

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5						0604245N USMC H-1 Upgrades					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	277.055	178.524	138.189	170.068							
H2279 USMC H-1 Upgrades	277.055	178.524*	138.189	170.068							
Quantity of RDT&E Articles	5										
Quantity of (5) RDT&E Engineering and Manufacturing Development (EMD) test articles were placed on contract prior to FY98 and remanufacture commenced in FY99. One aircraft will be used for live fire test and evaluation.											
*The FY 2000 budget reflects a \$26.6M Congressional add for USMC H-1 Upgrades (Project H2419) which has been revised by \$0.839M for Congressional undistributed reductions.											
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W 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. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft that remanufacture AH-1W/UH-1N's into AH-1Z/UH-1Y's include: a new 4-bladed, composite rotor system with semi-automatic blade fold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This remanufacture will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of on-board mission planning, communications, digital fire control, self-navigation, night targeting, and weapon systems management in nearly identical crew stations reducing training requirements. This remanufacture maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.											
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Engineering and Manufacturing Development because it encompasses engineering and manufacturing development of new end-items prior to a production approval decision.											

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Exhibit R-2, RDTEN Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades				PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	277.055	178.524*	138.189	170.068							
RDT&E Articles Qty	5										

Quantity of (5) RDT&E Engineering and Manufacturing Development (EMD) test articles were placed on contract prior to FY98 and remanufacture commenced in FY99. One aircraft will be used for live fire test and evaluation.

*The FY 2000 budget reflects a \$26.6M Congressional add for USMC H-1 Upgrades (Project H2419) which has been revised by \$0.839M for Congressional undistributed reductions.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W 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. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft that remanufacture AH-1W/UH-1N's into AH-1Z/UH-1Y's include: a new 4-bladed, composite rotor system with semi-automatic blade fold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This remanufacture will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of on-board mission planning, communications, digital fire control, self-navigation, night targeting, and weapon systems management in nearly identical crew stations reducing training requirements. This remanufacture maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$137.941) Continued transmission bench test, completed Structural Test Article testing, continued tooling validation, continued flight test planning, completed assembly of first AH-1Z & UH-1Y aircraft, conducted test readiness reviews, and commenced aircraft instrumentation system level functional testing and aircraft ground testing.
- (U) (\$ 24.983) Continued development of integrated avionics and performed bench functional checks. Continued mission computer software coding.
- (U) (\$ 14.800) Continued integrated logistics support tasks including level of repair analysis, failure modes effects and criticality analysis, logistics support analysis, reliability centered maintenance analysis, and documentation.
- (U) (\$.800) Continued component fatigue testing and live fire test and evaluation.

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EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE&E, N / BA-5	0604245N USMC H-1 Upgrades	H2279 USMC H-1 Upgrades
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>2. FY 2001 PLAN:</p> <ul style="list-style-type: none">- (U) (\$ 51.227) Conduct pre-flight ground test and first flight of AH-1Z; continue mission computer software coding.- (U) (\$ 14.893) Complete transmission bench testing and aircraft drive train validation.- (U) (\$ 44.436) Complete tooling validation and assembly of remaining EMD aircraft including structural testing.- (U) (\$ 22.706) Continue integrated logistics support (ILS) tasks including level of repair analysis, failure modes effects and criticality analysis, logistics support analysis, reliability centered maintenance analysis, integrated mechanical diagnostics, and documentation.- (U) (\$.700) Continue live fire testing and evaluation.- (U) (\$ 4.227) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68. <p>3. FY 2002 PLAN:</p> <ul style="list-style-type: none">- (U) (\$ 92.717) Conduct pre-flight ground test and first flight of UH-1Y, conduct high-altitude performance tests, non-firing loads and vibes, handling qualities, structural demonstration, gearbox tear-down/inspection, and conduct development of Aircrew Procedures Trainer (APT).- (U) (\$ 18.434) Conduct external stores jettison test, firing loads and vibes, weapons system accuracy, Infrared evaluation, Electromagnetic Environmental Effects, and Electronic Warfare evaluation.- (U) (\$ 48.353) Conduct Integrated Avionics System (IAS) and weapons system evaluation.- (U) (\$ 7.555) Continue program development testing and live fire test and evaluation.- (U) (\$ 3.009) Continue ILS tasks including level of repair analysis, logistics support analysis, reliability centered maintenance analysis, integrated mechanical diagnostics.		

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EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades	PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades		

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	183.266	139.680	48.960
(U) Adjustments from the President's Budget:	-4.742	-1.491	121.108
(U) FY 2002 President's Budget Submit:	178.524	138.189	170.068

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of \$4.742 million reflects a decrease of \$4.169 million for a Small Business Innovative Research (SBIR) assesment, a decrease of \$3.049 million for a reprioritizationof requirements within the Navy, a decrease of \$0.718 million for a Congressional Recission, and an increase of \$3.194 million for a below threshold reprogrammingfor heavy weather tie downs. The FY 2001 net decrease of \$1.491 million reflects a decrease of \$0.978 million for a Congressional Reduction, a decrease of \$0.209 million for reprioritizationof requirements within the Navy, and a decrease of \$0.304 million for a congressional recission. The FY 2002 net increase of \$121.108 million reflects an increase of \$105.500 million as part of a program restructure effort (PBD-113), \$15.0 million for acquisition stability residual funding for USMC H-1 EMD contract completion, a decrease of \$0.058 million for reprioritizationof requirements within the Navy, an increase of \$0.697 million for flight test support and NAWCAD Pax River host tennant agreement, and a decrease of \$0.031 million for economic assumptions.

(U) Schedule: Change reflects commencement of flight test program following successful 1st flight of AH-1Z in 1st Qtr 01.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
P-1 LI #8, UH-1Y/AH-1Z (4BN/4BW)	0	0	0							
Quantity	0	0	0							

FY01, FY02 Integrated Mechanical Diagnostics (IMD) development is redirected to P.E. 0604245N

Related RDT&E:

(U) P.E. 0604212N, ASW & Other Helo Development

(U) P.E. 0603266N, AH-1T Composite Rotor Blade

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APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604245N USMC H-1 Upgrades	PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades																										
<p>(U) D. ACQUISITION STRATEGY: The H-1 Upgrades is an ACAT ID program which encompasses Engineering and Manufacturing Development of new end-items prior to a production approval decision. The prime contract is sole source to Bell Helicopter Textron, Inc. and is a remanufacture of AH-1W and UH-1N aircraft.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td>1Q/01 1st Flight AH-1Z 2Q/01-4Q/01 UH/AH Test</td> <td>1Q/02-4Q/02 UH/AH Test 1Q/02 1st Flight UH-1Y</td> <td></td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>	(U) Program Milestones					(U) Engineering Milestones					(U) T&E Milestones		1Q/01 1st Flight AH-1Z 2Q/01-4Q/01 UH/AH Test	1Q/02-4Q/02 UH/AH Test 1Q/02 1st Flight UH-1Y		(U) Contract Milestones				
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(U) Contract Milestones																												

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROGRAM ELEMENT 0604245N USMC H-1 Upgrades				PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Major Contract	SS CPFF	Bell Helicopter, Ft. Worth, TX	7.851							Continuing	Continuing	Continuing
Award Fees*		Bell Helicopter, Ft. Worth, TX	12.668							Continuing	Continuing	Continuing
Major Contract	SS CPIF*	Bell Helicopter, Ft. Worth, TX	374.140	118.765	10/00	126.000	10/01			Continuing	Continuing	Continuing
Training	SS CPIF	TBD	0.000	0.000		19.200	01/02			Continuing	Continuing	Continuing
GFE	Various	Various	11.318	1.699	Various					Continuing	Continuing	Continuing
In-House Support (Field Activities)	WR	Various	35.535	11.430	Various	12.018	Various			Continuing	Continuing	Continuing
In-House Support (Travel)	WR	Various	0.987	0.250	10/00	0.350	10/01			Continuing	Continuing	Continuing
Trainers	WR	Various	4.564	0.118	12/00	2.125	11/01			Continuing	Continuing	Continuing
Subtotal Product Development			447.063	132.262		159.693				Continuing	Continuing	Continuing
<p>*Remarks: Effective 1 May 00, cost plus incentive fee (CPIF) applies. Original contract was was a SS CPAF contract. Total award fee pool \$47,496,152, and to date \$12,668,250 has been awarded. Period #1 was 90%, period #2 87%, period #3 90%, period #4 77%, period #5 76%, and period #6 was 0%. Award fee activity was terminated on 30 April 2000.</p> <p>Major contract (\$712.632M) plus award fees (\$12.668M) equals total value of contract (\$725.300M).</p>												
Technical Engineering Services	C FFP	CCI, Inc.	1.855	0.624	11/00	0.745	11/01			Continuing	Continuing	Continuing
										Continuing		
										Continuing		
										Continuing		
										Continuing		
										Continuing		
										Continuing		
Subtotal Support			1.855	0.624		0.745				Continuing	Continuing	
Remarks:												

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604245N USMC H-1 Upgrades			PROJECT NUMBER AND NAME H2279 USMC H-1 Upgrades						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various	3.190	0.660	11/00	8.645	11/01			Continuing	Continuing	
Subtotal T&E			3.190	0.660		8.645				Continuing	Continuing	
Remarks:												
Program Office & Logistics Support	C FFP	CCI, Inc.	3.471	0.416	11/00	0.985	11/01			Continuing	Continuing	6.606
SBIR Assessment				4.227						Continuing	Continuing	
Subtotal Management			3.471	4.643		0.985				Continuing	Continuing	
Remarks:												
Total Cost			455.579	138.189		170.068				#VALUE!	#VALUE!	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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