief of Staff, TAAC-Air

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APPENDIX V - ACKNOWLEDGMENTS

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under project code SIGAR-120A.

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