



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-101



### **H-1 Upgrades (4BW/4BN) (H-1 Upgrades)**

As of FY 2010 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

H-1 UPGRADES (4BW/4BN) (H-1 UPGRADES (4BW/4BN))

**DoD Component**

Navy

## Responsible Office

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## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 10, 1996

**Approved APB**

DAE Approved Acquisition Program Baseline (APB) dated December 22, 2008

## **Mission and Description**

The mission of the AH-1Z attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions for the United States Marine Corps (USMC). The mission of the UH-1Y utility helicopter is to provide command, control and assault support under day/night and adverse weather conditions. Both the AH-1Z and UH-1Y aircraft incorporate state of the art designs, which serve to improve capability, lethality and survivability. Major modifications include a new four-bladed rotor system with semi-automatic blade fold of the new composite rotor blades, new performance matched transmissions, a new four-bladed tail rotor and drive system, upgraded landing gear, and pylon structural modifications. The H-1 Upgrades aircraft have increased maneuverability, speed, and payload capability. Both aircraft have fully integrated common cockpits/avionics that reduce operator workload and improve situational awareness, thus increasing safety.

## Executive Summary

As a result of the Milestone III decision, the H-1 Upgrades Program will remanufacture one hundred sixty-eight (168) AH-1W helicopters into AH-1Zs, build fifty-eight (58) AH-1Z Build New (ZBN) models, remanufacture eight (8) UH-1N helicopters into UH-1Ys and build one hundred fifteen (115) new UH-1Y models.

The UH-1Y Operational Evaluation (OPEVAL) Phase II (OT-IIC2) test completed in May 2008 with the UH-1Y being found operationally effective and suitable. The UH-1Y declared Initial Operational Capability (IOC) in August 2008. An Acquisition Decision Memorandum (ADM) was released on September 26, 2008 approving UH-1Y Full Rate Production (FRP). The first deployment of three (3) UH-1Y aircraft was initiated with the Marine Expeditionary Unit (MEU) deployment on-board the USS Boxer in January 2009. Nine (9) UH-1Y aircraft are currently preparing for the second deployment in Fall 2009.

The AH-1Z OT-IIC2 Critical Operational Issues (COIs) related to weapons delivery are unresolved. The weapons delivery issues were related to Rocket Gas Ingestion (RGI), gun control software, Target Sight System (TSS), and Optimized Top Owl (OTO) boresight. All have solutions on contract and have been demonstrated via test to date, with the exception of the TSS which requires production hardware that was just delivered on June 4, 2009. The September 26, 2008 ADM approved Low Rate Initial Production (LRIP) V for the AH-1Z. The AH-1Z FRP decision is planned for FY11.

On December 18, 2008, Secretary of the Navy (SECNAV) notified Congress that the H-1 Upgrades Program had a significant Nunn-McCurdy cost breach in Average Unit Procurement Cost (APUC) due to cost growth in material, labor, Government Furnished Equipment (GFE); and higher unit cost of the AH-1Z that must be built new (vice remanufactured) to accommodate the increased United States Marine Corp (USMC) force structure. A revised Acquisition Program Baseline (APB) and Acquisition Strategy (AS) were approved on December 22, 2008.

A Joint Requirements Oversight Council (JROC) review, Overarching Integrated Product Team (OIPT) review, and subsequent Defense Acquisition Executive (DAE) review in January 2009 approved AH-1Z LRIP Lot VI and concurred with the cuff/yoke redesign. The February 5, 2009 ADM provided new exit criteria for additional AH-1Z LRIP and FRP decisions.

Production of aircraft continues at Bell Helicopter in Amarillo, TX. Sixty-five aircraft (Lots 1-6) are on contract. At the end of May 2009, twenty-four (24) aircraft (18 UH-1Ys and 6 AH-1Zs) have been delivered to the fleet. Lots 1, 2 and 3 aircraft deliveries are complete, and Lot 4 deliveries have commenced with the first Lot 4 UH-1Y being delivered on April 23, 2009, ahead of schedule.

The February 5, 2009 ADM approved the AH-1Z plan forward to FRP and authorized additional LRIP quantities. The planned quantity of LRIP aircraft exceeds 10% of the expected final inventory but is necessary to permit an orderly increase in the production rate and efficient production pending a successful completion of operational testing. The total planned LRIP quantity is 55 aircraft, 43 of which are currently on contract.

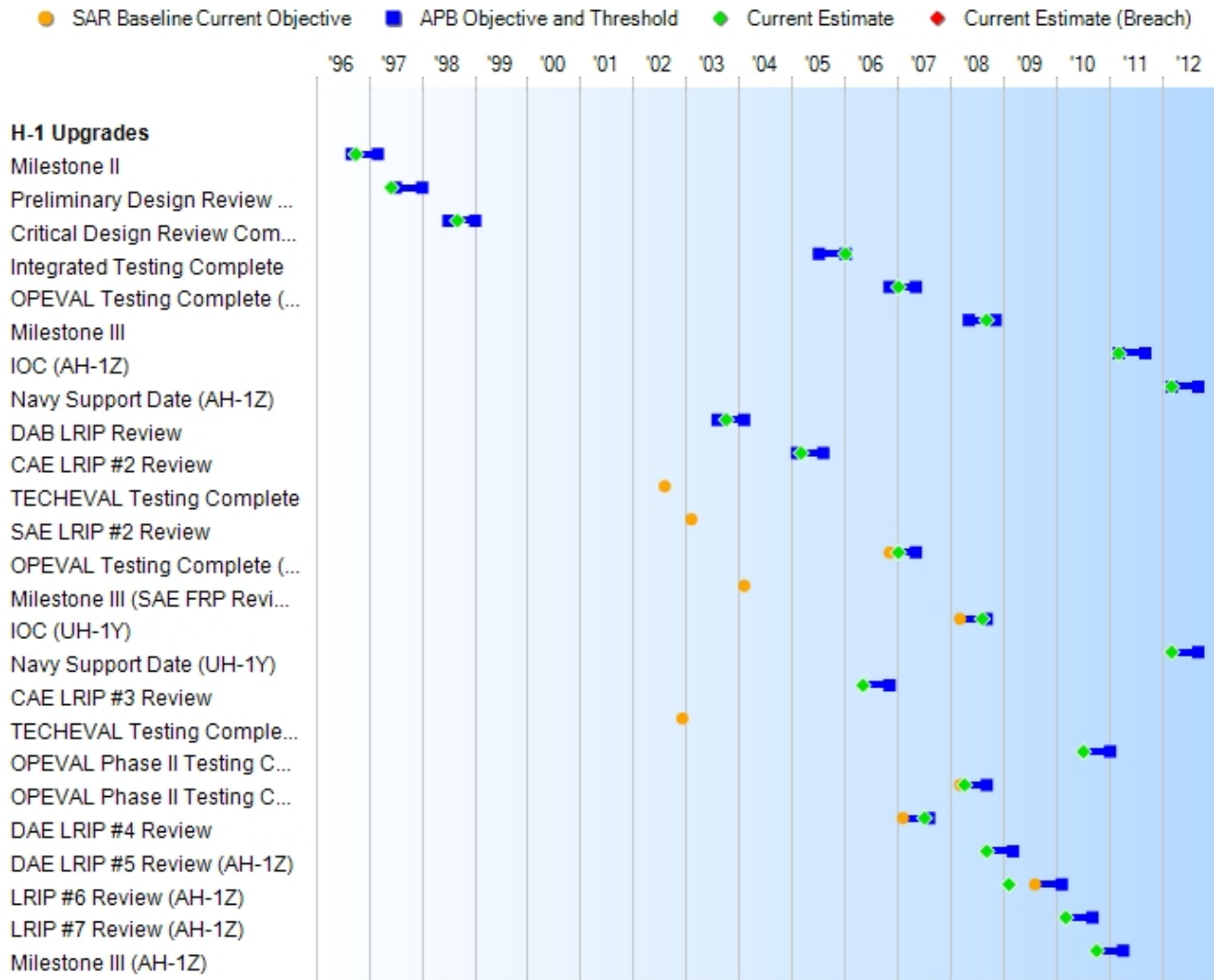
There are no significant software related issues with this program at this time.

## Threshold Breaches

APB Breaches		Explanation of Breach
<b>Schedule</b>	<input type="checkbox"/>	<p>The Unit Cost Report (UCR) indicates Average Procurement Unit Cost (APUC) increases over 15%. The unit cost growth is primarily a result of increased prime contractor labor and material cost, Government Furnished Equipment (GFE) costs; additional Non-Recurring Engineering (NRE) costs to support productionization investments for Optimized Top Owl (OTO) and the Target Sight System (TSS), as well as correction of deficiencies from Operational Evaluation (OPEVAL) Phase 1. The unit cost increase also takes into account additional costs resulting from the United States Marine Corps expanding the H-1 Upgrades procurement objective by 69 aircraft (23 UH-1Y and 46 AH-1Z) to a total of 349 aircraft. This change not only increased the overall procurement cost of the program but also the average unit cost since the additional AH-1Z aircraft are in excess of the existing inventory of AH-1W airframes. As a result, the additional AH-1Z aircraft will need to be built new without the cost benefit of remanufacturing.</p> <p>The breach status reflected in the table is based on the prior APB dated July 2007, which was the current APB when Congress was notified of the significant Nunn-McCurdy breach to the APUC in December 2008. The prior APB of July 2007 was revised on December 22, 2008, to reflect approval of the program's Milestone III decision. Subsequently, changes in the procurement phasing of UH-1Y and AH-1Z remanufacture, and AH-1Z new build, have increased the PAUC current estimate by approximately 1%, but this does not constitute a breach compared to the current approved APB of December 2008.</p>
<b>Performance</b>	<input type="checkbox"/>	
<b>Cost</b>	<input type="checkbox"/>	
RDT&E	<input type="checkbox"/>	
Procurement	<input type="checkbox"/>	
MILCON	<input type="checkbox"/>	
Acq O&M	<input type="checkbox"/>	
<b>O&amp;S Cost</b>	<input type="checkbox"/>	
<b>Unit Cost</b>	<input type="checkbox"/>	
PAUC	<input type="checkbox"/>	
APUC	<input type="checkbox"/>	
Nunn-McCurdy Breaches		
<b>Current UCR Baseline</b>		
PAUC	Significant	
APUC	Significant	
<b>Original UCR Baseline</b>		
PAUC	None	
APUC	None	



# Schedule



Schedule Events					
Events	SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone II	Sep 1996	Sep 1996	Mar 1997	Oct 1996	
Preliminary Design Review Complete	Jul 1997	Jul 1997	Jan 1998	Jun 1997	
Critical Design Review Complete	Jul 1998	Jul 1998	Jan 1999	Sep 1998	
Integrated Testing Complete	N/A	Jul 2005	Jan 2006	Jan 2006	
OPEVAL Testing Complete (AH-1Z)	Sep 2003	Nov 2006	May 2007	Jan 2007	
Milestone III	Feb 2004	May 2008	Nov 2008	Sep 2008	
IOC (AH-1Z)	Sep 2006	Mar 2011	Sep 2011	Mar 2011	
Navy Support Date (AH-1Z)	Sep 2008	Mar 2012	Sep 2012	Mar 2012	
DAB LRIP Review	Dec 2001	Aug 2003	Feb 2004	Oct 2003	
CAE LRIP #2 Review	N/A	Feb 2005	Aug 2005	Mar 2005	
TECHEVAL Testing Complete	Aug 2002	N/A	N/A	N/A	
SAE LRIP #2 Review	Feb 2003	N/A	N/A	N/A	
OPEVAL Testing Complete (UH-1Y)	May 2003	Nov 2006	May 2007	Jan 2007	
Milestone III (SAE FRP Review - Navy)	Feb 2004	N/A	N/A	N/A	
IOC (UH-1Y)	Jun 2005	Mar 2008	Sep 2008	Aug 2008	(Ch-1)
Navy Support Date (UH-1Y)	Sep 2007	Mar 2012	Sep 2012	Mar 2012	
CAE LRIP #3 Review	N/A	May 2006	Nov 2006	May 2006	
TECHEVAL Testing Complete (AH-1Z)	Dec 2002	N/A	N/A	N/A	
OPEVAL Phase II Testing Complete (AH-1Z)	N/A	Jul 2010	Jan 2011	Jul 2010	(Ch-2)
OPEVAL Phase II Testing Complete (UH-1Y)	N/A	Mar 2008	Sep 2008	Apr 2008	
DAE LRIP #4 Review	N/A	Feb 2007	Aug 2007	Jul 2007	
DAE LRIP #5 Review (AH-1Z)	N/A	Sep 2008	Mar 2009	Sep 2008	(Ch-3)
LRIP #6 Review (AH-1Z)	N/A	Aug 2009	Feb 2010	Feb 2009	(Ch-3)
LRIP #7 Review (AH-1Z)	N/A	Mar 2010	Sep 2010	Mar 2010	(Ch-3)
Milestone III (AH-1Z)	N/A	Oct 2010	Apr 2011	Oct 2010	(Ch-4)

### Change Explanations

(Ch-1) The actual date for UH-1Y IOC was August 8, 2008, one month prior to the previous estimate.

(Ch-2) OPEVAL Phase II Testing Complete (AH-1Z) Objective changed from Mar 2008 to Jul 2010 and Threshold changed from Sep 2008 to Jan 2011.

(Ch-3) DAE AH-1Z LRIP #5, #6 and #7 are new LRIP lots added to support continuing OPEVAL testing for AH-1Z.

(Ch-4) Milestone III (AH-1Z) is a new requirement added for a separate AH-1Z Milestone III.

### Notes

TECHEVAL Testing Complete, SAE LRIP #2 Review, and Milestone III SAE FRP Review milestones were deleted in APB Change 1 dated June 12, 2000.

All changes above are per the Production APB dated December 22, 2008.

### Acronyms and Abbreviations

APB - Acquisition Program Baseline  
CAE - Component Acquisition Executive  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
FRP - Full Rate Production  
IOC - Initial Operational Capability  
LRIP - Low Rate Initial Production  
OPEVAL - Operational Evaluation  
SAE - Service Acquisition Executive  
TECHEVAL - Technical Evaluation

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
<b>4BW (AH-1W/AH-1Z)</b>				
<b>MFHBA (hrs)</b>				
35.0	35.0	24.0	26.7	50.6
<b>MMH/FH (hrs)</b>				
3.6	3.6	4.3	2.8	3.2
<b>Cruise Speed (kts)</b>				
165	165	135	138	138
<b>Payload (Hot Day) (lbs)</b>				
3500	3500 lbs	2500 lbs 6 Wing Stations 4 Universal Under Wing Stations	3179	3179
<b>Weapon Stations</b>				
<b>Universal Mounts</b>				
6	6	4	4	4
<b>Precision Guided Munitions</b>				
16	16	12	16	16
<b>Maneuverability/Agility (G's)</b>				
-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.5	-5 to +2.79	-5 to +2.5
<b>Mission Radius (NM)</b>				
200 x 1 (Aux Fuel)	200 NM	110 NM	135NM x 1	135NM x 1
<b>Shipboard Compatibility</b>				
N/A	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.
<b>Interoperability</b>				
N/A	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net

(Ch-1)

(Ch-1)

(Ch-1)

	requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views	Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
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**Force Protection (Seating)**

N/A	Two AH-1Z pilots seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilots seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilots that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilots that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	(Ch-2)
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**Survivability (Ballistic Tolerance/Hardening)**

N/A	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	(Ch-2)
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<b>4BN (UH-1N/UH-1Y)</b>				
<b>MFHBA (hrs)</b>				
40.2	40.2	33.1	55.8	52.3
<b>MMH/FH (hrs)</b>				
2.9	2.9	3.9	2.5	2.4
<b>Cruise Speed (kts)</b>				
165	165	140	156	156
<b>Payload (Hot Day) (lbs)</b>				
4500	4500	2800	3079	3079
<b>Weapon Stations</b>				
2 Univ. Mounts	2 Univ. Mounts	2 Hard Mounts	2 Hard Mounts	2 Hard Mounts
<b>Maneuverability/Agility (G's)</b>				
-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.3	-0.5 to +2.3	-0.5 to +2.3
<b>Mission Radius (NM)</b>				
200 x 1 (Aux Fuel)	200 NM	110 NM	129NM	129NM
				(Ch-1)
<b>Shipboard Compatibility</b>				
N/A	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.
				(Ch-1)
<b>Interoperability</b>				
N/A	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and
				(Ch-1)

	integrity, authentication, confidentiality, and nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	nonrepudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	nonrepudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
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**Force Protection (Seating)**

N/A	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustain-ing 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustain-ing 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH- 1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH- 1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	(Ch-2)
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**Survivability (Ballistic Tolerance/Hardening)**

N/A	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	(Ch-2)
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**Requirements Reference**

UH-1Y Capability Production Document (CPD) and AH-1Z CPD dated June 11, 2007 as modified by Joint Requirements Oversight Council Memorandum 195-08 dated October 14, 2008

**Change Explanations**

(Ch-1) Changes in the demonstrated performance and current estimate reflect Mission Radius, Shipboard Compatiibty and Interoperabiity Key Performance Parameter (KPP) Thresholds and Objectives that were enhanced with more detail for the Production Acquisition Program Baseline (APB) approved December 22, 2008.

(Ch-2) Force Protection and Survivability KPPs were added for the Production APB approved December 22, 2008.

**Notes**

The UH-1Y Maneuverability KPP Performance Breach was reported in the December 2007 Selected Acquisition Report (SAR) due to static strength limitations of the main rotor cuff. A Joint Requirements Oversight Council Memorandum (JROCM) 195-08, dated October 14, 2008, updated and approved the Capabilities Production Document (CPD) to reflect this change.

Demonstrated performance numbers are based on the Developmental Test (DT) II-C-2 and the Operational Test (OT) II-C-1 reports. Current Estimates are based on engineering projections.

**Acronyms and Abbreviations**

API - Armor Piercing Incendiary  
ATO - Authority to Operate  
Aux. - Auxilliary  
DAA - Designated Approving Authority  
DISR - DoD Information Technology Standards Registry  
G's - Gravitational forces  
GIG - Global Information Grid  
HEI - High Explosive Incendiary  
hrs - Hours  
IATO - Interim Authority to Operate  
IT - Information Technology  
KIP - Key Interface Protocol  
kts - Knots  
lbs - Pounds  
MFHBA - Mean Flight Hours Between Abort  
mm - Millimeter  
MMH/FH - Maintenance Man Hours per Flight Hours  
NCOW - Net-Centric Operation and Warfare  
NM - Nautical Miles  
RM - Reference Model  
TV-1 - Technical Standards Profile  
Univ. - Universal



## Track to Budget

### RDT&E

Appn	BA	PE
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Navy 1319 05 0604245N

Project	Name
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2279 H-1 Upgrades

### Procurement

Appn	BA	PE
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Navy 1506 01 0206131M

Line Item	Name
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0178 4BW/4BN UH-1Y/AH-1Z

0605 4BW/4BN UH-1Y/AH-1Z Initial Spares

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 \$M			BY 2008 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Production Objective/Threshold	1979.1	Current Estimate	SAR Baseline Development Estimate	Current APB Production Objective	Current Estimate
RDT&E	660.4	1799.2	1979.1	1790.4	592.3	1644.1	1632.7
Procurement	2772.8	9404.2	10344.6	9451.7	2955.2	10542.7	10354.2
Flyaway	--	--	--	7907.8	--	--	8719.8
Recurring	--	--	--	7589.9	--	--	8394.3
Non Recurring	--	--	--	317.9	--	--	325.5
Support	--	--	--	1543.9	--	--	1634.4
Other Support	--	--	--	1282.3	--	--	1370.7
Initial Spares	--	--	--	261.6	--	--	263.7
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	3433.2	11203.4	N/A	11242.1	3547.5	12186.8	11986.9

The Base Year for the program has been updated from FY 1996 to FY 2008 using the following deflators:

Appn Category	Deflation Factor
RDT&E	1.22795591
Procurement	1.22980432

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Production	Current Estimate
RDT&E		4	4
Procurement		280	349
Total		284	353

#### Quantity Notes

The four (4) RDT&E aircraft include two (2) UH-1Ys and two (2) AH-1Zs. The three hundred forty-nine (349) Procurement aircraft include one hundred sixty-eight (168) AH-1W helicopters remanufactured into AH-1Zs, fifty-eight (58) AH-1Z build new (ZBN) models, eight (8) UH-1N helicopters remanufactured into UH-1Ys and one hundred fifteen (115) new UH-1Y models.

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2010 President's Budget / December 2008 SAR (TY\$ M)									
Appropriation	Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	To Complete	Total
RDT&E	1353.2	4.1	32.8	60.4	71.5	25.0	38.7	47.0	1632.7
Procurement	1952.9	549.5	778.1	764.1	788.1	847.3	880.9	3793.3	10354.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2010 Total	3306.1	553.6	810.9	824.5	859.6	872.3	919.6	3840.3	11986.9
PB 2009 Total	3276.9	504.7	648.0	662.1	580.6	620.5	652.4	1782.3	8727.5
Delta	29.2	48.9	162.9	162.4	279.0	251.8	267.2	2058.0	3259.4

Quantity Summary										
FY 2010 President's Budget / December 2008 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	49	20	30	28	30	30	30	132	349
PB 2010 Total	4	49	20	30	28	30	30	30	132	353
PB 2009 Total	4	49	20	28	28	26	27	27	75	284
Delta	0	0	0	2	0	4	3	3	57	69

## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	10.9
1997	--	--	--	--	--	--	67.9
1998	--	--	--	--	--	--	81.3
1999	--	--	--	--	--	--	116.7
2000	--	--	--	--	--	--	178.6
2001	--	--	--	--	--	--	133.3
2002	--	--	--	--	--	--	167.5
2003	--	--	--	--	--	--	233.7
2004	--	--	--	--	--	--	99.1
2005	--	--	--	--	--	--	168.2
2006	--	--	--	--	--	--	58.6
2007	--	--	--	--	--	--	33.5
2008	--	--	--	--	--	--	3.9
2009	--	--	--	--	--	--	4.1
2010	--	--	--	--	--	--	32.8
2011	--	--	--	--	--	--	60.4
2012	--	--	--	--	--	--	71.5
2013	--	--	--	--	--	--	25.0
2014	--	--	--	--	--	--	38.7
2015	--	--	--	--	--	--	47.0
Subtotal	4	--	--	--	--	--	1632.7

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2008 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	82.0
1998	--	--	--	--	--	--	97.4
1999	--	--	--	--	--	--	138.1
2000	--	--	--	--	--	--	208.4
2001	--	--	--	--	--	--	153.4
2002	--	--	--	--	--	--	190.8
2003	--	--	--	--	--	--	262.4
2004	--	--	--	--	--	--	108.3
2005	--	--	--	--	--	--	179.0
2006	--	--	--	--	--	--	60.5
2007	--	--	--	--	--	--	33.8
2008	--	--	--	--	--	--	3.9
2009	--	--	--	--	--	--	4.0
2010	--	--	--	--	--	--	31.6
2011	--	--	--	--	--	--	57.4
2012	--	--	--	--	--	--	66.7
2013	--	--	--	--	--	--	22.9
2014	--	--	--	--	--	--	34.9
2015	--	--	--	--	--	--	41.6
Subtotal	4	--	--	--	--	--	1790.4

Annual Funding 1506   Procurement   Aircraft Procurement, Navy								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2001	--	--	--	--	--	6.0	6.0	
2002	--	--	--	--	--	--	--	
2003	--	--	--	--	--	--	--	
2004	9	197.8	--	23.8	221.6	105.9	327.5	
2005	7	137.5	--	18.1	155.6	78.4	234.0	
2006	7	150.9	--	42.2	193.1	162.0	355.1	
2007	11	257.1	--	107.0	364.1	171.3	535.4	
2008	15	331.3	--	8.9	340.2	154.7	494.9	
2009	20	441.4	--	24.5	465.9	83.6	549.5	
2010	30	672.0	--	17.9	689.9	88.2	778.1	
2011	28	628.0	--	30.6	658.6	105.5	764.1	
2012	30	688.6	--	10.2	698.8	89.3	788.1	
2013	30	713.2	--	7.9	721.1	126.2	847.3	
2014	30	766.2	--	8.0	774.2	106.7	880.9	
2015	30	776.8	--	5.8	782.6	73.6	856.2	
2016	30	780.0	--	5.0	785.0	65.7	850.7	
2017	30	787.4	--	5.1	792.5	73.4	865.9	
2018	30	724.1	--	5.2	729.3	63.5	792.8	
2019	12	342.0	--	5.3	347.3	80.4	427.7	
Subtotal	349	8394.3	--	325.5	8719.8	1634.4	10354.2	

Annual Funding 1506   Procurement   Aircraft Procurement, Navy								
Fiscal Year	Quantity	BY 2008 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2001	--	--	--	--	--	--	6.8	6.8
2002	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--
2004	9	212.6	--	25.6	238.2	113.8	352.0	
2005	7	143.8	--	18.9	162.7	82.0	244.7	
2006	7	153.5	--	42.9	196.4	164.9	361.3	
2007	11	255.6	--	106.4	362.0	170.3	532.3	
2008	15	324.5	--	8.7	333.2	151.6	484.8	
2009	20	426.8	--	23.7	450.5	80.8	531.3	
2010	30	640.2	--	17.1	657.3	84.0	741.3	
2011	28	588.3	--	28.7	617.0	98.8	715.8	
2012	30	633.8	--	9.4	643.2	82.1	725.3	
2013	30	644.8	--	7.1	651.9	114.1	766.0	
2014	30	680.5	--	7.1	687.6	94.7	782.3	
2015	30	677.7	--	5.1	682.8	64.1	746.9	
2016	30	668.4	--	4.3	672.7	56.3	729.0	
2017	30	662.8	--	4.3	667.1	61.8	728.9	
2018	30	598.8	--	4.3	603.1	52.5	655.6	
2019	12	277.8	--	4.3	282.1	65.3	347.4	
Subtotal	349	7589.9	--	317.9	7907.8	1543.9	9451.7	

Cost Quantity Information 1506   Procurement   Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2008 \$M
2001	--	--
2002	--	--
2003	--	--
2004	9	212.6
2005	7	143.8
2006	7	153.5
2007	11	255.6
2008	15	324.5
2009	20	426.8
2010	30	706.3
2011	28	587.5
2012	30	646.2
2013	30	652.6
2014	30	685.5
2015	30	682.5
2016	30	668.6
2017	30	663.0
2018	30	599.0
2019	12	181.9
Subtotal	349	7589.9



## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	10/22/2003	12/22/2008
<b>Approved Quantity</b>	28	55
<b>Reference</b>	ADM	APB and AS
<b>Start Year</b>	2004	2004
<b>End Year</b>	2005	2011

Due to the AH-1Z Operational Evaluation (OPEVAL) Complete schedule breach in June 2008, three (3) additional AH-1Z Low Rate Initial Production (LRIP) lots were requested and approved per the December 22, 2008 Acquisition Program Baseline (APB) and Acquisition Strategy (AS). The LRIP total buy is more than 10% of the total procurement quantity to avoid a break in production and satisfy the critical operational requirements to replace the AH-1W.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

## Unit Cost

### Unit Cost Report

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Current UCR Baseline (Jul 2007 APB)	Current Estimate (Dec 2008 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	7852.2	11242.1	
Quantity	284	353	
Unit Cost	27.649	31.847	<b>+15.18<sup>1</sup></b>
<b>Average Procurement Unit Cost</b>			
Cost	6352.9	9451.7	
Quantity	280	349	
Unit Cost	22.689	27.082	<b>+19.36<sup>1</sup></b>

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Revised Original UCR Baseline (Apr 2005 APB)	Current Estimate (Dec 2008 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	7852.2	11242.1	
Quantity	284	353	
Unit Cost	27.649	31.847	+15.18
<b>Average Procurement Unit Cost</b>			
Cost	6352.9	9451.7	
Quantity	280	349	
Unit Cost	22.689	27.082	+19.36

Item	TY \$M		TY % Change
	Current UCR Baseline (Jul 2007 APB)	Current Estimate (Dec 2008 SAR)	
<b>Program Acquisition Unit Cost (PAUC)</b>			
Cost	8000.9	11986.9	
Unit Cost	28.172	33.957	+20.53
<b>Average Procurement Unit Cost (APUC)</b>			
Cost	6676.1	10354.2	
Unit Cost	23.843	29.668	+24.43

Item	TY \$M		TY % Change
	Revised Original UCR Baseline (Apr 2005 APB)	Current Estimate (Dec 2008 SAR)	
<b>Program Acquisition Unit Cost (PAUC)</b>			
Cost	8000.9	11986.9	
Unit Cost	28.172	33.957	+20.53
<b>Average Procurement Unit Cost (APUC)</b>			
Cost	6676.1	10354.2	
Unit Cost	23.843	29.668	+24.43

<sup>1</sup> Nunn-McCurdy Breach

A Milestone (MS) III Program Manager's estimate and an independent Cost Analysis Improvement Group (CAIG) estimate were presented to the Defense Acquisition Board (DAB) on September 17, 2008. A revised Acquisition Program Baseline (APB) was approved on December 22, 2008. This Unit Cost Report reflects the July 2007 APB that was current at the time of the MS III.

Unit Cost Breach Data		
Changes From Previous SAR	\$M/Qty.	Percent
PAUC (BY \$M)	2.624	+8.98
APUC (BY \$M)	3.000	+12.46
PAUC Quantity	69	0.00
PAUC (TY \$M)	3.226	+10.50
APUC (TY \$M)	3.398	+12.93

Initial SAR Information - Dec 1996	BY1996 \$M	TY \$M
Program Acquisition Cost	2787.7	3571.3

#### Unit Cost PAUC Changes

Changes in the PAUC are attributed to the following factors:

1. Airframe costs have increased due to raw material cost increases, UH-1Y cabin growth based on the Bell Helicopter Textron Inc. (BHTI) negotiated agreement with L3, BHTI labor rate increases and learning curve updates based on Lot 1 and 2 actual costs. In addition, airframe costs are impacted by an increase in program quantities (280 to 349 aircraft) and the increased costs associated with AH-1Z build new aircraft. (61.1% of PAUC cost growth)
2. Ancillary costs have increased with the Target Sight System (TSS) pricing assumptions. (12.9% of PAUC cost growth)
3. Non-Recurring Engineering costs have increased with the productionization investment for Optimized Top Owl (OTO) and TSS and costs associated with obsolescence. (9.5% of PAUC cost growth)
4. Government Furnished Equipment costs have increased. (0.7% of PAUC cost growth)
5. Costs of Cuff and Yoke Redesign were added to increase durability and restore the flight envelope to meet the original Key Performance Parameter (KPP) for Maneuverability/Agility. (5.3% of PAUC cost growth)

6. Costs of additional Research and Development (R&D) were added for Software Configuration Set (SCS) releases, corrections of deficiencies and avionics upgrades. (10.5% of PAUC cost growth)

Percentages are based on Constant Year 2008 dollars.

### Unit Cost APUC Changes

Changes in the APUC are attributed to the following factors:

1. Airframe costs have increased due to raw material cost increases, UH-1Y cabin growth based on the Bell Helicopter Textron Inc. (BHTI) negotiated agreement with L3, BHTI labor rate increases and learning curve updates based on Lot 1 and 2 actual costs. In addition, airframe costs are impacted by an increase in program quantities (280 to 349 aircraft) and the increased costs associated with AH-1Z build new aircraft. (75.9% of APUC cost growth)
2. Ancillary costs have increased with the Target Sight System (TSS) pricing assumptions. (12.9% of APUC cost growth)
3. Non-Recurring Engineering costs have increased with the productionization investment for Optimized Top Owl (OTO) and TSS and costs associated with obsolescence. (9.5% of APUC cost growth)
4. Government Furnished Equipment costs have increased. (0.7% of APUC cost growth)

Percentages are based on Constant Year 2008 dollars.

### Impact of Performance or Schedule Changes

There are no breaches in Schedule or Performance reported in this SAR. All changes reflected are based on the revised Production Acquisition Program Baseline (APB) approved on December 22, 2008.

### Program Management or Control

The Naval Air Systems Command (NAVAIR) Program Office and Defense Contract Management Agency (DCMA) are working with Bell Helicopter Textron Inc. (BHTI) to implement improved rates and overhead cost control processes. A Joint NAVAIR/BHTI Affordability Plan was signed on June 2, 2008, which provides structure to execute cost reduction initiatives. Cost reduction initiatives are in work to address the rotor system, airframe and propulsion system.

NAVAIR is pursuing a multi-year procurement plan for a possible FY12 start.

### Cost Control Actions

The following Cost Control/Reduction Measures are now in place:

Bell Helicopter Textron Inc. (BHTI) is pursuing a disciplined, structured production ramp and capital growth plan. They are outsourcing approximately one million labor hours over the next five years with dual sourcing plans for key suppliers, as well as negotiating long-term agreements with those key suppliers. They are also pursuing over 100 factory "Lean" initiatives and critical process improvements.

The government is pursuing new Government Furnished Equipment (GFE) initiatives as well to reduce overall aircraft costs.

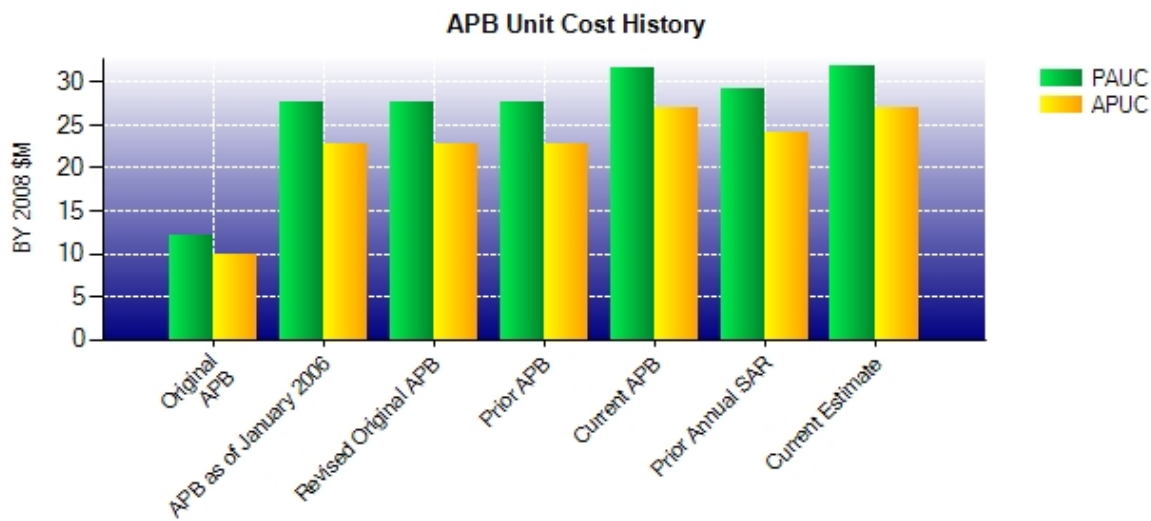
### Nunn-McCurdy Comments

The Unit Cost Report (UCR) indicates Average Procurement Unit Cost (APUC) increases over 15%. The unit cost growth is

primarily a result of increased prime contractor labor and material cost, Government Furnished Equipment (GFE) costs; additional Non-Recurring Engineering (NRE) costs to support productionization investments for Optimized Top Owl (OTO) and the Target Sight System (TSS), as well as correction of deficiencies from Operational Evaluation (OPEVAL) Phase 1. The unit cost increase also takes into account additional costs resulting from the United States Marine Corps expanding the H-1 Upgrades procurement objective by 69 aircraft (23 UH-1Y and 46 AH-1Z) to a total of 349 aircraft. This change not only increased the overall procurement cost of the program but also the average unit cost since the additional AH-1Z aircraft are in excess of the existing inventory of AH-1W airframes. As a result, the additional AH-1Z aircraft will need to be built new without the cost benefit of remanufacturing.

Contrary to the breach status reflected in the table in the Threshold Breaches section, there is no significant Nunn-McCurdy breach to the Program Acquisition Unit Cost (PAUC). The breach status reflected in the table is based on the prior APB dated July 2007, which was the current APB when Congress was notified of the significant Nunn-McCurdy breach to the APUC in December 2008. The prior APB of July 2007 was revised on December 22, 2008, to reflect approval of the program's Milestone III decision. Subsequently, changes in the procurement phasing of UH-1Y and AH-1Z remanufacture, and AH-1Z new build, have increased the PAUC current estimate by approximately 1%, but this does not constitute a breach compared to the current approved APB of December 2008.

**Unit Cost History**



Item	Date	BY 2008 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 1996	12.089	9.903	12.491	10.554
APB as of January 2006	Apr 2005	27.649	22.689	28.172	23.843
Revised Original APB	Apr 2005	27.649	22.689	28.172	23.843
Prior APB	Jul 2007	27.649	22.689	28.172	23.843
Current APB	Dec 2008	31.738	26.946	34.524	30.208
Prior Annual SAR	Dec 2007	29.223	24.083	30.731	26.270
Current Estimate	Dec 2008	31.847	27.082	33.957	29.668

**SAR Unit Cost History**

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
12.491	-0.758	-1.056	1.703	2.351	15.712	0.000	3.514	21.466	33.957

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.554	-0.682	-0.686	1.653	1.632	13.642	0.000	3.555	19.114	29.668

<b>SAR Baseline History</b>				
<b>Item</b>	<b>SAR Planning Estimate</b>	<b>SAR Development Estimate</b>	<b>SAR Production Estimate</b>	<b>Current Estimate</b>
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	Sep 1996	N/A	Oct 1996
Milestone III	N/A	Feb 2004	N/A	Sep 2008
IOC	N/A	Sep 2006	N/A	Mar 2011
Total Cost (TY \$M)	N/A	3547.5	N/A	11986.9
Total Quantity	N/A	284	N/A	353
PAUC	N/A	12.491	N/A	33.957



## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	592.3	2955.2	--	3547.5
Previous Changes				
Economic	-35.5	-103.1	--	-138.6
Quantity	--	--	--	--
Schedule	+24.3	+518.3	--	+542.6
Engineering	+183.8	+454.5	--	+638.3
Estimating	+607.1	+2504.6	--	+3111.7
Other	--	--	--	--
Support	--	+1026.0	--	+1026.0
Subtotal	+779.7	+4400.3	--	+5180.0
Current Changes				
Economic	+6.0	-134.9	--	-128.9
Quantity	--	+488.9	--	+488.9
Schedule	--	+58.6	--	+58.6
Engineering	+76.6	+65.5	--	+142.1
Estimating	+178.1	+2306.0	--	+2484.1
Other	--	--	--	--
Support	--	+214.6	--	+214.6
Subtotal	+260.7	+2998.7	--	+3259.4
Adjustments	--	--	--	--
Total Changes	+1040.4	+7399.0	--	+8439.4
Current Estimate	1632.7	10354.2	--	11986.9

Summary BY 2008 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	660.4	2772.8	--	3433.2
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+25.8	+178.7	--	+204.5
Engineering	+200.0	+451.1	--	+651.1
Estimating	+669.9	+2425.2	--	+3095.1
Other	--	--	--	--
Support	--	+915.3	--	+915.3
Subtotal	+895.7	+3970.3	--	+4866.0
Current Changes				
Economic	--	--	--	--
Quantity	--	+405.9	--	+405.9
Schedule	--	+62.0	--	+62.0
Engineering	+71.8	+54.4	--	+126.2
Estimating	+162.5	+2003.6	--	+2166.1
Other	--	--	--	--
Support	--	+182.7	--	+182.7
Subtotal	+234.3	+2708.6	--	+2942.9
Adjustments	--	--	--	--
Total Changes	+1130.0	+6678.9	--	+7808.9
Current Estimate	1790.4	9451.7	--	11242.1

Previous Estimate: June 2008

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+6.0
Adjustment for current and prior escalation. (Estimating)	-7.2	-6.3
Cuff and Yoke redesign (Engineering)	+71.8	+76.6
Revised estimate for software and test follow-on efforts (Estimating)	+169.7	+184.4
<b>RDT&amp;E Subtotal</b>	<b>+234.3</b>	<b>+260.7</b>

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-134.9
Acceleration of procurement buy profile due to a combination of annual buy increases in FY2010 to 2017 (Schedule)	0.0	-16.1
Total Quantity variance resulting from an increase of 69 helicopters from 280 to 349. (Subtotal)	+821.7	+989.8
Quantity variance resulting from an increase of 69 helicopters from 280 to 349. (Quantity)	(+405.9)	(+488.9)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+299.4)	(+360.7)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(+54.4)	(+65.5)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+62.0)	(+74.7)
Adjustment for current and prior escalation. (Estimating)	+9.1	+9.3
Increase in estimate due to AH-1Z deltas between new and remanufacture (Estimating) (QR)	+333.5	+374.8
Revised estimate due to increase in Forward Pricing Rate Agreement and updates for actual labor costs (Estimating)	+418.8	+486.5
Revised estimate due to increase in material costs (Estimating)	+636.8	+732.2
Revised estimate due to updated Government Furnished Equipment (Estimating)	+177.5	+201.6
Revised estimate due to various integration and productionization efforts (Estimating)	+128.5	+140.9
Adjustment for current and prior escalation. (Support)	+3.2	+3.2
Increase in Other Support due to change in training equipment, Peculiar Support equipment, manuals and Integrated Logistics Support (Support) (QR)	+143.3	+173.9
Increase in Initial Spares. (Support) (QR)	+36.2	+37.5
<b>Procurement Subtotal</b>	<b>+2708.6</b>	<b>+2998.7</b>

(QR) Quantity Related

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** LRIP I and II  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** Fort Worth, TX 76053  
**Contract Number:** N00019-04-C-0001  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** December 29, 2003  
**Definitization Date:** December 29, 2003

### Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
183.8	N/A	9	496.4	N/A	16	496.4	496.4

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

### Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

### Notes

The Current Contract Price includes the following: Lot 1 and 2 airframes, FY04/05/06/07 Logistics Support, FY04/05 Spares, and FY04/05 Flight Training Devices.

The Initial Contract Price was for Lot 1 airframes (6 UH-1Y / 3 AH-1Z).

All aircraft deliveries for Lot 1 and 2 are complete.

THIS CONTRACT IS GREATER THAN 90% COMPLETE AND WILL NO LONGER BE REPORTED.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** LRIP III, IV and V  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** Fort Worth, TX 76053  
**Contract Number:** N00019-06-C-0086  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** July 20, 2006  
**Definitization Date:** July 20, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
137.4	N/A	7	728.0	N/A	33	728.0	728.0

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (FFP) contract.

**Notes**

The Current Contract Price has changed from \$455.0M to \$728.0M due to contract award of Lot 4 and 5 aircraft and miscellaneous contract modifications.

The Initial Contract Price was for Lot 3 airframes (7 UH-1Y) and FY06 Flight Training Devices.

Aircraft deliveries for Lot 3 are complete.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** Lot 6  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** Fort Worth, TX 76053  
**Contract Number:** N00019-09-C-0023  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** March 28, 2009  
**Definitization Date:** March 28, 2009

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
298.0	N/A	18	298.0	N/A	18	298.0	298.0

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (FFP) contract.

**Notes**

The Initial Contract was awarded for Lot 6 aircraft , including thirteen (13) Full Rate Production (FRP) UH-1Ys, five (5) Low Rate Initial Production (LRIP) AH-1Zs and Rate Tooling.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	4	100.00%
Production	18	20	349	5.73%
Total Program Quantity Delivered	22	24	353	6.80%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	11986.9	Years Appropriated	14
Expended to Date	2457.2	Percent Years Appropriated	58.33%
Percent Expended	20.50%	Appropriated to Date	3859.7
Total Funding Years	24	Percent Appropriated	32.20%

All Engineering and Manufacturing Development (EMD) Lot 1, 2 and 3 aircraft have been delivered. Delivery information is current as of May 2009.

## Operating and Support Cost

### Assumptions and Ground Rules

All costs were estimated in constant FY08 dollars, the current Base Year. The Operating and Support (O&S) estimate source is the Milestone III estimate of September 2008.

The H-1 Upgrades program's operational aircraft quantities support Marine Corps 202K force strength with squadrons composed of eighteen (18) AH-1Z and nine (9) UH-1Y aircraft. The H-1 Upgrades program expects to be operating two (2) more squadrons and fifty-two (52) more aircraft than the antecedent H-1 system.

The Life-Cycle includes a phase-in period plus twenty (20) year operation with an annual usage of two hundred twenty-two (222) flight hours per aircraft.

Each aircraft has an expected service life of 10,000 hours.

Operating and support cost estimations are based on the organic three-levels of maintenance with manning (fleet squadron) estimated at 90%.

AH-1W and UH-1N aircraft are the antecedent system used in a similar life cycle period of time as the H-1 Upgrades system for normalization purposes. The difference in force structures is a determinant to the total O&S figures.

The "Then year" life-cycle comparison has the H-1 Upgrades system and the antecedent system phased in their respective periods of usage for each as a basis for escalation projection.

#### Cost Estimate Reference:

None

#### Sustainment Strategy:

None

#### Antecedent Information:

None

Unitized O&S Costs BY2008 \$K		
Cost Element	H-1 Upgrades Average Annual Cost Per Aircraft	UH-1N/AH-1W (Antecedent) Average Annual Cost Per Aircraft
Mission Pay & Allowance	1153.000	1203.000
Unit Level Consumption	1190.000	1306.000
Intermediate Maintenance	266.000	299.000
Depot Maintenance	183.000	203.000
Contractor Support	0.000	0.000
Sustaining Support	221.000	284.000
Indirect	459.000	480.000
Other	0.000	0.000
<b>Total</b>	<b>3472.000</b>	<b>3775.000</b>

#### Unitized Cost Comments:

None



Item	Total O&S Cost \$M			
	H-1 Upgrades			UH-1N/AH-1W (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
<b>Base Year</b>	28527.1	31379.8	28527.0	27211.0
<b>Then Year</b>	0.0	N/A	48078.0	20074.0

Total O&S Cost Comment

None

**Disposal Estimate Details**

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2008 \$M):