RECORD VERSION

STATEMENT BY

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BEFORE THE

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INTRODUCTION

Chairman Abercrombie, Congressman Bartlett, and distinguished Members of the Subcommittee on Air and Land Forces, thank you for this opportunity to discuss Army Aviation programs. We welcome this opportunity to testify before you and appreciate the tremendous and ongoing support this committee has provided to Army aviation and our Soldiers stationed around the world. We thank the members of this committee for your shared commitment to this goal. We are grateful for your advice and guidance, along with your steadfast support.

We are only five years from the Comanche termination and Army Aviation is seeing substantial fruits from our labor with the continued modernization of our aviation force. Today, we are in production for 9 of the 13 systems identified at Comanche termination. That means 69% of all these programs are in some form of production today, low, initial, or full rate production, with 54% being in full rate production. All of these programs will be contributing directly to the overseas contingency operations by priority fielding to units preparing to deploy to combat operations or currently deployed in support of combat operations in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF).

Operating today in combat operations are the AH-64D, OH-58D, CH-47D, CH-47F and UH-60A/L/M helicopters, the Sky Warrior Alpha, Sky Warrior Block '0', Shadow and Raven Unmanned Aircraft Systems and a pre-production variant of the Micro Air Vehicle spun out of the Future Combat Systems; the UH-72A Light Utility Helicopter has returned UH-60s to the war fighting fleet and are allowing us to retire UH-1 and OH-58s in both the active and Reserve components. Other areas of success include

RESET/PRESET programs that have allowed us to sustain an OPTEMPO up to 5 times higher than the peace time rate; an Aviation ARFORGEN model that allows for predictable and supportable rotations; the installation of upgraded aircraft survivability equipment for all deployed aircraft; the full implementation of Flight School XXI; the Acceleration of the Shadow and Raven Unmanned Aircraft Systems and we now have combat experienced soldiers, in the active and reserve components, assigned in all facets of aviation operations: training, doctrine, sustainment, logistics, operations, and analysis.

Today, we continuously have five combat aviation brigades committed to the overseas contingency operations with another one deploying in 2009 to OEF. We still have an operational presence in the Balkans and the Sinai; we are conducting operations supporting drug interdiction, and are still committed to maintaining security on the Korean peninsula. Throw on top of these steady state commitments the requirement to support homeland security and defense, humanitarian support missions, and disaster relief; and you start to see and appreciate the overwhelming commitment of Army Aviation in the defense and security of our nation. This is accomplished through the ARFORGEN model to achieve a sustained and predictable posture that generates trained and ready modular forces tailored for joint mission requirements.

The Army is currently managing a number of major aircraft programs that provide the current capability to the commanders in the field, and will provide enhanced capability in the future.

ARMY AVIATION PROGRAMS

The **UH-60 Black Hawk** is the work horse of Army Aviation. The current UH-60 fleet is comprised of 1,745 aircraft, including 951 UH-60As (produced between 1978 and 1989), 689 UH-60Ls (produced since 1989) and 105 new UH-60Ms.

The Black Hawk helicopter is in its 32nd year of production. To date, the Army has employed seven multi-year, multiservice production contracts. The current contract extends from FY2007 to FY2011 and includes Navy H-60 aircraft, as well as Foreign Military Sales aircraft.

The ongoing UH-60A to UH-60L recapitalization program extends the service life of the Black Hawk program while providing the improved capability and safety margin of the UH-60L. The Army plans to induct 38 aircraft in FY2009 and 288 aircraft between FY2010 and FY2015.

The UH-60M program incorporates a digitized cockpit for improved combat situational awareness, lift, range, and handling characteristics for enhanced maneuverability and safety. These improvements also extend the service life of the aircraft.

The Army plans to improve the safety of the UH-60M platform with a Preplanned Product Improvement upgrade through the installation of digital source collectors, and improved handling capabilities provided by Fly-By-Wire technology, plus increased rotorcraft interoperability through the integration of a Common Aviation Architecture System shared with the CH-47F Chinook and Special Operations helicopter fleets. Additionally, the Army intends to pursue a Common Engine Program shared with the AH-64 Apache fleet.

The UH-72A Lakota **Light Utility Helicopter** (LUH) program is successfully executing the Army transformation strategy and meeting all cost, schedule, and performance targets as specified in the acquisition strategy. The aircraft has been fielded to the National Training Center at Fort Irwin, California; the Joint Readiness Training Center at Fort Polk, Louisiana; and the U.S. Army Transportation Corps at Fort Eustis, Virginia. Additionally, the LUH is currently being fielded to Army National Guard (ARNG) units.

The Army is procuring 345 aircraft with a firm fixed price contract. To date, the Army has purchased 128 UH-72 Lakota aircraft -- 58 aircraft have been delivered and more than 50 fielded. The UH-72A has demonstrated exceptional readiness rates that exceed 90 percent. The Lakota is currently conducting Medical Evacuation, VIP, and general support missions. It is also in the process of being fielded to ARNG units and the Eastern ARNG Aviation Training Site (EAATS). The EAATS will be the Army's overall institutional training base for the LUH, and the unit aircraft will equip the 6 ARNG Security & Support Aviation Battalions so that they may perform the full range of their wartime and Homeland Security / Defense (HLS/D) missions, to include the conduct of disaster relief, counter drug operations, and institutional training missions.

Production of the LUH is transitioning from Germany to Columbus, Mississippi. Forty aircraft were produced in Germany and the remaining 305 will be produced in the United States as part of a three phase production duplication plan. The complete domestic production line operation is on schedule to begin in April 2009 and will have fully transferred to Columbus by the end of 2009. Increasing domestic content is also part of the production duplication plan and is expected to exceed the 65 percent goal.

The ARNG is pursuing funding to procure, apply, and sustain a Mission Equipment Package – searchlight, FLIR, situational awareness/command and control moving map displays, hoists and Medical Evacuation kits to more fully support the Security and Support battalions in their support of the full range of homeland security/homeland defense missions.

The **CH-47 Chinook** is a proven heavy-lift helicopter, supporting our Soldiers every day in Iraq and Afghanistan and conducting missions that no other helicopter on the battlefield can accomplish. It is the Army's only helicopter capable of intra-theater cargo movement of payloads up to 16,000 pounds.

The Army is fully committed to the procurement of 513 Army CH-47F and U.S. Special Operations Command MH-47G aircraft. To date, the Army has taken delivery of 61 CH-47F and 49 MH-47G aircraft, has an additional 222 CH-47F and six MH-47G aircraft on contract, and has fielded four operational CH-47F Chinook units – two of which have deployed to the theater of operations.

The U.S. Army signed a five year firm-fixed price contract for 181 CH-47F Chinook aircraft that will achieve a minimum savings of $450 million or 11 percent. The multi-year contract provided for 34 option aircraft, 10 of which were executed with the basic contract. The CH-47F Chinook program is on-cost, on-schedule, and has met or exceeded all performance requirements.

The **AH-64D Apache** is the world's most lethal and survivable helicopter. It is the most feared weapon system in the current theater of operations. Continued modernization, including the ongoing fielding of the Modernized Target Acquisition

Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS), is critical to maintaining that position.

The Block III Apache is essential to the Army's current and future forces. It is the Army's only manned aviation platform able to meet the network centric requirements of the future force as well as Joint Force requirements. It is also the first aircraft designed for and fully capable of complete control of Unmanned Aircraft Systems (UAS). This characteristic fully enables the synergistic manned-unmanned teaming between attack aircraft and UAVs that is showing such promise on the battlefield. The Apache Block III System Development and Demonstration remains on schedule and within budget. All Acquisition Program Baseline milestones have been met or exceeded to date. A Longbow Apache, with Block III technologies installed, performed well in the recent Future Combat Systems Experiment 2.1/Joint Expeditionary Force Experiment Spiral 3.0 and was the only Army aviation platform participating.

High OPTEMPO in Iraq and Afghanistan, coupled with repeated deployments of Longbow units, have consumed an inordinate percentage of the Apache airframes' useful life. The majority of aircraft will enter Block III remanufacture with less than 50 percent of the airframe's design life (10,000 hours) remaining. Block III remanufacture is an ideal opportunity to insert new airframes into the Apache fleet at minimal additional cost, providing 100 percent of the design life back to the fielded unit.

The Army is on track with its commitment to modernize the remaining four AH64A battalions in the National Guard by upgrading them to the AH-64D. The Secretary of the Army recently approved a plan to proceed with the modernization of all AH64A battalions in the National Guard through combination of remanufacture and

AH64D cascade. The Army will remanufacture two of these battalions by FY11 and cascade AH-64Ds to the two remaining units in FY12 and 13.

The Army and the Department of Defense remain committed to the requirement for a manned **Armed Scout Helicopter** (ASH) capability and the need to deliver this capability to our Soldiers in a responsible and timely manner.

As a capability bridging strategy, the Secretary of the Army approved a strategy to maintain the Armed Reconnaissance Helicopter (ARH) funds within Army aviation and redistribute them into three primary efforts: (1) sustaining and improving the OH-58D Kiowa Warrior; (2) modernizing the ARNG AH-64A fleet; and (3) conducting a competition for and procuring the capabilities associated with the future ASH. The Vice Chief of Staff of the Army and the Army Acquisition Executive jointly signed a Memorandum for the Record codifying this strategy.

To support the potential procurement effort, the Army is conducting a bottom up review of the armed reconnaissance capability requirement to include a thorough assessment of the specific requirements identified for the initial ARH program, as well as initiating a formal 'Analysis of Alternatives'. The analysis will cover the entire spectrum of options – from the potential use of UAVs to the use of a manned/unmanned aircraft mix to the procurement of a new manned platform.

Due to the time required to complete these assessments, the Army is currently evaluating what additional enhancements and life extension work, if any, will be required to continue to safely sustain the Kiowa Warrior fleet until a replacement is procured.

The U.S. Army Audit Agency completed an official After Action Review to identify lessons learned from the termination of the ARH program. The results are being evaluated for assimilation into Army acquisition programs and for use in developing an acquisition strategy to meet the manned ARH requirement.

The **Joint Heavy Lift** (JHL) was intended to be a Vertical Take Off and Landing heavy-lift aircraft supporting mounted vertical maneuver. The JHL requirement has been incorporated into the U.S. Air Force lead **Joint Future Theater Lift** (JFTL) effort. The JFTL requirements document is under development. The envisioned aircraft will provide a heavy lift (20+ ton) payload capability at 200+ miles, aerial sustainment to the point of need, the ability to operate over tactical and operational distances to/from land or sea bases, and the ability to self-deploy.

Unmanned Aircraft Systems (UAS) are a rapidly growing capability that Army Aviation has helped to develop. As an example of how quickly this capability has grown within the Army, when Operation Iraqi Freedom (OIF) began in March 2003, there were only six aircraft deployed in support of that operation. Today, we have more than 1,000 air vehicles in either OIF or OEF. This capability continues its fast growth. For example, it took the Army 13 years to fly the first 100,000 hours of UAS. It took us less than a year to fly the next 100,000 hours, and we fly more than that each year in theater.

The **Extended Range/Multipurpose (ER/MP) UAS**, or Sky Warrior, will be deployed and integrated with the Combat Aviation Brigade, with immediate responsive Reconnaissance, Surveillance, and Target Acquisition to the division commander.

ER/MP can carry multiple simultaneous payloads to include: (1) Electro-optical/Infrared/Laser Designator; (2) Synthetic Aperture Radar; (3) Communications Relay; and (4) Weapons. ER/MP UAS will use both Tactical Common Data Link and Satellite Communications data links. The program is on track to deploy a Quick Reaction Capability to OIF in July 2009 and another in summer 2010.

The hand-launched and rucksack portable **Raven Small Unmanned Aircraft System** (SUAS) provides the small unit with enhanced situational awareness and increased force protection through expanded reconnaissance and surveillance coverage of marginal maneuver areas. Commanders at the company level have greater ability to shape over-the-hill operations with their own dedicated UAS.

The Raven is fielded to the U.S. Special Operations Command, the U.S. Marine Corps, the U.S. Air Force, and the ARNG to provide increased capabilities for domestic mission responsibilities as required. There are over 1,318 Raven SUAS fielded and more than 300 Raven SUAS supporting Soldiers in Iraq and Afghanistan. The program is meeting all cost, schedule, and performance targets.

The **Shadow** Tactical Unmanned Aircraft System (TUAS) provides DoD and coalition partners with a high quality, reliable, and interoperable UAS. Currently, units are flying at an OPTEMPO of up to three times what was originally envisioned for the system. While the OPTEMPO remains high, the accident rate has been reduced each year.

The U.S. Marine Corps is partnered with the Army for purchase of systems, support equipment, and performance based logistics services. Through this approach, economies of scales provide efficiencies for cost, commonality, and joint operations.

Currently, 66 systems have been delivered and fielded to the Army and six to the Marine Corps. The readiness rate of the Shadow system averages above 94 percent. As of March 2009, the total hours flown by Shadow in support of theater operations were 352,101 hours, out of a total program history of 385,118 hours flown. More than 90 percent of all Shadow hours flown since 2000 have been in support of theater operations.

Aviation Science and Technology (S&T)

The Army is the lead service for the development and maturation of rotorcraft science and technology (S&T) on behalf of the Department of Defense (DoD) and thus takes the requirements and desires of other Services into account when framing technology development. The Army Aviation S&T program develops, matures, and demonstrates technologies in support of the current and Future Force. It pursues rotary wing platform technologies to support manned and unmanned rotary wing vehicle combat and combat support operations for attack, transport, reconnaissance, air assault, command and control missions, and medical evacuations. Army S&T is aligned with Army Aviation Transformation and the Aviation Modernization Strategy, which is 1) keeping the current fleet effective and ready to optimize with new technologies; and 2) setting the technology conditions to allow transition to new platforms when needed.

The Army's aviation S&T program maintains a range of investments from advancements is fundamental science, that can be applies to rotary wing development, to technology component and system demonstration. Within the Army's Basic

Research program, we develop an understanding of fundamental science to solve army unique problems and to develop knowledge for an uncertain future. The Aviation Applied Research program provides the enabling technology for aviation component, subsystem and model development for specific military problems. The Aviation Advanced Technology Development program demonstrates technical feasibility at the system and subsystem level and establishes the path for technology transition to acquisition. The Army aviation S&T efforts are currently focused on operations and sustainment cost reductions, survivability, propulsion, rotors, drive train, and structures.

The Army aviation S&T strategy is to leverage the best technology available in the Government, industry and academia, as evidenced in the following examples. In January of 2006, the DoD and National Aeronautics and Space Administration (NASA) signed a Memorandum of Understanding (MOU) for a National Partnership for Aeronautical Testing to establish an integrated national strategy for the DoD and NASA to manage their respective aeronautical test facilities. In July of 2007, the Army and NASA signed a MOU concerning Collaborative Research in Aeronautics to facilitate the coordination of research efforts in the areas of rotorcraft aeronautics. The Army has also collaborated with the Defense Advanced Research Program Agency. This collaboration resulted in advances in many aviation technologies such as the Micro-Air Vehicle, which is man-portable reconnaissance, surveillance, and target acquisition unmanned aircraft system; and the development of the A-160 Hummingbird UAS that is capable of long endurance flight (goal up to40 hours) with a 300 pound payload. The Army also remains actively involved in the National Rotorcraft Technology Center (NRTC), which is a partnership between the government, industry, and academia. The

goal of the Center is to maintain United States preeminence in rotorcraft technology. The government and industry fund the NRTC with a 50/50 cost share. The government participants are Army, Navy, and NASA.

The Army remains at the forefront of rotorcraft science and technology development and maintains a balanced aviation S&T investment to support the Army Aviation Modernization Strategy and DoD rotorcraft needs.

SPECIFIC AREAS TO BE ADDRESSED

In your written invitation for this hearing you asked us to specifically address numerous areas of Army aviation. Our responses to your request begin on the next page.

1. The inventory of the current force by type aircraft (fixed wing and rotary), key capabilities, including average age, accident rates, readiness rates (by

brigade), and utilization rates (by type, by brigade):

Platform	Current	AAO	Delta	OPTEMPO OIF/OEF	Readiness Rates OIF /OEF	Average Age Years	Attrition Operational Loss
Apache	697	730	0	58.0/ 51.0	82%/ 87%	16.0 AH 64A 6.0 AH 64 D	51
Blackhawk	1744	1931	-187	45.0/ 42.0	84%/ 85%	24.3 UH60A 11.7 UH60L 0.8 UH60M	40
Fixed Wing	256			60.1/ 51.4	91%/ 87%	See Table below	
Chinook	457	513	-56	44.4/ 46.7	87%/ 86%	16.8 CH47 D 2.3 CH47F	27
OH-58	338	368	-30	71.8/ 88.8	84%/ 84%	13.5	44
LUH	50	345	-295		92%	2.4	
UAS	1144	2554	-1410				

UAS types	Current	AAO
gMAV	16	56
Raven SUAV	1052	2182
Shadow TUAS	64	115
Hunter UAV	5	6
I-Gnat		
Warrior-A/0 UAV	7	7
Warrior-Blk-I UAV	0	7

Fixed Wing	Number	OPTEMPO Per Month	Readiness Rates	Average Age	Class A-C	
C-12	113	48.2	91.10%	21.3	4.1PHTFH	(per 100k flt hours)
RC-12	49	38.6	88.90%	22.03	4.2 PHTFH	
UC-35	28	44.9	90.50%	9.15	2.64 PHTFH	
C-23	42	35	96.00%	15.45	5.6 PHTFH	
C-26	11	46.5	90.20%	18.05	0 PHTFH	
C-37	3	53	96.40%	6.25	2.98 PHTFH	
C-20	2	21.7	97.30%	19	2.98 PHTFH	
EO-5	8	115.1	92.00%	26.33	2.98 PHTFH	

Key Capabilities

Apache – The Longbow Apache is a 2 engine, 4 bladed, tandem seat, attack helicopter with 30mm cannon, Hydra 70 2.75 inch rockets, laser & radio frequency (RF) Hellfire missiles. Speed: 145 knots (cruise) Range: 260nm; 1,080nm with external tanks. Ordnance: 16 - HELLFIRE (RF or Laser Missiles) 76 - 2.75 inch rockets, 1,200 - 30 mm rounds.

Black Hawk- The Black Hawk is a utility aircraft with an integrated digital glass cockpit which supports the digitized battlefield. The aircraft is capable of day/night/inclement weather operations, with improved situational awareness. The aircraft has an engine upgrade which improves lift and range and has improved handling characteristics. Payload (troops/lbs): 11/3190. Speed: 142 knots (cruise). Rate of Climb (fpm): 1553.

Chinook – The Chinook is the Army's only heavy-lift cargo helicopter. The CH-47F is a recapitalized aircraft with a new airframe and vibration reduction, an upgraded digital cockpit (Common Avionics Architecture System (CAAS)) and recapitalized components. Maximum Cruise Speed: 160 knots. Troops / Litters: 31 / 24. Lift: Intra-theater payloads up to 16,000 pounds in a high / hot environment.

Kiowa Warrior - The Kiowa Warrior is a single engine, 4 bladed, 2 seats aircraft with a Mast Mounted Sight. Speed/Endurance: 108 kts/1.9hrs. Lethality: Flexible armament packages: Hellfire Missiles - up to 4, 2.75" Rockets - up to 14, 50 Caliber Machine Gun.

Extended Range Multi-Purpose (ERMP) - Simultaneously supports 3 or more Reconnaissance, Surveillance and Target Acquisition (RSTA) Missions.
24-Hours on Station at 300 km. Conducts RSTA and Comms Relay simultaneously. Tactical Common Data Link (TCDL) communications Relay, weapons capable, carry two payloads at 200 lbs while armed. Modular, scalable, tailorable mission packages.

Shadow - Electro-Optical/Infrared (EO/IR) with IR illuminator. Gas engine retrofits on-going - implements redundant ignition source (1101 Engine). Range is 125km (LOS limit); Endurance >6 hrs @ 50km. Automatic Take-off and Landing System (TALS). In FY09: Laser Designator (Drop-in Payload) upgrade.

Raven - Hand launched with flight termination to pre-planned point. Semi-autonomous operations with in-flight re-tasking. Commanded auto-loiter at sensor payload point of interest. Conducts lost link recovery procedures. Operating Radius with direct radius LOS (10+ km). Day/Night Operations with infrared (IR) Illuminator. Eight (8) frequency selectable with commanded "lock-in" of Air Vehicle in flight.

Fixed Wing - Aircraft modifications are platform dependent; they can include, but are not limited to: Flight Display System, Flight Management Systems, Global Positioning System, Enhanced Ground Proximity Warning System, VHF/UHF transceiver, Weather Radar, Cockpit Voice Recorder, Flight Data Recorder, Emergency Locator Transmitter, Transponder, Traffic Collision Avoidance System (TCAS II), and Aircraft Survivability Equipment (ASE).
C-12 King Air: Short range, 6-9 passengers, 2 crew
RC-12 Guardrail: SEMA, 2 crew

EO-5 Airborne Reconnaissance Low (ARL): SEMA, 6 crew

UC-35 Cessna: Medium range, 6-8 passengers, 2 crew

C-20, C-37 Gulfstream: Long range, 13 passengers, 4 crew

C-23 Sherpa: Short range, cargo, 3 crew

C-26 Metroliner: Medium range, 19 passengers, 2 crew

2. The crew ratio by type aircraft for the last five years: Army force management designs operational units by Modified Tables of Organization and Equipment (MTOE), which list, among other things, the personnel and equipment authorized in the unit. For aircrew, the MTOE for aviation units use a factor, or ratio, of aircraft to crew of one to one (1:1) authorized in most aviation units. Exceptions are aero-medical evacuation units, for which the ratio is 1:1.5 and special operations aviation (SOA) units, where the ratio is 1:1.8. These ratios are for the company-level "line pilots" or crew whose primary duties are flying. Staff aviators and commanders at battalion and brigade levels increase the crew to aircraft ratio.

The Army does not use the crew to aircraft ratio in assigning personnel to aviation units. Personnel are assigned to units based on their position in the Army Force Generation (ARFORGEN) cycle and the operational requirements of the unit. The goal is generally to resource units to their full MTOE authorization, although there have been frequent occasions when available strength limited manning to less than full authorization.

For aviation units in the Available phase of ARFORGEN and preparing to deploy to OIF/OEF, the Army goal has been to man and deploy aviation units at 103% overall or better. In most cases, this goal has been attained.

3. The status of equipage by type and numbers with aircraft survivability equipment: All rotary winged (RW) aircraft deploying to OIF and OEF today are equipped with the AAR-57 Common Missile Warning System (CMWS) with the exception of OH-58s. Installation of the initial 120 CMWS on OH-58s are scheduled to begin in 3QFY10. Today, 1,906 CMWS A-kits and 1,059 B-kits are installed fleet wide, 532 of which are presently in OIF/OEF. A total of 44 of the 532 total systems are installed on assorted fixed wing aircraft. Army Procurement Objectives for CMWS are currently 3,571 A-kits and 1,710 B-kits. AVR-2A Laser Detection Systems are installed on all AH-64 and OH-58 aircraft. AVR-2B systems are installed on one unit of UH-60M aircraft, 30 total, plus Army Special Operations aircraft. The APR-39 Radar Signal Detecting Sets are installed on all deployed RW aircraft.

	APO		**CMWS Installed**		**5th Sensor Installed**	
PLATFORM	A-Kits	B-Kits	A-Kits	B-Kits	A-Kits	B-Kits
CH-47	495	233	321	214	216	130
UH-60	1,806	710	1,115	585	680	593
AH-64	704	387	402	192	264	216
ARH/OH-58*	368	297	0	0	0	0
Fixed Wing	198	83	65	65	24	24
TOTAL	**3,571**	**1,710**	**1,906**	**1,059**	**1,188**	**920**

CMWS integration efforts on the OH-58 have started. Operational Needs Statement (ONS) approved development and fielding of 120 a/c. There is no requirement for ASE

on the LUH. All rotary wing and fixed wing aircraft have ASE on the airframe as shown below.

- Apaches : AN/ALQ 136 , APR 39, CMWS
- Blackhawk : ALQ, CMWS, AVR 2B, APR-39 and M-130 (on aircraft that have not received CMWS yet).
- Chinook: APR 39, CMWS
- Kiowa Warrior :ALQ 144, AVR, APR 39

o Fixed Wing :CMWS, AAR 47, APR 39, APR 44

4. The status of equipage by type and numbers with cockpit voice and data recorders:

	Cockpit Voice/Data		Maintenance Health Management Systems		
Aircraft Type	**Voice**	**Data**	**HUMS-CBM**		
Kiowa Warrior (338)	338	338	12		
Fixed Wing (256)	242	242			
Blackhawk			**IVHMS**	**IMD HUMS**	**VMEP**
UH 60A (887)	149	149	148	7	44
UH 60L (635)	201	201	162	39	
UH60M	104	104	104		
HH 60M	11	11	11		
Apache			**MSPU**	**VMEP**	
AH64D (542)	542	542	358		
AH64A (155)				57	
Chinook			**IVHMS**	**MSPU**	
CH47D (309)	37	37	38	37	
CH47F (63)	63	63			
MH47E (6)	6	6			
MH47G (50)	50	50			

5. The status of equipage by type and numbers of maintenance health management equipment, diagnostic sensors:

	Cockpit Voice/Data		Maintenance Health Management Systems		
Aircraft Type	**Voice**	**Data**	**HUMS-CBM**		**Engine Trend**
Kiowa Warrior (338)	338	338	12		
Fixed Wing (256)	242	242			184
Blackhawk			**IVHMS**	**IMD HUMS**	**VMEP**
UH 60A (887)	149	149	148	7	44
UH 60L (635)	201	201	162	39	
UH60M	104	104	104		
HH 60M	11	11	11		
Apache			**MSPU**	**VMEP**	
AH64D (542)	542	542	358		
AH64A (155)				57	
Chinook			**IVHMS**	**MSPU**	
CH47D (309)	37	37	38	37	
CH47F (63)	63	63			
MH47E (6)	6	6			
MH47G (50)	50	50			

6. Aircraft in production by type aircraft (FYDP chart with funding and quantity for each, procurement unit costs, key capabilities):

($M)					
Chinook	FY 09	FY 10	FY 11	FY 12	FY 13
Funding	1063.3	919.9	980.1	1278.6	757.9
Quantities	44	35	36	47	28
Procurement unit cost	24.2	26.3	27.2	27.2	27.1
* U/C does not include B kits					
**Composite of NB/SLEP & Gs					
Apache					
	FY09	FY10	FY11	FY12	FY13
Funding	1,019.78	286.32	20.21	42.49	23.2
Quantities	54	16			
Procurement unit cost	$13.49	BY96$M			
	FY09	FY10	FY11	FY12	FY13
Blackhawk					
Funding ($M)	1,063.00	1,230.60	951.5	1,058.30	1,154.40
Quantities:	63	72	46	52	60
Total Baseline H-60M	56	54	19	0	0
UH-60M	45	34	18		
HH-60M	11	20	1		
Total Upgrade H-60M	7	18	27	52	60
UH-60Mu	7	14	12	31	37
HH-60Mu		4	15	21	23
H-60M Average Procurement unit cost	$20.562 (TY$M)				
LUH	FY09	FY10	FY11	FY12	FY13
Funding $M	276.36	332.04	313.84	285.91	276.03
Quantities:	44	56	52	45	45
UH-72A PAUC (BY06$)	5.53 (BY06$)				
UAS					
Shadow					
Funding	87.91	206.75	58.1		
System Procurement	2	2			
Procurement unit costs	15.6	15.6			
ER / MP					
Funding	219.8	218.75	253.3	203.48	215.9
System Procurement		**1**	**1**		
Procurement unit costs		195	195	195	195
SUAV					
System Procurement	354	206	104	92	75
Procurement unit costs	0.113	0.113	0.113	0.113	0.113
Total SUAV OPA	54.48	35.65	20.72	19.31	19.96

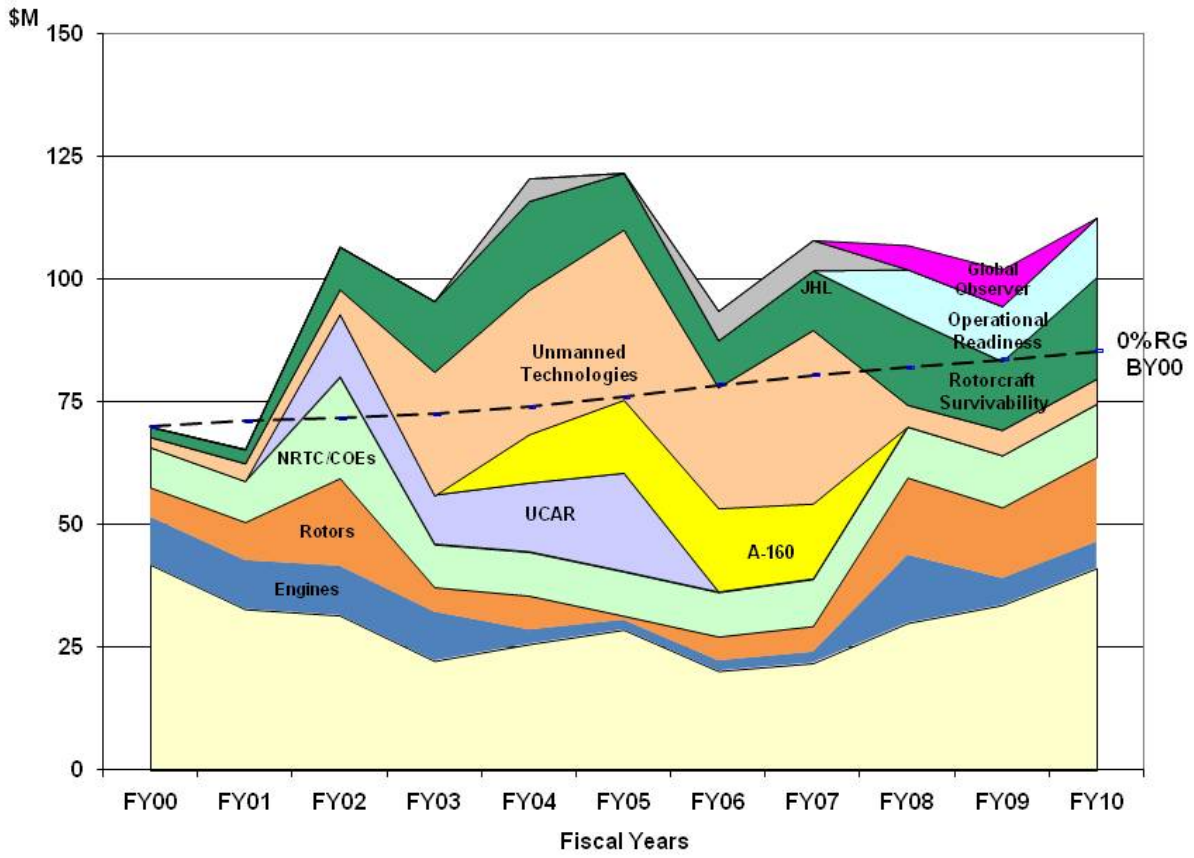
7. The numbers of aircraft assigned by type (over time) and losses. Please provide detail on losses by cause, classified if necessary: Most of this information is classified and we will discuss in the closed hearing.

8. The dwell time being experienced by aviation units and projections: The dwell time being experienced by Army Active Component combat aviation brigades is approximately 1.1 to 1.4 years, depending on type of unit, for every year those units are deployed. On the other hand, the Reserve Component aviation units are experiencing approximately three years dwell for every year of mobilization.

9. The limitations on aviation capabilities related to shortages of maintenance crews and pilots, and recruiting and training shortfalls: Our aviation forces are stretched but still committed to the fight as is evidenced by the high retention in our units and the recruiting success to keep our units filled. This is not to say we are without shortages of personnel in specific skill sets; primarily in our reserve components. The Army is increasing capability to train Initial Entry Rotary Wing training from 1200 to 1498 students annually. This increase is driven by full implementation of the ARFORGEN model and modernization of the total Army Aviation force. The Active Army and United States Army Reserve (USAR) have the necessary training seats and recruiting base to man their respective units. The Army National Guard (ARNG) has no issues with recruiting to authorizations, but needs additional training seats to qualify 23% of its assigned aviation personnel. The Army will steadily increase training seats to the ARNG to address their shortages over the next ten years. Priority will be given to those units who are scheduled to deploy. Additionally funding will be required to pay for instructor pilots and OPTEMPO to support this increase to training.

10. The Plan for deployment of theater provided equipment: Theater provided equipment is there to support the combatant commander's needs and at this time we have received no guidance to move or replace this equipment. This question is best addressed to the CENTCOM Commander or his staff.

11. Rotorcraft science and technology funding, FY2000 to present, and a graphic showing trends:



The real growth of rotorcraft S&T funding is 27 percent from base year FY00 to FY10, which is above the overall growth rate for S&T funding.

S&T is investing in the key technologies for the Current and Future Force.

The decline in the FY06 funding was due to S&T reductions to support higher priority war efforts.

12. The status of cooperative rotorcraft programs and funding levels with other defense agencies, NASA, and other non-DoD entities, as applicable: response provided in this document under paragraph for Science and Technology.

13. Description of the Joint Future Theater Lift (JFTL) project, including funding, and current requirements: The Army requires a Heavy Lift capability to conduct flexible employment from a Sea Base, conduct distributed sustainment to point of need, ability to overcome anti-access strategies, and operate in austere environments without need for prepared Aerial Ports of Debarkation (APODS). Heavy Lift capabilities will also support Mounted Vertical Maneuver (MVM) of projected medium weight vehicles forces (Stryker, etc) across extended distances to strike directly against critical objectives throughout the depth and breadth of the Joint Operations Area (JOA). Mounted Vertical Maneuver is operationally significant in future conflicts across the Range of Military Operations (ROMO).

Army and Air Force have concurred on a MVM CONOPS.

The JFTL Initial Capabilities Document (ICD) is at Joint Flag Level staffing. A Flag level IPT met to highlight and identify core issues and direct a path ahead. ICD is being re-written to include Army comments. Early revisions appear promising. We expect a Joint Requirements Oversight Council (JROC) in June-July 2009.

Analysis of Alternatives organizational activities are occurring now.

As a follow on to a three year Concept Refinement effort, the Army is leading a FY08-09 (2 years) $42M Risk Reduction effort using current year reprogrammed funds.

The FY09 re-programming has been submitted by the Department for consideration by the committees. Any follow on efforts will be undertaken as a result of the path ahead defined by JROC and Analysis of Alternatives.

14. Data on accidents caused by "brownout", by aircraft type and status of efforts and funding to counter brownout accidents: The Army has no formal acquisition programs to specifically mitigate "brownout" accidents at this time. The Aviation Center of Excellence has recognized the hazards presented by flight in degraded visual environments (DVE), which includes Brownout conditions and will publish a Functional Solutions Analysis in the summer of calendar 2009 that presents a wide ranging list of materiel solutions to ensure the safety of US Army aircrews and Soldiers.

The Army's most modern aircraft have greatly improved capabilities in DVE. The CH-47F has an improved flight control system. This aircraft is now being used in both OEF and OIF and the new system's DVE capabilities are being assessed. The UH-60M is now being used in OEF and its fully coupled flight director is being assessed also. Further, the Army is reviewing the potential benefits of Fly By Wire flight controls in its UH-60M upgrade program; it will make a decision on this new technology as further testing is completed this year. See embedded spread sheets below for analytical data.

Brownout and White numbers by acft (2002 to Present)										
ACFT	BROWN OUT	WHITE OUT	TOTAL	HARD LANDING	COLLISION	OBJECT STRIKE	FLIGHT RELATED	UNDER SHOOT	LANDING GEAR COLLAPSE	TOTAL
UH60	9	0	**9**	6	2	1	0	0	0	**9**
HH/MH60	2	0	**2**	1	0	1	0	0	0	**2**
OH58D	4	0	**4**	3	1	0	0	0	0	**4**
CH47D	7	0	**7**	5	0	0	0	1	1	**7**
MH47	2	0	**2**	2	0	0	0	0	0	**2**
AH64A/D	2	0	**2**	1	1	0	0	0	0	**2**
TOTAL	**26**	**0**	**26**	**18**	**4**	**2**	**0**	**1**	**1**	**26**

Brownout and White numbers by acft				
CLASS	A	B	C	TOTAL
UH60	4	2	3	**9**
HH/MH60	2	0	0	**2**
OH58D	1	2	1	**4**
CH47D	0	1	6	**7**
MH47	0	0	2	**2**
AH64A/D	0	1	1	**2**
Total	**7**	**6**	**13**	**26**

Count of Case Number	Army Class			
Primary Aircraft MTDS	A	B	C	Grand Total
AH64A			1	1
AH64D		1		1
CH47D		1	6	7
HH60L	1			1
MH47E			2	2
MH60K	1			1
OH58DR	1	2	1	4
UH60A	2	1	2	5
UH60L	2	1	1	4
Grand Total	7	6	13	26

15. The discussion of any plans to substitute a cargo unmanned aerial vehicle (UAV) for future manned-capability: Currently, there is no validated requirement for Unmanned Aircraft Systems (UAS) in a logistics role; however, the Army is investigating, in concert with the Marine Corps, Joint Forces Command (JFCOM) and Special Operations Command (SOCOM), any potential future roles that cargo UAS may fulfill. There are multiple capability developmental efforts on-going that will help determine potential roles and missions of cargo UAS for both the Army and the Marines.

Current plans include on-going long term capability-based assessments conducted by Training and Doctrine Command (TRADOC) and OSD and potential near term technology demonstrations primarily led by the Marine Corps Combat Development Command and JFCOM .

16. The extent to which armed UAVs are being considered to supplement or replace manned armed, armed-reconnaissance capabilities: The Army has achieved great success on the battlefield using UAS in concert with armed helicopters to increase flexibility, survivability and lethality. This concept, which we term "manned-unmanned teaming", is an important factor being considered in the upcoming Analysis of Alternatives (AoA) for the Armed Scout Helicopter program. We recognize that UAS play an important role to augment, but not replace, the manned aircraft capability. The AoA will recommend the best mix of manned and unmanned systems within our combat organizations that will optimize the capabilities of both.

CONCLUSION

Our goal back in 2004 was to build, maintain, and sustain an Army Aviation capability to defend the homeland, provide support to civil authorities, surge to conduct combat operations when required, and deter conflict in critical regions of our world. We are well on our way to reaching that goal and with your continued support and guidance we will.

We are ready to address any questions you may have.