Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	240.321	134.999	163.205	-	163.205	256.600	298.595	337.420	307.720	Continuing	Continuing
028: *Aerial Common Sensor (ACS) (MIP)*	0.072	-	-	-	-	-	-	-	-	0.000	0.072
430: *IMPR CARGO HELICOPTER*	21.495	21.039	48.939	-	48.939	70.794	60.767	58.496	43.321	Continuing	Continuing
504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	59.117	20.640	21.467	-	21.467	71.362	101.626	120.780	127.813	Continuing	Continuing
D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	12.763	-	-	-	-	-	-	-	-	0.000	12.763
D17: *APACHE BLOCK III*	146.874	93.320	92.799	-	92.799	114.444	136.202	158.144	136.586	Continuing	Continuing

A. Mission Description and Budget Item Justification

FY 2011 budget request funds aviation development of modifications and improvements for the Guardrail Common Sensor/Aerial Common Sensor, the Improved Cargo Helicopter (ICH), the UH-60A/L Black Hawk Recapitalization/ Modernization.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	226.492	134.999	154.611	-	154.611
Current President's Budget	240.321	134.999	163.205	-	163.205
Total Adjustments	13.829	-	8.594	-	8.594
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	13.829	-	8.594	-	8.594

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 028: *Aerial Common Sensor (ACS) (MIP)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
028: *Aerial Common Sensor (ACS) (MIP)*	0.072	-	-	-	-	-	-	-	-	0.000	0.072
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

(U) Aerial Common Sensor (ACS) is an Airborne Reconnaissance, Surveillance and Target Acquisition (RSTA)/Intelligence, Surveillance, and Reconnaissance (ISR) capability directly supporting Battlespace Awareness for tactical commanders in irregular warfare scenarios. Specifically, ACS will provide real-time, persistent, precision, networked, wide-area, high-capacity, multi-sensor intelligence collection capability throughout the joint battlespace. ACS will quickly produce actionable intelligence that provides commanders and soldiers critical shared situational understanding delivered with the speed, accuracy, and timeliness necessary to conduct successful and when necessary, lethal joint operations. ACS will support focused Intelligence Preparation of the Battlespace (IPB), Indications and Warnings (I&W), precision targeting, battle damage assessment (BDA), Situational Development, battle command, and Force Protection. Each of these will be synchronized with operations in order to develop and maintain situational awareness and reduce clutter in the maneuver environment. ACS will be a manned, fixed-wing aircraft capable of worldwide deployment carrying multiple sensor payloads and intelligence processing, appropriate air/ground/satellite data links, and air crew (i.e., pilots and intelligence systems operations). The RSTA/ISR payload will consist of a suite of modular, scaleable Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), Ground Moving Target Indicator (GMTI) and Measurement and Signature Intelligence (MASINT) sensors and processors that can operate alone or simultaneously in combination with each other (e.g., automated cross-cueing). The intelligence processing suite onboard ACS and in the ground station, provided by the Distributed Common Ground System-Army (DCGS-A), will integrate the products from all ACS Sensor payloads as well as the sensor feeds from other joint force sensors, including manned/unmanned (MUM) teaming with Army Unmanned Aircraft Systems (UAS), to provide a correlated near-real-time picture of the tactical operational environment with the greatest degree of granularity possible. Onboard communications will consist of a robust set of line-of-sight (LOS) and satellite communications (SATCOM) datalinks that will enable direct linkage to Brigade Combat Teams, Manned-Unmanned teaming with Army UAS, wideband/worldwide connectivity to DCGS and the Global Information Grid, and interoperability with other Army, Joint and National RSTA/ISR assets. ACS will be a critical and integral component of the future force.

The Department of Defense (DoD) has redefined the Aerial Common Sensor Program as the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). The EMARSS program will be funded through PE 0307207A - Aerial Common Sensor Project 024 in FY10 and and 655626 - Aerial Common Sensor Project AC5 in FY11 and beyond.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: EMARSS Program Management	0.072	-	-	-	-
Articles:	0				
Description: Funding is provided for the following effort					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 028: *Aerial Common Sensor (ACS) (MIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
FY 2010 Accomplishments: Program Office Management					
Accomplishments/Planned Programs Subtotals	0.072	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Department of Defense (DoD) has redefined the Aerial Common Sensor Program as the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS). The EMARSS program will be funded through PE 0307207A - Aerial Common Sensor Project 024 in FY10 and 655626 - Aerial Common Sensor Project AC5 in FY11 and beyond.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 028: *Aerial Common Sensor (ACS) (MIP)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO Staff/travel/O/H expenses	Various	PM, AC Sensors;:Various	32.455	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	32.455	-		-		-		-			

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.455	-		-		-		-			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

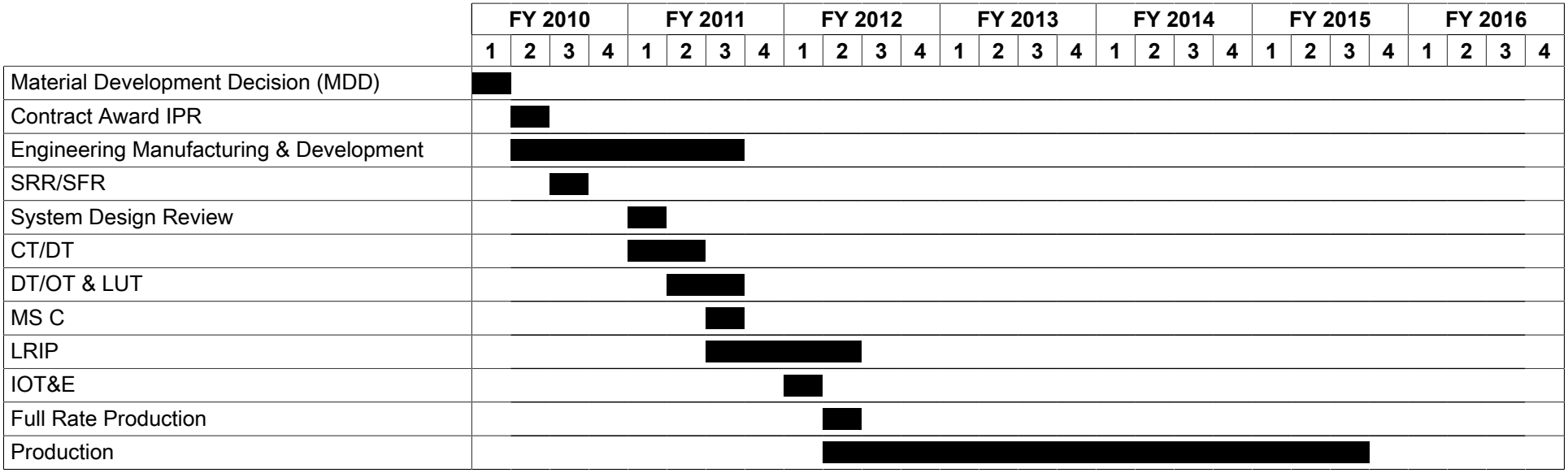

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 028: *Aerial Common Sensor (ACS) (MIP)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Material Development Decision (MDD)	1	2010	1	2010
Contract Award IPR	2	2010	2	2010
Engineering Manufacturing & Development	2	2010	3	2011
SRR/SFR	3	2010	3	2010
System Design Review	1	2011	1	2011
CT/DT	1	2011	2	2011
DT/OT & LUT	2	2011	3	2011
MS C	3	2011	3	2011
LRIP	3	2011	2	2012
IOT&E	1	2012	1	2012
Full Rate Production	2	2012	2	2012
Production	2	2012	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
430: *IMPR CARGO HELICOPTER*	21.495	21.039	48.939	-	48.939	70.794	60.767	58.496	43.321	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

The CH-47 Chinook is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. As the Army's only heavy lift helicopter, the CH-47 is an essential component of the Army Future Force. The CH-47F program fills the Army's Aviation Transformation Chinook requirement. Key product improvements integrate the CH-47F Common Avionics Architecture System (CAAS) digital cockpit which will provide future growth potential to meet the Net-Ready Key Performance Parameters (KPPs) and also includes a digital data bus that permits installation of enhanced communication and navigation equipment for improved situational awareness, mission performance, and survivability. This program funds improvements to the engines and airframe components. The T55-GA-714A engine improvements include a redesigned N1 Drive Train and a new torque system. The Airframe Component Improvement Program includes development of new rotor blades, drive train, aircraft power generation systems, and avionics solutions that will allow the Chinook to improve its performance by providing improved aircraft controls, increased payload capability, and advanced avionics capabilities. Early studies will be performed to identify largest areas of payback in fleet modernization.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: 714 Engine Component Improvement Program	6.226	6.800	5.689	-	5.689
Articles:	0	0			
Description: This funding supports the Engine Component Improvement Program and quality improvements that address safety, reliability, and readiness issues. Improvements include N1 Drive Train update, a new torque system, and improved electronic control unit software.					
FY 2010 Accomplishments: This funding supported the Engine Component Improvement Program and quality improvements that address safety, reliability, and readiness issues. Improvements include N1 Drive Train update, a new torque system, and improved electronic control unit software.					
FY 2011 Plans: This funding continues to support the Engine Component Improvement Program and quality improvements that address safety, reliability, and readiness issues. Improvements include N1 Drive Train update, a new torque system, and improved electronic control unit software.					
FY 2012 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
This funding will support the Engine Component Improvement Program and quality improvements that address safety, reliability, and readiness issues. Improvements include improved electronic control unit software.					
Title: Airframe Component Improvement Program ***Articles:*** ***Description:*** This funding supports airframe component improvement which includes development of new rotor blades that will result in significant performance improvement such as gaining an additional 1,500 - 2000 lbs of lift, improving erosion protection, and reducing retreating blade stall. Completes drivetrain improvement studies. Also funds the development of an advanced torque management system to enable more balanced torque split between the forward and aft rotor head. ***FY 2010 Accomplishments:*** This funding provides development of new rotor blades that will result in significant performance improvement such as gaining an additional 1,500 - 2000 lbs of lift, improving erosion protection, and reducing retreating blade stall. ***FY 2011 Plans:*** This funding provides development of new rotor blades that will result in significant performance improvement such as gaining an additional 1,500 - 2000 lbs of lift, improving erosion protection, and reducing retreating blade stall. Completes drivetrain improvement studies. ***FY 2012 Base Plans:*** This funding provides development of new rotor blades that will result in significant performance improvement such as gaining an additional 1,500 - 2000 lbs of lift, improving erosion protection, and reducing retreating blade stall. Initiates drivetrain improvements to improve aircraft performance.	7.623 0	3.593 0	40.920	-	40.920
Title: Crash Worthy Passenger Seating ***Articles:*** ***Description:*** This funding develops and qualifies crashworthy passenger seating as identified in the OSD Helicopter Survivability Task Force study. ***FY 2010 Accomplishments:***	6.731 0	10.143 0	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
This funding develops and qualifies crashworthy passenger seating as identified in the OSD Helicopter Survivability Task Force study. ***FY 2011 Plans:*** This funding will support the development and will qualifies crashworthy passenger seating as identified in the OSD Helicopter Survivability Task Force study.					
Title: In-house and Program Management Administration ***Articles:*** ***Description:*** This funding provides support costs for various government agencies. ***FY 2010 Accomplishments:*** This funding provided the support costs for various government agencies. ***FY 2011 Plans:*** This funding will continue to provide support costs for various government agencies. ***FY 2012 Base Plans:*** This funding provides future support costs for various government agencies.	0.548 0	0.503 0	2.330	-	2.330
Title: SBIR/STTR ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)	0.367 0	-	-	-	-
Accomplishments/Planned Programs Subtotals	21.495	21.039	48.939	-	48.939

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• CH-47 MODS: *CH-47 CARGO HELICOPTER MODS (MYP)*	102.876		79.712		79.712		254.981	276.782	472.185	6,622.220	7,977.963

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
(Including Adv Proc and Initial Spares)											
• CH-47 SLEP: *CH-47 SLEP*	345.939		423.917		423.917		625.547	746.709	732.027	2,073.835	5,487.523
• CH-47 CARGO HELICOPTER NEW BUILD: *CH-47 CARGO HELICOPTER NEW BUILD (Including Adv Proc)*	706.024		936.399		936.399		207.183	139.866	405.687	155.000	3,342.836

D. Acquisition Strategy

The CH-47F program replaces one for one, the aging CH-47D aircraft by FY2020, incorporates a new machined airframe, and includes a new Common Avionics Architecture System (CAAS) cockpit with digital communication/navigation capability allowing improved interoperability on the digital battlefield. The CH-47F program includes recapitalization of key dynamic components, bringing them to a near zero time.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TOCR	Various	RDEC:RDEC	1.600	-		-		-		-	Continuing	Continuing	Continuing
EMD	Various	ATTC:ATTC	117.221	-		-		-		-	Continuing	Continuing	Continuing
Technical Support	Various	ATTC:ATTC	10.158	-		-		-		-	Continuing	Continuing	Continuing
Rotary Wing Helicopter Crash Worthy Seating	Various	Boeing:Boeing	-	10.143		-		-		-	Continuing	Continuing	Continuing
714 Engine Component Improvement Program	Various	Honeywell:Honeywell	33.302	6.800		5.689		-		5.689	Continuing	Continuing	Continuing
Airframe Component Improvement Program	Various	Boeing:Boeing	19.560	3.593		40.920		-		40.920	Continuing	Continuing	Continuing
		Subtotal	181.841	20.536		46.609		-		46.609			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO/OGA	Various	Various government:various government	16.966	0.503		2.330		-		2.330	Continuing	Continuing	Continuing
SBIR/STTR	Various	SBIR/STTR:Various	1.115	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	18.081	0.503		2.330		-		2.330			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DT/OT	Various	Various government:Various	25.527	-		-		-		-	Continuing	Continuing	Continuing
Live Fire Test & Eval	Various	Contract/Govt:Various	6.365	-		-		-		-	Continuing	Continuing	Continuing
Live Fire Test & Eval	Various	TBD:TBD	0.050	-		-		-		-	Continuing	Continuing	Continuing
Test Analysis	Various		1.500	-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 430: *IMPR CARGO HELICOPTER*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Various Government:Various											
		Subtotal	33.442	-		-		-		-			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	233.364	21.039		48.939		-		48.939			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	59.117	20.640	21.467	-	21.467	71.362	101.626	120.780	127.813	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

The UH-60 Black Hawk is the workhorse of Army Aviation, flying more than 49% of the Army's annual flying hours. The system has been in production for over 30 years and provides a common platform with the versatility to perform multiple missions, ranging from air assault to command and control to medical evacuation/search and rescue. While the Black Hawk is the Army's newest helicopter, it was designed with a twenty-year service life. Today, two-fifths of the Army's Black Hawk fleet (721 aircraft) is comprised of H-60L aircraft with an average age of 13 years. The older H-60A models (918 aircraft) have an average age exceeding 23 years. To counter the older UH-60A's declining readiness rates, increased operations and support costs and to meet Future Force interoperability requirements, the Utility Helicopters Project Office established a program to replace existing UH-60 helicopters and provide capabilities needed on the future battlefield. The resulting configuration of the new UH-60M enhances the commander's ability to conduct non-linear, simultaneous, fully integrated operations in order to decisively mass the effects of the Army's warfighting assets. The UH-60M configuration provides digital connectivity for enhanced situational awareness and improved lift, range, deployability, and survivability to further increase the commander's ability to conduct operations across the entire spectrum of the battle space. An Operational Requirements Document (ORD) for recapitalization of the Black Hawk fleet was approved by the Joint Requirements Oversight Council (JROC) in March, 2001. The ORD described an evolutionary, block approach to transform the utility helicopter force to one that is more deployable, responsive, and less expensive to operate. A revised ORD was signed by the JROC on July 24, 2006, which updated key performance parameters for survivability and force protection. RDTE funds are required to develop, integrate, test and qualify the UH-60M Upgrade configuration. FY05 funded the initial efforts to move the UH-60M program to an Upgrade configuration which included Fly-By-Wire (FBW) technology, Full Authority Digital Engine Control (FADEC) and the Common Avionics Architecture System (CAAS), which is the common cockpit to be used by UH-60M, CH-47 and Special Operations aircraft. Incorporation of CAAS will minimize future sustainment costs for these aircraft platforms. A successful UH-60M Upgrade IPR decision was obtained in January 2006. On May 18, 2007, the Office of the Secretary of Defense (OSD) Overarching Integrated Product Team (OIPT) approved the Army request for advanced procurement for seven UH-60M Upgrade aircraft and recommended a paper Defense Acquisition Board (DAB). On October 15, 2009, based on increasing demands for helicopters to support Army Force Generation Model (AFORGEN) requirements, the Configuration Steering Board (CSB) recommended a restructure of the UH-60 Modernization Program to the Defense Acquisition Executive (DAE). The recommendation included three parts: 1) produce UH-60M baseline aircraft only; 2) complete Development Test (DT) on FBW aircraft; and 3) migrate selected technologies from the upgrade development efforts to the baseline configuration. The recommendation was approved by the DAE on February 18, 2010, in a signed Acquisition Decision Memorandum (ADM). The ADM also directed the program to rebaseline.

The Improved Turbine Engine Program (ITEP) develops, tests and qualifies a nominal three thousand (3000) shaft horsepower (shp) class turboshaft engine with 25% better specific fuel consumption (SFC) as compared to other equivalent horsepower category engines. The engine will be designed to fit in the same engine envelope as a T700 engine for the Black Hawk and Apache aircraft. Other goals of the program are 65 % greater horsepower to weight ratio, 35% less production and maintenance cost and 20% greater design life. The program consists of system engineering and program management, detailed design engineering, design assurance

hardware manufacturing and testing, component and module level development and testing, system level testing and qualification as well as initial integration testing into the airframe.

FY10 funded development of the FADEC integration program, CAAS, and efforts for the development and test of the UH-60M Upgrade aircraft. FY10 also funded Development Testing of FBW technology in a rotary wing flight environment.

FY11 funds continue Development Testing of FBW technology in a rotary wing flight environment.

FY12 funds ITEP System Engineering/Program Management leading to MS B.

FY13 funds ITEP Systems Engineering/Program Management MS B requirements leading to down select, contract award and initial component design and fabrication.

FY14 funds ITEP component design, fabrication and rig tests, preliminary design review (PDR), engine level assembly and mechanical system checkout.

FY15 funds ITEP critical design review, detailed system and component level design, component and module level testing, and engine level development testing.

FY16 funds ITEP design assurance and qualification engine level testing, preliminary flight testing requirements, software testing and initial airframe integration.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Development Engineering ***Articles:*** ***Description:*** Continue airframe, avionics and power plant development based on finalized configuration as a result of aiframe CDR. Conduct System Preliminary Design Review and Critical Design Review. ***FY 2010 Accomplishments:*** Continues Development Testing of Fly-By-Wire.	4.400 0	-	-	-	-
Title: Full Authority Digital Engine Control (FADEC) Integration ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** FADEC	0.441 0	-	-	-	-
Title: UH-60 Aviation Software Performance Assessment Test Bed	5.690	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Articles: ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Update, validation and verification of the Systems Integration Lab for the UH-60M aircraft.	0				
Title: SBIR / STTR ***Articles:*** ***Description:*** Provides support for the Small Business Innovation Research and Small Business Technology Transfer initiatives. ***FY 2010 Accomplishments:*** Provides support for the Small Business Innovation Research and Small Business Technology Transfer initiatives.	1.136 0	-	-	-	-
Title: Fly-By-Wire Aircraft Development Testing ***Articles:*** ***Description:*** Supports the completion of the Fly-By-Wire technology. ***FY 2010 Accomplishments:*** Development Testing of Fly-By-Wire technology in a rotary wing flight environment. ***FY 2011 Plans:*** Continues to fund Development Testing of Fly-By-Wire technology in a rotary wing flight environment.	47.450 0	20.640 0	-	-	-
Title: ITEP ***Description:*** Improved Turbine Engine Program (ITEP) - a multi-platform turbine engine improvement required across existing Army aircraft to fill the capability gaps for Army Aviation Operations. ***FY 2012 Base Plans:*** Begins the Engineering and Manufacturing Development Phase. A planned contract award to the selected Prime Contractor for system development and platform integration.	-	-	21.467	-	21.467
Accomplishments/Planned Programs Subtotals	59.117	20.640	21.467	-	21.467

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• BLACK HAWK (MYP): *BLACK HAWK (MYP)*	1,470.992	1,391.598	1,525.447	72.000	1,597.447		1,391.150	1,317.694	1,523.538	Continuing	Continuing

D. Acquisition Strategy

The Utility Helicopters Project Manager Office (UH PMO) is planning and executing programs to acquire the capabilities described in the Operational Requirements Document (ORD) For Recapitalization Of The UH-60 Black Hawk Utility Helicopter Fleet. The ORD specifies a two block approach and cites firm requirements for both blocks of capability as well as a robust pre-planned product improvement (P3I) plan that includes the insertion of technology. To address the requirements in the ORD the Utility Helicopters Project Office developed a strategy that developed the UH-60M Baseline to meet the Block 1 requirements and initiated the development of the UH-60M Upgrade for technology insertion of Fly-By-Wire (FBW), Full Authority Digital Engine Control (FADEC), and Common Avionics Architecture System (CAAS). In February 2010, the Defense Acquisition Executive (DAE) supported an Army Configuration Steering Board (CSB) and Office of Secretary of Defense (OSD) Overarching Integrated Product Team (OIPT) recommendation to cease production of the UH-60M Upgrade integrated solution due to Army Force Generation (AFORGEN) requirements. Concurrence with this recommendation is captured in the 18 February 2010 Acquisition Decision Memorandum (ADM) directing the Army to rebaseline the UH-60 Modernization Program. The ADM directed the completion of the development and development test of the UH-60M Upgrade program, continued procurement of UH-60M aircraft, and migration of select technologies from the UH-60M Upgrade development to the UH-60M configuration. This migration does not include FBW or CAAS. As part of completing the development and development testing of the UH-60M Upgrade, the integration, qualification and testing will be documented and shelved awaiting a future decision directing production of UH-60M Upgrade. At the point the decision is made to restart the UH-60M Upgrade effort, the appropriate UH-60M acquisition and test documents will be updated.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Support - Organic	Various	UH PMO/ matrix:Huntsville, AL	11.111	-		-		-		-	Continuing	Continuing	Continuing
PM Support - Contract	Various	AMCOM Express Contractor:Huntsville, AL	6.293	-		-		-		-	Continuing	Continuing	Continuing
ITEP SEPM - Prime Contract	Various	TBD:TBD	-	-		6.467		-		6.467	Continuing	Continuing	Continuing
ITEP SEPM - Organic	Various	PMO:Huntsville, AL	-	-		0.600		-		0.600	Continuing	Continuing	Continuing
ITEP PMO Other IOB - Organic	Various	PMO:Huntsville, AL	-	-		1.000		-		1.000	Continuing	Continuing	Continuing
SIBR/STTR	Various	SIBR/STTR:Huntsville, AL	5.379	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	22.783	-		8.067		-		8.067			

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design, Integration & Qualification Contract	Various	Sikorsky Aircraft Company:Various	364.215	-		-		-		-	Continuing	Continuing	Continuing
UH-60M Upgrade Pre-Planned Product Improvement Contract	Various	Sikorsky Aircraft Company:Various	269.713	-		-		-		-	Continuing	Continuing	Continuing
Development Support - Organic	Various	UH PMO/ matrix:Huntsville, AL	22.963	-		-		-		-	Continuing	Continuing	0.000
Development Support - Contractor	Various	Support Contractors:Huntsville, AL	18.800	-		-		-		-	Continuing	Continuing	Continuing
IMD-HUMS Development Support - Organic	Various	Aviation Applied Tech Directorate (AATD) Matrix:Various	6.953	-		-		-		-	Continuing	Continuing	Continuing
IMD-HUMS Development Support - Contractor	Various	Goodrich:Various	46.862	-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAST Development Support - Organic	Various	Other Government Agency Support:Various	1.429	-		-		-		-	Continuing	Continuing	Continuing
MAST Development Support - Contractor	Various	Smith Industries:Various	5.708	-		-		-		-	Continuing	Continuing	0.000
Full Authority Digital Engine Control (FADEC) Development - Organic	Various	TBD:TBD	2.144	-		-		-		-	Continuing	Continuing	Continuing
Full Authority Digital Engine Control (FADEC) Development - Contractor	Various	TBD:TBD	16.741	-		-		-		-	Continuing	Continuing	0.000
Internal Reprogramming - Payback for FY03	Various	TBD:TBD	3.413	-		-		-		-	Continuing	Continuing	0.000
HALS	Various	TBD:TBD	12.675	-		-		-		-	Continuing	Continuing	Continuing
Performance Support System - NG (Apache)	Various	Other Government Agency Support:Various	1.000	-		-		-		-	Continuing	Continuing	0.000
Transfer to Apache	Various	TBD:Various	3.000	-		-		-		-	Continuing	Continuing	Continuing
Operator Situational Awareness System - Contractor	Various	TBD:TBD	4.150	-		-		-		-	Continuing	Continuing	0.000
UH-60 Aviation Software Performance Assessment Test Bed	Various	Software Engineering Directorate:Huntsville, AL	-	-		-		-		-	Continuing	Continuing	Continuing
Spindle Lug Bushing Phase 1&2	Various	Sikorsky Aircraft Company:Various	-	-		-		-		-	Continuing	Continuing	0.000
Fly-By-Wire Aircraft Program	Various	TBD:TBD	-	20.640		-		-		-	Continuing	Continuing	Continuing
Improved Turbine Engine Program (ITEP) Engine Development and Qualification	Various	TBD:TBD	2.000	-		10.000		-		10.000	Continuing	Continuing	Continuing
		Subtotal	781.766	20.640		10.000		-		10.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

IMD-HUMS demonstration program was funded in FY02-05 and is separate from the UH-60M program.
MAST demonstration program was funded in FY04 and FY05 and is separate from the UH-60M and the HUMS programs.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Analysis (CAD) Support	Various	AMCOM Matrix:Huntsville, AL	0.956	-		-		-		-	Continuing	Continuing	Continuing
Logistics Analysis Support - Organic	Various	AMCOM Matrix:Huntsville, AL	2.285	-		-		-		-	Continuing	Continuing	Continuing
Logistics Analysis Support - Support Contractor	Various	Support Contractor:Huntsville, AL	2.287	-		-		-		-	Continuing	Continuing	Continuing
ITEP Logistics - Organic	Various	IMMC:Huntsville, AL	-	-		0.400		-		0.400	Continuing	Continuing	Continuing
ITEP Logistics - Contractor	Various	AMCOM EXPRESS:Huntsville, AL	-	-		0.200		-		0.200	Continuing	Continuing	Continuing
ITEP Engineering Matrix Spt - Organic	Various	AMRDEC:Huntsville, AL	-	-		2.000		-		2.000	Continuing	Continuing	Continuing
ITEP Engineering Spt - Contractor	Various	AMCOM EXPRESS:Huntsville, AL	-	-		0.800		-		0.800	Continuing	Continuing	Continuing
		Subtotal	5.528	-		3.400		-		3.400			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning, Test and Evaluation	Various	Various Activities:Various	35.435	-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning, Test and Evaluation Contractor	Various	Various Activities:Various	0.825	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	36.260	-		-		-		-			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	846.337	20.640		21.467		-		21.467			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Fly-By-Wire Aircraft Development Testing																												

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** 504: *BLACK HAWK RECAPITALIZATION/ MODERNIZATION*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fly-By-Wire Aircraft Development Testing	1	2010	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	12.763	-	-	-	-	-	-	-	-	0.000	12.763
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

FY10 funding continues the Light Weight Missile Launcher (LWML) development, testing, and integration. First Unit Equipped is planned for 1st quarter FY12. The LWML will provide weight savings per launcher, commonality, producibility and improved electronics reliability to the Apache fleet. The LWML project was competitively awarded in FY08 as an incrementally funded FFP contract. In addition, the AAH PMO and the Night Vision and Electronic Sensors Directorate (NVESD) mutually agreed to enter into a Technology Transition Agreement (TTA) for the purpose of defining technology deliverables from the Electronic Image Intensifier (EI2) for Pilotage Technology Transition Initiative (TTI) to the Arrowhead Modernized-Target Acquisition Designation Sight/Pilot Night Vision Sensor (M-TADS/PNVS) program. A new camera will provide high quality, Aviator's Night Vision Imaging System (ANVIS)-equivalent (the current Army aviation night goggles) performance imagery that can be fused with thermal imagery for improved nighttime pilotage and situational awareness over a broader range of degraded visual conditions.

FY 2010 total does not include any previously requested funding for current FY 2009 Overseas Contingency Operations (OCO) requirements, and no FY 2010 OCO funds have been previously requested in the RDTE Project of D12.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Light Weight Missile Launcher (LWML) NRE Contract [Note: PM JAMS will report on the funding.]	9.995	-	-	-	-
Articles:	0				
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: Complete contractor design, test, logistics development, and Government airworthiness qualification testing					
Title: Electronic Image Intensifier Technology Transition Initiative (EI2 TTI)	2.768	-	-	-	-
Articles:	0				
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: Performs developmental flight testing with NVESD aircraft and operational testing with the Apache aircraft					
Accomplishments/Planned Programs Subtotals	12.763	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• AA6606: *AH-64 Mods*	577.649	592.969	331.230		331.230		71.901	74.910	76.192	513.791	2,460.810
• A05111: *AH64 AB3*	230.036	493.831								0.000	723.867
• A05121: *Block II New Build*	34.600									0.000	34.600
• A05122: *AH-64 AB3 Reman*			603.769		603.769		492.367	691.826	827.902	6,303.222	9,509.117
• A05133: *AB3 New Build*			139.763		139.763		1,057.670	405.676	201.490	0.000	2,352.617
• 273744/D17: *Apache Block III*	146.874	93.320	92.799		92.799		136.202	158.144	136.586	Continuing	Continuing

D. Acquisition Strategy

There is no funding in this project for FY11.

FY10, EI2 TTI -- Night Vision and Electronic Sensors Directorate (NVESD) is performing developmental flight testing with NVESD aircraft. Operational testing will be in the Apache aircraft. NVESD will manage the AAH PMO'S flight testing.

FY10, LWML -- These funds are to complete contractor design, test, logistics development, and Government airworthiness qualification testing. Prior year funds have been used to initiate and sustain the contract for those activities. Missile R&D funds were originally utilized for specification development, Request for Proposal generation, and contractor source selection. The project has traditional review and continuation points with Preliminary and Critical Design Reviews, a Production Readiness Review, and In-Process Review for a production decision. First Unit Equipped will be 1st quarter FY12.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D12: *LONGBOW APACHE OPERATIONAL SYSTEMS DEVELOP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Boeing NRE -- CRMB	Various	The Boeing Company:various	12.073	-		-		-		-	Continuing	Continuing	Continuing
SOFSA/L3 Inc. NRE -- TADSS	Various	SOFSA/L3 Inc.:various	13.950	-		-		-		-	Continuing	Continuing	Continuing
Lockheed Martin -- LWML	Various	LM Missiles & Fire Control:various	13.465	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	39.488	-		-		-		-			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Light Weight Missile Launcher (LWML)	Various	various:various	-	-		-		-		-	Continuing	Continuing	Continuing
Elec Image Intensifier Tech Transition (EI2 TTI)	Various	NVESD:Fort Belvoir, VA	-	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	-	-		-		-		-			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.488	-		-		-		-			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
D17: *APACHE BLOCK III*	146.874	93.320	92.799	-	92.799	114.444	136.202	158.144	136.586	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

Project D17, Apache Block III (AB3) funding is for the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture and new build of 690 Apache aircraft in the Block III configuration (deliveries to begin in Oct 2011). The AB3 program consists of two Major Defense Acquisition Programs (MDAP), AB3A Remanufacture and AB3B New Build. The AB3 is the best value sustainment plan for the Apache fleet that overcomes capability gaps and satisfies user requirements. The AB3 will add significant combat capability while addressing obsolescence issues to ensure the aircraft remains a realistic combat multiplier through 2040. The AB3 will address current system shortfalls by integrating: Unmanned Aircraft System (UAS) Level IV Control Capability, Improved Situational Awareness, an Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, and Improved Diagnostics and Maintainability.

FY12 funding totals do not include any previously requested funding for current FY12 Overseas Contingency Operations (OCO) requirements, and no FY12 OCO funds have been previously requested in the RDTE Project D17.

FY11 funding totals did not include any previously requested funding for current FY11 Overseas Contingency Operations (OCO) requirements, and no FY11 OCO funds have been previously requested in the RDTE Project D17.

FY10 funding totals did not include any previously requested funding for current FY10 Overseas Contingency Operations (OCO) requirements, and no FY10 OCO funds have been previously requested in the RDTE Project D17.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Major Contracts	107.474	78.200	52.984	-	52.984
Articles:	0	0			
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: Development & Testing work associated with the planned remanufacture and new build of Apache aircraft in the Block III Lot 1-3 configuration					
FY 2011 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Development & Testing work associated with the planned remanufacture and new build of Apache aircraft in the Block III Lot 1-3 configuration ***FY 2012 Base Plans:*** Development & Testing work associated with the planned remanufacture and new build of Apache aircraft in the Block III Lot 4-6 configuration					
Title: Other Major Contracts ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Development & Testing of Radar Electronics Unit (REU), UAS TCDL Assembly (UTA) associated with Block III Lot 1-3 aircraft. Future configuration of REU, RFI, & UTA will satisfy the program specific technology upgrades & enhance operational capability. ***FY 2011 Plans:*** Development & Testing of REU, UTA associated with Block III Lot 1-3 aircraft. Future configuration of REU, RFI, & UTA will satisfy the program specific technology upgrades & enhance operational capability. ***FY 2012 Base Plans:*** Development & Testing of REU, RFI, and UTA associated with Block III Lot 4-6 aircraft. Future configuration of REU, RFI, and UTA will satisfy the program specific technology upgrades & enhance operational capability.	13.000 0	5.000 0	15.000	-	15.000
Title: Program Support Activities ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** GFE supporting AB3 tests ***FY 2011 Plans:*** GFE supporting AB3 tests ***FY 2012 Base Plans:***	9.096 0	3.320 0	11.471	-	11.471

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
GFE supporting AB3 tests					
Title: Government Participation, Operational Assessments ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Development Test & Evaluation, Live Fire, Operational Testing ***FY 2011 Plans:*** Development Test & Evaluation, Live Fire, Operational Testing ***FY 2012 Base Plans:*** Development Test & Evaluation, Live Fire, Operational Testing	7.174 0	6.800 0	12.855	-	12.855
Title: Management Services ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** Payroll, Temporary Duty (TDY), Support Contractors, Matrix Support ***FY 2012 Base Plans:*** Payroll, TDY, Support Contractors, Matrix Support	4.996 0	-	0.489	-	0.489
Title: Small Business Innovative Research/Small Business Technology Transfer Adjustment ***Articles:*** ***Description:*** Funding is provided for the following effort ***FY 2010 Accomplishments:*** SBIR/STTR Adjustment	5.134 0	-	-	-	-
Accomplishments/Planned Programs Subtotals	146.874	93.320	92.799	-	92.799

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• AH-64 Mods: *APA, SSN AA6606*	577.649	592.969	331.230		331.230		71.901	74.910	76.192	513.791	2,460.810
• AH-64 Apache Block III: *APA, SSN A05111*	230.036	493.831								0.000	723.867
• Apache Block II New Build: *APA, SSN A05121*	34.600									0.000	34.600
• AH-64 AB3A Reman: *APA, SSN A05122*			603.769		603.769		492.367	691.826	827.902	6,303.222	9,509.117
• AB3B New Build: *APA, SSN A05133*			139.763		139.763		1,057.670	405.676	201.490	0.000	2,352.617
• Longbow Apache Operational System: *RDTE, PE273744D12*	12.763									0.000	12.763

D. Acquisition Strategy

The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing. The Low Rate Initial Production (LRIP) effort includes a total quantity of 51 aircraft, with deliveries completing in December 2013. These 51 LRIP aircraft will be used for operational testing, First Unit Equipped (FUE), and training base fielding.

In Oct 10, a contract for Apache Block III Lot 1 (8 aircraft) was awarded to initiate LRIP. Additional options for Lot 2a (16 aircraft), Lot 2b (19 aircraft) and Lot 2c (8 aircraft) are part of the LRIP Contract plan.

In late FY11, the existing Engineering Manufacturing Development (EMD) effort will be modified to incorporate development and testing to support the AB3 Lot 4 and Lot 6 production configurations.

In FY13, a contract for Apache Block III Lot 3 (40 aircraft), initiating Full Rate Production, will be awarded with options for Lot 4 (52 aircraft), Lot 5 (56 aircraft) and will continue through FY25, to a total of 690 remanufactured and new build aircraft.

Training device concurrency will be maintained with each technical insertion. FY09 and FY10 advanced material procurement support the LRIP deliveries. The EMD effort is managed as Cost Reimbursable. Production efforts will be awarded as Firm Fixed Price (FFP) and include the Advanced Procurement requirements.

As the acquisition strategy and plan unfolds, multi-year authority may be requested for the out years.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Svcs (In-House, Travel, etc.)	MIPR	PMO AAH, Matrix Support, AMCOM Express:Redstone Arsenal, AL	30.872	-		0.489		-		0.489	Continuing	Continuing	Continuing
		Subtotal	30.872	-		0.489		-		0.489			

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
The Boeing Company	SS/CPIF	Boeing Contracts:Mesa, AZ	584.973	78.200		52.984		-		52.984	Continuing	Continuing	Continuing
Longbow Limited Liability (LBL) Contracts	SS/CPIF	Longbow Limited Liability (LBL) Contracts:Orlando, FL and Baltimore, MD	135.000	5.000		15.000		-		15.000	Continuing	Continuing	Continuing
		Subtotal	719.973	83.200		67.984		-		67.984			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support Activities	MIPR	Various Activities:Various	34.125	3.320		11.471		-		11.471	Continuing	Continuing	Continuing
SBIR/STTR	TBD	n/a:n/a	-	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	34.125	3.320		11.471		-		11.471			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	TBD	Various Activities:Various	17.370	6.800		12.855		-		12.855	Continuing	Continuing	Continuing
		Subtotal	17.370	6.800		12.855		-		12.855			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	802.340	93.320		92.799		-		92.799			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	PROJECT D17: *APACHE BLOCK III*

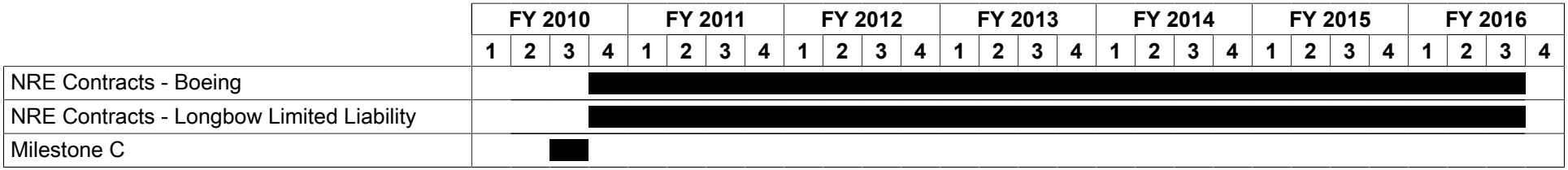

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203744A: *Aircraft Modifications/Product Improvement Programs*	**PROJECT** D17: *APACHE BLOCK III*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NRE Contracts - Boeing	4	2010	3	2016
NRE Contracts - Longbow Limited Liability	4	2010	3	2016
Milestone C	3	2010	3	2010

Exhibit R-5, RDT&E Termination Liability: PB 2012 Army							DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 7: *Operational Systems Development*			R-1 ITEM NOMENCLATURE PE 0203744A: *Aircraft Modifications/Product Improvement Programs*			PROJECT D17: *APACHE BLOCK III*	
Cost ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**
Program Termination Liability	14.687	9.380	9.280	11.444	13.620	15.814	13.659