



# Selected Acquisition Report (SAR)

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



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

As of FY 2016 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)

**DoD Component**

Navy

## Responsible Office

Col Steven Girard  
PMA-276 USMC Light/Attack Helicopter  
Program Executive Officer - Air, Anti-Submarine Warfare,  
Assault & Special Mission  
48202 Bronson Road, 2nd Floor  
Patuxent River, MD 20670-1547

**Phone:** 301-757-5534  
**Fax:** 301-342-3788  
**DSN Phone:** 757-5534  
**DSN Fax:** 342-3788  
**Date**  
**Assigned:** January 31, 2013

[steven.girard@navy.mil](mailto:steven.girard@navy.mil)

## References

**SAR Baseline (Production Estimate)**

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

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 11, 2011

## 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. 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

Both the UH-1Y and AH-1Z continue to meet all KPPs. The UH-1Y has completed Operation Enduring Freedom deployments, amassing over 25,000 combat flight hours. All West coast Marine Expeditionary Units (MEU) deploy with UH-1Y and AH-1Z aircraft. East coast MEUs deploy with UH-1Y and AH-1W aircraft.

Production of H-1 Upgrades aircraft continues at Bell Helicopter with final assembly and delivery occurring in Amarillo, Texas. Two hundred eight aircraft (Lots 1-11) are on contract, which includes 132 UH-1Ys, 37 remanufactured AH-1Zs, and 39 AH-1Z Build New (ZBN) aircraft. As of December 31, 2014, 147 production aircraft (108 UH-1Ys, 37 remanufactured AH-1Zs, and 2 ZBNs) have been delivered to the Fleet. All remaining AH-1Z deliveries are Build New aircraft.

The program office's focus remains on improving materiel availability, component reliability, and establishing organic depot repair capability. Eighty percent of the top 20 readiness degraders have corrective action plans in work to improve reliability and overall materiel availability. Depot capability continues to increase across the Fleet Readiness Centers and limited component repairs have commenced.

The program is aggressively pursuing FMS opportunities and has received interest from multiple countries with Pakistan formally requesting a Letter of Offer and Acceptance for 12 AH-1Z aircraft.

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

## Threshold Breaches

### APB Breaches

<b>Schedule</b>		<input type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	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>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

### Nunn-McCurdy Breaches

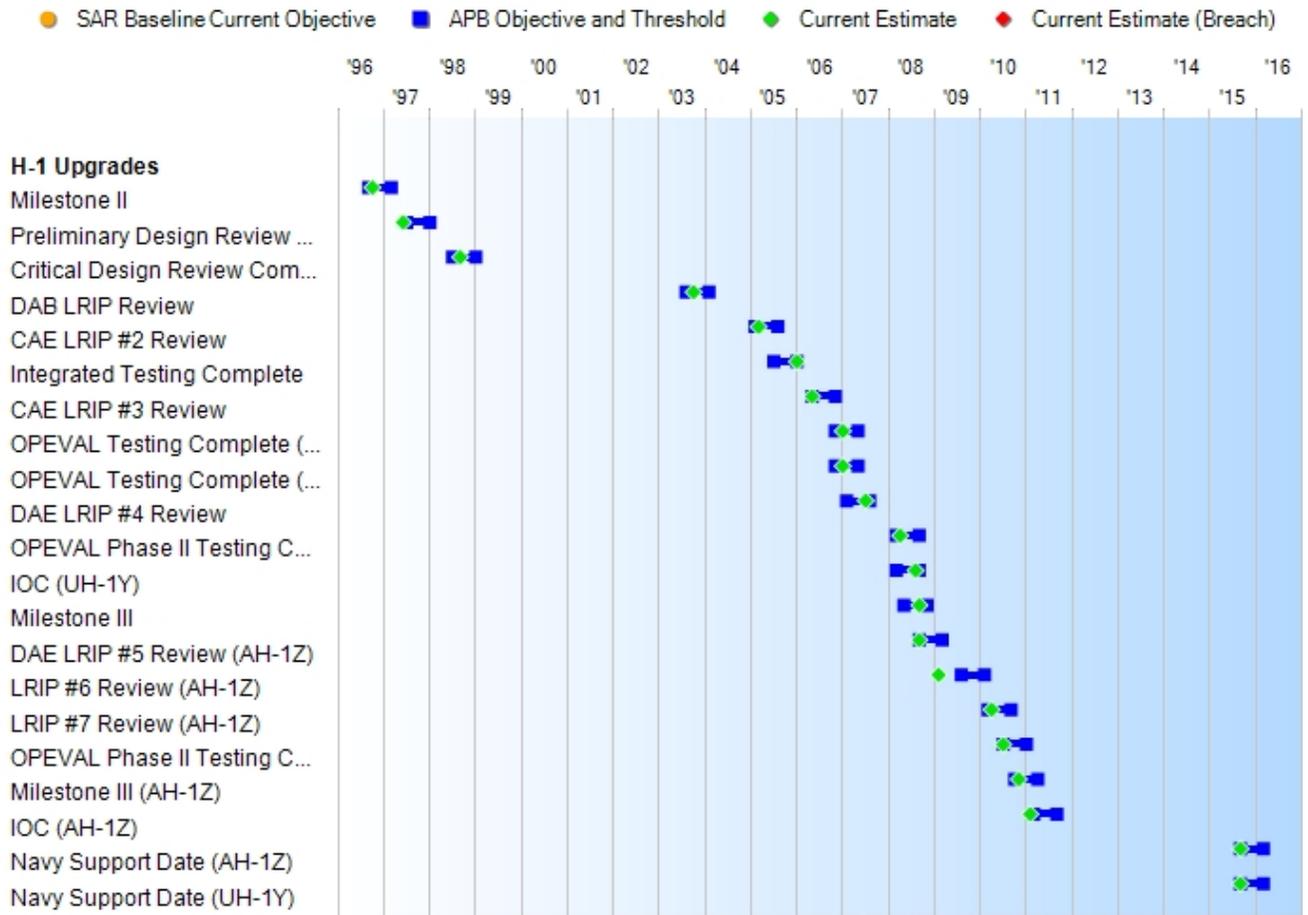
#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None

# Schedule



Schedule Events				
Events	SAR Baseline Production 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
DAB LRIP Review	Aug 2003	Aug 2003	Feb 2004	Oct 2003
CAE LRIP #2 Review	Feb 2005	Feb 2005	Aug 2005	Mar 2005
Integrated Testing Complete	Jul 2005	Jul 2005	Jan 2006	Jan 2006
CAE LRIP #3 Review	May 2006	May 2006	Nov 2006	May 2006
OPEVAL Testing Complete (AH-1Z)	Nov 2006	Nov 2006	May 2007	Jan 2007
OPEVAL Testing Complete (UH-1Y)	Nov 2006	Nov 2006	May 2007	Jan 2007
DAE LRIP #4 Review	Feb 2007	Feb 2007	Aug 2007	Jul 2007
OPEVAL Phase II Testing Complete (UH-1Y)	Mar 2008	Mar 2008	Sep 2008	Apr 2008
IOC (UH-1Y)	Mar 2008	Mar 2008	Sep 2008	Aug 2008
Milestone III	May 2008	May 2008	Nov 2008	Sep 2008
DAE LRIP #5 Review (AH-1Z)	Sep 2008	Sep 2008	Mar 2009	Sep 2008
LRIP #6 Review (AH-1Z)	Aug 2009	Aug 2009	Feb 2010	Feb 2009
LRIP #7 Review (AH-1Z)	Mar 2010	Mar 2010	Sep 2010	Apr 2010
OPEVAL Phase II Testing Complete (AH-1Z)	Jul 2010	Jul 2010	Jan 2011	Jul 2010
Milestone III (AH-1Z)	Oct 2010	Oct 2010	Apr 2011	Nov 2010
IOC (AH-1Z)	Mar 2011	Mar 2011	Sep 2011	Feb 2011
Navy Support Date (AH-1Z)	Mar 2012	Sep 2015	Mar 2016	Sep 2015
Navy Support Date (UH-1Y)	Mar 2012	Sep 2015	Mar 2016	Sep 2015

(Ch-1)

### Change Explanations

(Ch-1) The current estimate for IOC (AH-1Z) was updated to reflect the change in the actual achievement date from March 2011 to February 2011.

### Acronyms and Abbreviations

CAE - Component Acquisition Executive  
 OPEVAL - Operational Evaluation

## Performance

Performance Characteristics				
SAR Baseline Production 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	57.8	57.8 (Ch-1)
<b>MMH/FH (hrs)</b>				
3.6	3.6	4.3	1.9	1.9 (Ch-1)
<b>Cruise Speed (kts)</b>				
165	165	135	139	139
<b>Payload (Hot Day) (lbs)</b>				
3500 lbs	3500 lbs	2500 lbs 6 Wing Stations 4 Universal Under Wing Stations	3429	3429
<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	-0.5 to +2.5	-0.5 to +2.5
<b>Mission Radius (NM)</b>				
200 NM	200 NM	110 NM	135 NM x 1	135 NM x 1
<b>Shipboard Compatibility</b>				
Fully compatible to include blade fold.	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>				
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	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	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 Centric military	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 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.	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.	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.	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.
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**Force Protection (Seating)**

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

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 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	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm
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			API.	API.	
<b>4BN (UH-1N/UH-1Y)</b>					
<b>MFHBA (hrs)</b>					
40.2	40.2	33.1	61.5	61.5	(Ch-1)
<b>MMH/FH (hrs)</b>					
2.9	2.9	3.9	2.4	2.4	(Ch-1)
<b>Cruise Speed (kts)</b>					
165	165	140	155	155	
<b>Payload (Hot Day) (lbs)</b>					
4500	4500	2800	2982	2982	
<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 NM	200 NM	110 NM	130 NM	130 NM	
<b>Shipboard Compatibility</b>					
Fully compatible to include blade fold.	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>					
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,	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,	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	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,	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 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.	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.	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.	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.	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.
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**Force Protection (Seating)**

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.	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, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.
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**Survivability (Ballistic Tolerance/Hardening)**

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 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.
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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) The current estimates for R&M have been updated to reflect the inclusion of raw Maintenance Action Form data and Flight Hours from Deckplate, which have been reviewed and inserted into the H-1 FRACAS database: 4BW (AH-1W/AH-1Z) MFHBA from 56.6 to 57.8 and MMH/FH from 2.7 to 1.9; 4BN (UH-1N/UH-1Y) MFHBA from 55.5 to 61.5 and MMH/FH from 1.9 to 2.4. The changed data was validated by the Naval Air Systems Command R&M Review Board in August 2014 reflecting the monthly increase in flight hours and updated FRACAS data.

## Acronyms and Abbreviations

API - Armor Piercing Incendiary  
ATO - Authority to Operate  
DAA - Designated Approving Authority  
DISR - DoD Information Technology Standards Registry  
FRACAS - Failure Reporting, Analysis and Corrective Action System  
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  
R&M - Reliability and Maintainability  
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

(Sunk)

**Procurement**

Appn	BA	PE
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Navy 1506 01 0206131M

Line Item	Name
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0178 H-1 Upgrades (UH-1Y/AH-1Z)

Navy 1506 06 0206131M

Line Item	Name
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0605 Spares and Repair Parts

**Notes**

Aircraft Procurement, Navy - BA 05 for Line Item 0532, PE 0206131M, is incorporated into the program as a subset of total O&S.

**MILCON**

Appn	BA	PE
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Navy 1205 01 0216496M

Project	Name
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991 H-1 Y/Z Helicopter Gearbox Repair & Test Facility

(Sunk)

**Notes**

Corrected MILCON PE number from 02166490M in the previous SAR to 0216496M.

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 \$M			BY 2008 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1799.2	1848.3	2033.1	1703.9	1644.1	1696.2	1537.1
Procurement	9404.2	10088.4	11097.2	9996.9	10542.7	11022.1	11037.4
Flyaway	--	--	--	8346.7	--	--	9273.2
Recurring	--	--	--	7853.3	--	--	8756.2
Non Recurring	--	--	--	493.4	--	--	517.0
Support	--	--	--	1650.2	--	--	1764.2
Other Support	--	--	--	1405.0	--	--	1517.1
Initial Spares	--	--	--	245.2	--	--	247.1
MILCON	0.0	16.3	17.9	15.9	0.0	17.6	17.6
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	11203.4	11953.0	N/A	11716.7	12186.8	12735.9	12592.1

#### Confidence Level

Confidence Level of cost estimate for current APB: 50%

The estimate recommendation aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity and represents a 50% confidence level.

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

#### Quantity Notes

The four RDT&E aircraft include two UH-1Ys and two AH-1Zs. The 349 Procurement aircraft include 37 AH-1W helicopters remanufactured into AH-1Zs, 152 AH-1Z Build New models, 10 UH-1N helicopters remanufactured into UH-1Ys, and 150 new UH-1Y models.

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	1537.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1537.1
Procurement	6506.0	902.4	857.0	917.7	899.5	921.6	16.9	16.3	11037.4
MILCON	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	8060.7	902.4	857.0	917.7	899.5	921.6	16.9	16.3	12592.1
PB 2015 Total	8027.3	859.7	916.3	925.8	912.5	939.2	444.0	0.0	13024.8
Delta	33.4	42.7	-59.3	-8.1	-13.0	-17.6	-427.1	16.3	-432.7

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	209	31	28	27	27	27	0	0	349
PB 2016 Total	4	209	31	28	27	27	27	0	0	353
PB 2015 Total	4	207	26	28	26	26	27	9	0	353
Delta	0	2	5	0	1	1	0	-9	0	0

## 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	--	--	--	--	--	--	178.5
2001	--	--	--	--	--	--	138.2
2002	--	--	--	--	--	--	167.4
2003	--	--	--	--	--	--	232.9
2004	--	--	--	--	--	--	99.1
2005	--	--	--	--	--	--	168.2
2006	--	--	--	--	--	--	58.6
2007	--	--	--	--	--	--	26.4
2008	--	--	--	--	--	--	12.6
2009	--	--	--	--	--	--	4.4
2010	--	--	--	--	--	--	28.1
2011	--	--	--	--	--	--	57.6
2012	--	--	--	--	--	--	60.6
2013	--	--	--	--	--	--	27.7
Subtotal	4	--	--	--	--	--	1537.1

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	--	--	--	--	--	--	208.3
2001	--	--	--	--	--	--	159.1
2002	--	--	--	--	--	--	190.7
2003	--	--	--	--	--	--	261.5
2004	--	--	--	--	--	--	108.3
2005	--	--	--	--	--	--	179.0
2006	--	--	--	--	--	--	60.5
2007	--	--	--	--	--	--	26.6
2008	--	--	--	--	--	--	12.5
2009	--	--	--	--	--	--	4.3
2010	--	--	--	--	--	--	27.0
2011	--	--	--	--	--	--	54.1
2012	--	--	--	--	--	--	56.0
2013	--	--	--	--	--	--	25.2
Subtotal	4	--	--	--	--	--	1703.9

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	327.5
2005	7	136.9	--	18.7	155.6	78.3	233.9	233.9
2006	7	150.9	--	42.2	193.1	162.0	355.1	355.1
2007	11	228.8	--	136.5	365.3	170.1	535.4	535.4
2008	15	315.5	--	25.2	340.7	154.3	495.0	495.0
2009	24	514.0	--	42.6	556.6	80.5	637.1	637.1
2010	27	655.7	--	34.8	690.5	70.7	761.2	761.2
2011	31	688.5	--	77.6	766.1	127.0	893.1	893.1
2012	25	567.6	--	46.3	613.9	120.0	733.9	733.9
2013	30	772.8	--	3.8	776.6	89.6	866.2	866.2
2014	23	550.9	--	--	550.9	110.7	661.6	661.6
2015	31	797.8	--	--	797.8	104.6	902.4	902.4
2016	28	756.5	--	--	756.5	100.5	857.0	857.0
2017	27	805.3	--	6.5	811.8	105.9	917.7	917.7
2018	27	820.3	--	2.4	822.7	76.8	899.5	899.5
2019	27	796.9	--	56.6	853.5	68.1	921.6	921.6
2020	--	--	--	--	--	16.9	16.9	16.9
2021	--	--	--	--	--	16.3	16.3	16.3
Subtotal	349	8756.2	--	517.0	9273.2	1764.2	11037.4	11037.4

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	143.1	--	19.6	162.7	81.8	244.5	
2006	7	153.5	--	42.9	196.4	164.8	361.2	
2007	11	227.5	--	135.7	363.2	169.1	532.3	
2008	15	309.0	--	24.7	333.7	151.1	484.8	
2009	24	496.5	--	41.1	537.6	77.8	615.4	
2010	27	620.3	--	32.9	653.2	66.9	720.1	
2011	31	638.2	--	71.9	710.1	117.8	827.9	
2012	25	518.4	--	42.3	560.7	109.5	670.2	
2013	30	697.7	--	3.4	701.1	81.0	782.1	
2014	23	489.7	--	--	489.7	98.4	588.1	
2015	31	697.3	--	--	697.3	91.4	788.7	
2016	28	649.3	--	--	649.3	86.2	735.5	
2017	27	678.0	--	5.5	683.5	89.2	772.7	
2018	27	677.2	--	2.0	679.2	63.4	742.6	
2019	27	645.0	--	45.8	690.8	55.1	745.9	
2020	--	--	--	--	--	13.4	13.4	
2021	--	--	--	--	--	12.7	12.7	
Subtotal	349	7853.3	--	493.4	8346.7	1650.2	9996.9	

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	143.1
2006	7	153.5
2007	11	227.5
2008	15	309.0
2009	24	496.5
2010	27	572.6
2011	31	632.0
2012	25	520.5
2013	30	691.6
2014	23	494.4
2015	31	695.3
2016	28	656.4
2017	27	678.0
2018	27	677.2
2019	27	693.1
2020	--	--
2021	--	--
Subtotal	349	7853.3

Annual Funding 1205   MILCON   Military Construction, Navy and Marine Corps	
Fiscal Year	TY \$M
	Total Program
2012	17.6
Subtotal	17.6

Annual Funding 1205   MILCON   Military Construction, Navy and Marine Corps	
Fiscal Year	BY 2008 \$M
	Total Program
2012	15.9
Subtotal	15.9

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	10/22/2003	6/7/2010
<b>Approved Quantity</b>	28	55
<b>Reference</b>	LRIP ADM	LRIP VII ADM
<b>Start Year</b>	2004	2004
<b>End Year</b>	2005	2010

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the need to permit an orderly increase in the production rate and efficiency until successful completion of operational testing.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

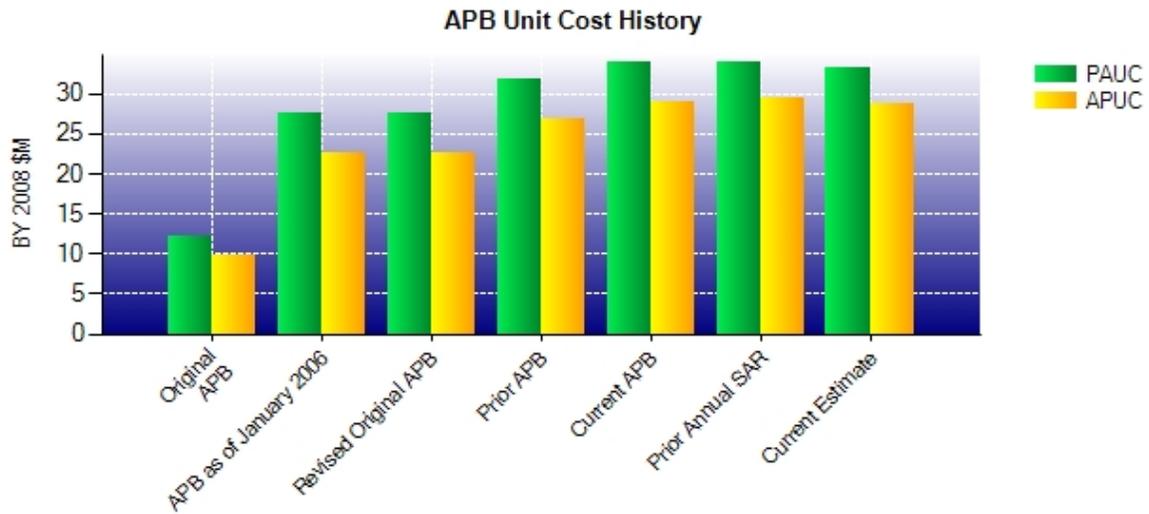
## Unit Cost

### Unit Cost Report

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Current UCR Baseline (Feb 2011 APB)	Current Estimate (Dec 2014 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	11953.0	11716.7	
Quantity	353	353	
Item	33.861	33.192	-1.98
<b>Average Procurement Unit Cost</b>			
Cost	10088.4	9996.9	
Quantity	349	349	
Unit Cost	28.907	28.644	-0.91

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Revised Original UCR Baseline (Apr 2005 APB)	Current Estimate (Dec 2014 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	7852.2	11716.7	
Quantity	284	353	
Unit Cost	27.649	33.192	+20.05
<b>Average Procurement Unit Cost</b>			
Cost	6352.9	9996.9	
Quantity	280	349	
Unit Cost	22.689	28.644	+26.25

**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	Dec 2008	31.738	26.946	34.524	30.208
Current APB	Feb 2011	33.861	28.907	36.079	31.582
Prior Annual SAR	Dec 2013	33.973	29.434	36.897	32.866
Current Estimate	Dec 2014	33.192	28.644	35.672	31.626

**SAR Unit Cost History**

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
12.491	-0.078	-1.056	1.772	2.351	15.397	0.000	3.647	22.033	34.524

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
34.524	-0.582	0.000	-0.052	0.274	1.286	0.000	0.222	1.148	35.672

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.554	-0.003	-0.686	1.722	1.632	13.299	0.000	3.690	19.654	30.208

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
30.208	-0.597	0.000	-0.053	0.000	1.843	0.000	0.224	1.417	31.626

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	Sep 1996	Sep 1996	Oct 1996
Milestone III	N/A	Feb 2004	May 2008	Sep 2008
IOC	N/A	Jun 2005	Mar 2008	Aug 2008
Total Cost (TY \$M)	N/A	3547.5	12186.8	12592.1
Total Quantity	N/A	284	353	353
PAUC	N/A	12.491	34.524	35.672

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1644.1	10542.7	--	12186.8
Previous Changes				
Economic	+2.5	-130.7	+0.4	-127.8
Quantity	--	--	--	--
Schedule	--	-13.6	--	-13.6
Engineering	+96.7	--	--	+96.7
Estimating	-206.2	+1018.5	+17.2	+829.5
Other	--	--	--	--
Support	--	+53.2	--	+53.2
Subtotal	-107.0	+927.4	+17.6	+838.0
Current Changes				
Economic	--	-77.5	--	-77.5
Quantity	--	--	--	--
Schedule	--	-4.9	--	-4.9
Engineering	--	--	--	--
Estimating	--	-375.4	--	-375.4
Other	--	--	--	--
Support	--	+25.1	--	+25.1
Subtotal	--	-432.7	--	-432.7
Total Changes	-107.0	+494.7	+17.6	+405.3
CE - Cost Variance	1537.1	11037.4	17.6	12592.1
CE - Cost & Funding	1537.1	11037.4	17.6	12592.1

Summary BY 2008 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1799.2	9404.2	--	11203.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-36.6	--	-36.6
Engineering	+83.6	--	--	+83.6
Estimating	-178.9	+861.1	+15.9	+698.1
Other	--	--	--	--
Support	--	+43.9	--	+43.9
Subtotal	-95.3	+868.4	+15.9	+789.0
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+15.7	--	+15.7
Engineering	--	--	--	--
Estimating	--	-315.3	--	-315.3
Other	--	--	--	--
Support	--	+23.9	--	+23.9
Subtotal	--	-275.7	--	-275.7
Total Changes	-95.3	+592.7	+15.9	+513.3
CE - Cost Variance	1703.9	9996.9	15.9	11716.7
CE - Cost & Funding	1703.9	9996.9	15.9	11716.7

Previous Estimate: December 2013

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-77.5
Schedule variance resulting from procurement profile adjustments in FY 2014 through FY 2020. (Schedule)	0.0	-23.1
Additional schedule variance resulting from procurement profile adjustments in FY 2014 through FY 2020. (Schedule)	+15.7	+18.2
Adjustment for current and prior escalation. (Estimating)	+17.8	+20.2
Decrease in estimate due to Government Furnished Equipment procurement strategy and unit pricing being updated from FY 2010 to FY 2014. (Estimating)	-187.7	-221.8
Decrease in recommended contractor overhead rates. (Estimating)	-145.4	-173.8
Adjustment for current and prior escalation. (Support)	+2.7	+2.9
Increase in Other Support resulting from period of performance extension from FY 2020 to FY 2021. (Support)	+22.0	+23.2
Decrease in Initial Spares due to FY 2016 PB constraints. (Support)	-0.8	-1.0
Procurement Subtotal	-275.7	-432.7

## Contracts

### Contract Identification

**Appropriation:** RDT&E  
**Contract Name:** AH-1Z BUILD NEW (ZBN) UPGRADES  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** 600 Hurst Blvd  
 Hurst, TX 76053  
**Contract Number:** N00019-06-G-0001/24  
**Contract Type:** Cost Plus Fixed Fee (CPFF)  
**Award Date:** December 20, 2007  
**Definitization Date:** November 04, 2008

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
1.3	N/A	N/A	87.2	N/A	N/A	92.6	92.6	

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications to include ZBN Phase 1 and Phase 2 Non-Recurring Engineering, 401C Engine Qualification, and support of 2-D to 3-D drawing conversions for cabin builds.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (12/31/2014)	-21.6		-2.8
Previous Cumulative Variances	-20.3		-6.8
Net Change	-1.3		+4.0

### Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to additional resources required for Build New (ZBN) cabin first article inspection completion.

The favorable net change in the schedule variance is due to to completion of 401C qualification activities.

### Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** H-1 Upgrades Production Contract Lot 8  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** 600 Hurst Blvd  
 Hurst, TX 76053  
**Contract Number:** N00019-10-C-0015  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** February 05, 2010  
**Definitization Date:** July 25, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
50.3	N/A	33	600.4	N/A	33	600.4	600.4

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 8 UH-1Y and AH-1Z aircraft. The current contract represents the definitization of the Advanced Acquisition Contract for long lead items and, as a result, the Initial Contract Price Target increased from \$50.3M to the Current Contract Price Target of \$600.4M.

**Cost and Schedule Variance Explanations**

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** H-1 Upgrades Production Contract Lot 9  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** 600 Hurst Blvd  
 Hurst, TX 76053  
**Contract Number:** N00019-11-C-0023  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** March 14, 2011  
**Definitization Date:** October 16, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.3	N/A	26	474.7	N/A	25	474.7	474.7

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 9 UH-1Y and AH-1Z aircraft. The Initial Contract Price Target was for the Advanced Acquisition Contract (AAC) for long lead items. The Initial Contract Price Target increased from \$48.4M to \$56.3M under a subsequent modification after the Continuing Resolution Authority expired to apply additional advanced procurement funding. The current contract represents the definitization of the AAC for long lead items, as well as other requirements in support of the Lot 9 production aircraft, resulting in a Current Contract Price Target of \$474.7M.

**Cost and Schedule Variance Explanations**

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** H-1 Upgrades Production Contract Lot 10  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** 600 Hurst Blvd  
 Hurst, TX 76053  
**Contract Number:** N00019-12-C-0009  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** February 13, 2012  
**Definitization Date:** December 27, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.7	N/A	25	570.1	586.0	28	570.1	570.1

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 10 UH-1Y and AH-1Z aircraft. The current contract represents the definitization of the Advanced Acquisition Contract for long lead items and, as a result, the Initial Contract Price Target increased from \$56.7M to the Current Contract Price Target of \$570.1M.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2014)	+8.3	-30.4
Previous Cumulative Variances	-2.3	+4.0
Net Change	+10.6	-34.4

**Cost and Schedule Variance Explanations**

The favorable net change in the cost variance is due to delays with Lot 10 Build New (ZBN) aircraft as a result of repair work required for previous lot ZBN aircraft. Most ZBN baselined work has been delayed with no corresponding actuals.

The unfavorable net change in the schedule variance is due to delays with ZBN aircraft as a result of repair work required for previous lot ZBN aircraft.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** H-1 Upgrades Production Contract Lot 11  
**Contractor:** Bell Helicopter Textron  
**Contractor Location:** 600 Hurst Blvd  
 Hurst, TX 76053  
**Contract Number:** N00019-13-C-0023  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** April 01, 2013  
**Definitization Date:** May 16, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
13.1	N/A	25	571.3	579.0	24	571.3	571.3

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 11 UH-1Y and AH-1Z aircraft. The current contract represents the post Continuing Resolution Authority value change for the definitization of the Advanced Acquisition Contract for long lead items, as well as other requirements in support of the Lot 11 production aircraft, resulting in a Current Contract Price Target of \$571.3M.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date	0.0		0.0
Previous Cumulative Variances	--		--
Net Change	+0.0		+0.0

**Cost and Schedule Variance Explanations**

None

**General Contract Variance Explanation**

Cost and schedule variances are not reported for this contract, because EVM reporting has not yet commenced due to ongoing contract negotiations. Once complete, EVM reporting is expected to be available in the following quarter.

**Notes**

Lot 11 includes two FY 2013-funded aircraft.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	4	100.00%
Production	148	143	349	40.97%
Total Program Quantity Delivered	152	147	353	41.64%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	12592.1	Years Appropriated	20
Expended to Date	6813.5	Percent Years Appropriated	76.92%
Percent Expended	54.11%	Appropriated to Date	8963.1
Total Funding Years	26	Percent Appropriated	71.18%

The above data is current as of January 30, 2015.

Updated to reflect aircraft quantities delivered to date. Quantities also reflect the 5 AH-1Z Build New (ZBN) aircraft that are late to contract. Technical aircraft cabin quality manufacturing issues on the ZBN have been identified leading to the delay in delivery; however, the issues have been resolved and repairs of the affected cabins have begun.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	January 20, 2015
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	349
<b>Unit of Measure:</b>	Aircraft
<b>Service Life per Unit:</b>	30.00 Years
<b>Fiscal Years in Service:</b>	FY 2007 - FY 2050

-Aircraft quantity program of record for sustainment is 349, which does not include four EMD assets not inducted into the Fleet.

-Cost estimate updated to reflect completion of program procurement in FY 2019.

-H-1 Procurement Profile: 189 AH-1Z, 160 UH-1Y.

-H-1 Primary Authorized Aircraft profile: 141 AH-1Z, 122 UH-1Y.

-The life cycle includes a phase-in period, 30-year operation with an annual usage of 222 flight hours per aircraft, and a phase-out period, accumulating 7,989 operating aircraft years. The H-1 Upgrades program operational aircraft quantities support the Marine Corps with squadrons composed of 15 AH-1Z and 12 UH-1Y aircraft.

-Each aircraft has a designed fatigue life of 10,000 hours per aircraft.

-Attrition rates are 1% for the AH-1Z and UH-1Y. Pipeline rates are 10% for the AH-1Z and UH-1Y.

-Maintenance Costs consisting of Aviation Depot Level Repairable and Consumables are now estimated using a bottoms-up model, utilizing both historical costs and reliability performance to date for the both the UH-1Y and AH-1Z.

-O&S cost estimates are based on organic three levels of maintenance with chargeable manning (fleet squadron) estimated at 100%.

### Sustainment Strategy

The sustainment strategy for H-1 Upgrades has three major tenants: 1) ensure Organizational, Intermediate, and Depot level maintenance capabilities are established and that the program office is optimizing Fleet support based on a three-level maintenance concept, 2) establish organic maintenance support to meet all Organizational and Intermediate level maintenance requirements, and 3) establish organic Depot level capability for core components, maintaining the correct balance of government and original equipment manufacturer support to ensure adequate repair throughput is available to support Fleet readiness.

### Antecedent Information

The H-1 antecedent estimate is a composite of AH-1W and UH-1N series aircraft. Cost per aircraft is the combined three-year (2007-2009) average of Naval Visibility and Management of Operating and Support Costs Aviation Type Model Series Report database. Manpower for antecedent and upgrade aircraft are set equal as the table of organization is deemed to be equivalent. Antecedent aircraft have historically flown 21.7 flight hours per month and 260 flight hours annually.

Annual O&S Costs BY2008 \$M		
Cost Element	H-1 Upgrades Average Annual Cost Per Aircraft	UH-1N/AH-1W (Antecedent) Average Annual Cost Per Aircraft
Unit-Level Manpower	1.517	1.517
Unit Operations	0.238	0.214
Maintenance	1.619	1.500
Sustaining Support	0.114	0.096
Continuing System Improvements	0.192	0.367
Indirect Support	0.567	0.567
Other	0.000	0.000
<b>Total</b>	<b>4.247</b>	<b>4.261</b>

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>	33301.8	36632.0	33929.8	34041.2
<b>Then Year</b>	0.0	N/A	51203.2	N/A

#### Equation to Translate Annual Cost to Total Cost

H-1 Upgrades Average Annual Cost Per Aircraft = Total O&S Cost (BY) / Total Operating Aircraft Years  
 \$4.247M Per Year Per Aircraft = \$33,929.8M / 7,989 Total Operating Aircraft Years

O&S Cost Variance		
Category	BY 2008 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2013 SAR	33190.8	
Programmatic/Planning Factors	462.9	Incorporated latest Aircraft Program Data File v114; 3 additional squadrons (two Operational/one Test and Evaluation).
Cost Estimating Methodology	73.7	Incorporated actuals from FY 2007 - FY 2013 into model.
Cost Data Update	246.8	Incorporated update of indirect support rates, pricing updates of Aviation Depot Level Repairables, and updates of other cost data.
Labor Rate	-44.1	Incorporated update of software maintenance labor rates and composite labor rates.
Energy Rate	-0.3	Incorporated fuel update.
Technical Input	0.0	
Other	0.0	
<b>Total Changes</b>	<b>739.0</b>	

Current Estimate 33929.8

#### Disposal Estimate Details

**Date of Estimate:** January 20, 2015  
**Source of Estimate:** POE  
**Disposal/Demilitarization Total Cost (BY 2008 \$M):** Total costs for disposal of all Aircraft are 80.0

This Rough Order of Magnitude estimate will be refined as the System Disposal Plan Annex to the Life Cycle Sustainment Plan is developed.