

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
							February 2005	
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE			
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7					0205601N HARM Improvement			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	50.420	165.634	90.832	100.897	33.098	7.027	7.461	8.184
1780 HARM Improvement	1.988	1.736	3.719	3.792	4.025	2.973	4.231	4.366
2185 Adv. Anti-Radiation Guided Missile (AARGM)	30.401	63.768	74.987	97.105	29.073	4.054	3.230	3.818
2211 Joint Common Missile*	13.452	82.016	0.000	0.000	0.000	0.000	0.000	0.000
3056 Advanced Precision Kill Weapon System (APKWS)	4.579	12.336	12.126	0.000	0.000	0.000	0.000	0.000
3057 Common Defense	0.000	4.790	0.000	0.000	0.000	0.000	0.000	0.000
S9626 Spectral Beam Combining Fiber Lasers		0.988						
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Congressional Adds: \$2.8 million in FY 2004 for AARGM accelerated Embedded National Tactical Receiver (ENTR) insertion in SD&D. Budget controls included an erroneous application of JDAM SBIR charges to the AARGM and JCM accounts. FY2004 budget execution numbers in this submission reflect below-threshold-reprogramming action which restores \$1.972K to the AARGM A2185 account and \$926K to the JCM A2211 account. Congressional add of \$2.9 million in FY2005 accelerated development of critical ENTR interfaces and correlation software. It also funds development of a common AGM-88 series battery that replaces the AARGM specific battery resulting in a production savings of \$2.5K per weapon. Justification material includes decision to terminate the Joint Common Missile (JCM) program beginning in FY2006. (U) HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (NAVY lead). The program commenced production in FY1983. Program Element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM (AGM-88B, Block III & AGM-88C, Block IV) as Engineering Change Proposals (ECPs). Another ECP software program (Block IIIA & V) was recently developed (FY1996 through FY1999) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block IIIA/V software was distributed to the Fleet in FY2000. HARM Improvement includes efforts to conduct Foreign Military Exploitation (FME) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates, and integration efforts. (U) ADVANCED ANTI-RADIATION GUIDED MISSILE (AARGM): AARGM is an ACAT-1C acquisition program in System Development & Demonstration to upgrade the AGM-88 HARM missile with multi-mode / multi-spectral guidance and targetting capability. It also incorporates the capability to receive national broadcast data and transmit weapon impact assessments (demonstrated in Quick Bolt ACTD). An AARGM System Development and Demonstration (SD&D) commenced in FY03. The AARGM program plans production of 1,750 missiles (75) Low Rate Initial Production (LRIP) and 1,675 Full Rate Production modification kit(s). *Previously referred to as JAWS/Modernized Hellfire.								

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 Exhibit R-2, RDTEN Budget Item Justification
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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-7	R-1 ITEM NOMENCLATURE 0205601N HARM Improvement	
<p>(U) <u>JOINT COMMON MISSILE (JCM)</u>: Army led joint service program to replace the aging legacy TOW, Maverick, and Hellfire missiles with a single multi-role weapon, IAW J8 validated and Navy, Army and Marine Corps approved Initial Capabilities Document (ICD) and Capabilities Development Document (CDD). Joint Common Missile will provide Line of Sight (LOS), Non-Line of Sight (NLOS), and Beyond Line of Sight (BLOS) capabilities including precision strike with Fire & Forget technologies, increased range, and increased lethality for both Fixed Wing and Rotary Wing Aircraft. Joint Common Missile will maximize the Warfighter's' operational flexibility by allowing them to effectively engage a variety of stationary and mobile targets, including advanced armor, bunkers, buildings, command and control vehicles, transporter/erector launchers and patrol craft.</p> <p>(U) <u>ADVANCED PRECISION KILL WEAPON SYSTEM (APKWS)</u>: The APKWS is an Army SD&D program to develop a low cost Semi Active Laser (SAL) precision guidance section for existing 2.75 inch unguided rockets. APKWS offers precision, maximum stored kills per aircraft sortie, minimum collateral damage potential, and increased effectiveness over legacy unguided rockets. The guidance package can be assembled with existing unguided rocket components (warhead and rocket motor) and can be fired from existing rocket launchers. APKWS will provide an inexpensive, small, lightweight, precision guided weapon that is effective against soft and lightly armored targets and which enhances crew survivability with increased stand-off range. Army, Marine Corps, and recent Navy ASUW Mission Need Statements highlighted the requirement for a weapon system capable of employment from the SH-60 to counter a swarm threat of small attack boats.</p> <p>(U) <u>COMMON DEFENSE</u>: The Department of the Navy has a requirement to replace legacy weapons with an advanced .50 caliber crew served weapon, called the GAU-21 Common Defense Weapon System (CDWS), for assault support helicopters. Specific applications include a machine gun to replace GAU-16 and the XM-218.50 caliber machine guns that will provide a significant increase in firepower, accuracy, lethality and reliability, and will maximize survivability through suppressive fire capabilities. Funding will support requirements validation, advance technology demonstration, and prototype development.</p> <p>(U) <u>SPECTRAL BEAM COMBINING FIBER LASERS</u>: In accordance with NAVSEA Notice 5400, Ser 09B/240, Subj: ESTABLISHMENT OF THE NAVY DIRECTED ENERGY WEAPONS PROGRAM OFFICE (PMS 405), dated 4 Jan 02 and NAVSEA Instruction 5400.101, Ser SEA 06/058, Subj: DIRECTED ENERGY AND ELECTRIC WEAPONS PROGRAM OFFICE (PMS 405) CHARTER, dated 21 Jul 04 - COMNAVSEASYSYSCOM (PMS 405) was assigned as the single Point of Contact for matters related to Directed Energy and Electric Weapons development and acquisition initiation for the Navy and for those matters being coordinated with other Federal agencies and military services.</p>		

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Exhibit R-2, RDTEN Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement				PROJECT NUMBER AND NAME 1780 HARM Improvement			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.988	1.736	3.719	3.792	4.025	2.973	4.231	4.366
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B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">1.988</td><td style="text-align: center;">1.736</td><td style="text-align: center;">3.719</td><td style="text-align: center;">3.792</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.988	1.736	3.719	3.792	RDT&E Articles Quantity				
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<p>C. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;"></th> <th style="text-align: right; width: 15%;">FY 04</th> <th style="text-align: right; width: 15%;">FY 05</th> <th style="text-align: right; width: 15%;">FY 06</th> <th style="text-align: right; width: 15%;">FY 07</th> </tr> </thead> <tbody> <tr> <td>Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Previous President's Budget:</td> <td style="text-align: right;">1.991</td> <td style="text-align: right;">1.755</td> <td style="text-align: right;">3.688</td> <td style="text-align: right;">3.696</td> </tr> <tr> <td>Current BES/President's Budget</td> <td style="text-align: right;">1.988</td> <td style="text-align: right;">1.736</td> <td style="text-align: right;">3.719</td> <td style="text-align: right;">3.792</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.003</td> <td style="text-align: right; border-top: 1px solid black;">-0.019</td> <td style="text-align: right; border-top: 1px solid black;">0.031</td> <td style="text-align: right; border-top: 1px solid black;">0.096</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.019</td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Other</td> <td></td> <td></td> <td style="text-align: right;">-0.005</td> <td style="text-align: right;">0.013</td> </tr> <tr> <td> Economic Assumptions</td> <td></td> <td></td> <td style="text-align: right;">0.036</td> <td style="text-align: right;">0.083</td> </tr> <tr> <td> Reprogrammings</td> <td style="text-align: right;">-0.002</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Subtotal</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.003</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">-0.019</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.031</td> <td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">0.096</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 40px;">Not Applicable.</p> <p>Technical:</p> <p style="margin-left: 40px;">Not Applicable.</p>						FY 04	FY 05	FY 06	FY 07	Funding:					Previous President's Budget:	1.991	1.755	3.688	3.696	Current BES/President's Budget	1.988	1.736	3.719	3.792	Total Adjustments	-0.003	-0.019	0.031	0.096	Summary of Adjustments					Congressional program reductions					Congressional undistributed reductions		-0.019			Congressional rescissions					SBIR/STTR Transfer	-0.001				Other			-0.005	0.013	Economic Assumptions			0.036	0.083	Reprogrammings	-0.002				Congressional increases					Subtotal	-0.003	-0.019	0.031	0.096
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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME A1780 HARM Improvement				

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
WPN BLI 23270, HARM MODS	0	0	0	0	40.985	43.050	43.954	44.877	0	172.866
Related RDT&E: Not applicable.										

E. ACQUISITION STRATEGY:

The HARM Block IIIB/VI Upgrade program was an ACAT III Program and consisting of three separate phases (EMD, Production, and Technology Evaluation and Assessment). The acquisition strategy for the HARM Block IIIB/VI Program was complete and was based upon a signed international Memorandum of Agreement with Germany, Italy, and U.S. Navy; a tri-national Cooperative Operational Requirements Document (CORD), and a Cooperative Test and Evaluation Master Plan (CTEMP). These three documents drove the overall acquisition approach to the HARM Block VI project. Tri-national participation in the HARM Precision Navigation Upgrade (PNU) modification program was terminated in 3Q03.

Available resources will be applied to HARM Legacy configuration requirements.

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0205601N HARM Improvement			1780 HARM Improvement						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	RSC, Tucson, AZ	19.073								19.073	19.073
Ancillary Hardware Development											0.000	
Aircraft Integration	WX	NAWCWD China Lake, CA	11.276								11.276	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WX	NAWCWD China Lake, CA	3.609								3.609	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			33.958	0.000		0.000		0.000		0.000	33.958	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support	WX	NAWCWD Point Mugu, CA	1.644								1.644	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses	FFP	Rockwell Collins, IA	0.030								0.030	0.030
GFE											0.000	
Award Fees											0.000	
Subtotal Support			1.674	0.000		0.000		0.000		0.000	1.674	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-7			0205601N HARM Improvement			1780 HARM Improvement						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCWD China Lake, CA	9.162								9.162	
Operational Test & Evaluation	WX	NAWCWD China Lake, CA	3.308								3.308	
Operational Test & Evaluation (FME)	WX	NAWCWD China Lake, CA	1.811	1.611	10/04	3.569	10/05	3.627	10/06	Continuing	Continuing	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			14.281	1.611		3.569		3.627		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	RX	Rockwell Collins	2.214								2.214	
Government Engineering Support											0.000	
Program Management Support	Various	NAWCAD, Pax River, MD	0.236	0.100	11/04	0.125	11/05	0.140	11/06	Continuing	Continuing	
Travel	WX	NAVAIR HQ	0.379	0.025	10/04	0.025	10/05	0.025	10/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			2.829	0.125		0.150		0.165		Continuing	Continuing	
Remarks:												
Total Cost			52.742	1.736		3.719		3.792		Continuing	Continuing	
Remarks: Prior year data includes the HARM Precision Navigation Upgrade (PNU) modification program which was terminated in 3Q03.												

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R4, Schedule Profile																								DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY									PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-7									0205601N HARM Improvement												1780 HARM Improvement											
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																																
Test & Evaluation Milestones																																
Development Test																																
Operational Test																																
Foreign Military Exploitation (FME) - continuing																																
Production Milestones																																
Deliveries																																

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 10 of 38)

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COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	30.401	63.768	74.987	97.105	29.073	4.054	3.230	3.818
RDT&E Articles Qty			6	8	17			

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

*Congressional Add: \$2.8 million in FY 2004 for AARGM accelerated Embedded National Tactical Receiver (ENTR) insertion in SD&D. In May 2004, the contract was modified to accelerate ENTR, bringing the Operational Requirements Document (ORD) phase III capability under contract. The AARGM FY2004 budget control included an erroneous application of JDAM SBIR charges to the AARGM and JCM accounts. FY2004 budget execution numbers in this submission reflect below-threshold-reprogramming action which restores \$1.972K to the AARGM A2185 account. Congressional add of \$2.9 million in FY05 accelerated development of critical ENTR interfaces and correlation software. It also funds development of a common AGM-88 series battery that replaces the AARGM specific battery resulting in a production savings of \$2.5K per weapon.

The Advanced Anti-Radiation Guided Missile (AARGM), AGM-88E, Project transitioned a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe to System Development and Demonstration (SD&D) in FY03. The AARGM SD&D program is designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system/Inertial Navigation System (GPS/INS)) and multi-spectral sensors on the HARM AGM-88 missile. AARGM weapon system capabilities include: active Millimeter Wave terminal guidance, counter shutdown, expanded threat coverage, enhanced anti-radiation homing receiver, netted targeting real-time feed via Integrated Broadcast Service (IBS) prior to missile launch, weapon impact assessment transmitted prior to detonation, GPS/point-to-point weapon, and weapon employment with impact avoidance zone/missile impact zones.

The issue of emitter "shut-down" as a defensive tactic has been a major shortcoming in the joint suppression of enemy air defenses (J-SEAD) element of the offensive counter air mission area for the United States Navy and Air Force. Program objectives are to achieve an effective and affordable lethal DEAD (Destruction of Enemy Air Defenses) capability against mobile, relocatable, or fixed air defense threats even in the presence of emitter shutdown or other Anti-Radiation Missile (ARM) countermeasures. The multi-mode, multi-spectral technology being integrated in the AARGM program resolves the problem of "shut-down".

At Milestone B (June 2003), AARGM successfully transitioned to a System Development and Demonstration (SD&D) Acquisition Category 1C (ACAT 1C) program. ATK Missile Systems Company (AMSC) was awarded the AARGM SD&D NAVAIR Contract N00019-03-C-0353, valued at \$222.6M. The AARGM program plans to produce 1,750 missiles (75 Low Rate Initial Production (LRIP) missiles and 1,675 Full Rate AGM-88Es). In May 2004, the contract was modified to accelerate ENTR, enabling the warfighter to directly receive National intelligence data, providing additional AARGM targetting data to increase overall pilot situational awareness. The new contract value is \$228.4M.

The AARGM program transitioned the Quick Bolt Advanced Concept Technology Demonstration (ACTD) to SD&D. Quick Bolt added the capabilities to receive threat data from national assets, enlarging the target set and increasing aircrew situational awareness, and to transmit a Weapon Impact Assessment (WIA) message to assist in the critical area of Battle Damage Assessment (BDA). The Quick Bolt ACTD was completed in FY03. Quick Bolt demonstration testing successfully used Impact Avoidance Zone (IAZ) logic to distinguish between the proscribed and original target, demonstrating the ability to greatly reduce friendly fire incidents and collateral damage.

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Exhibit R-2a, RDTE Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 2185 Advanced Anti-Radiation Guided Missile (AARGM)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><tr><td style="width: 30%;"></td><td style="width: 15%;">FY04</td><td style="width: 15%;">FY05</td><td style="width: 15%;">FY06</td><td style="width: 15%;">FY07</td></tr><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">30.401</td><td style="text-align: center;">63.768</td><td style="text-align: center;">74.987</td><td style="text-align: center;">97.105</td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td style="text-align: center;">6</td><td style="text-align: center;">8</td></tr></table> <div style="border: 1px solid black; padding: 10px; min-height: 200px;"><p>Milestone B System Development and Demonstration (SD&D) activities, and post-Milestone B SD&D efforts. Contractor to update the Advanced Technology Demonstration (ATD)/Advanced Concept Technology Demonstration (ACTD) subsystem designs to the SD&D System Performance Specification and prepare for/conduct System Design Review, Preliminary Design Review, Critical Design Review, Contractor build-up and laboratory and field testing of the AGM-88E seeker. Field activities to support System Engineering, aircraft integration (including Software Configuration Set support), test asset, and test and evaluation requirements analysis, and developmental logistics support. Contractor to perform engineering and technical evaluation services to support program management of AARGM. Contractor on track for April 2005 System Preliminary Design Review.</p></div>						FY04	FY05	FY06	FY07	Accomplishments/Effort/Subtotal Cost	30.401	63.768	74.987	97.105	RDT&E Articles Quantity			6	8
	FY04	FY05	FY06	FY07															
Accomplishments/Effort/Subtotal Cost	30.401	63.768	74.987	97.105															
RDT&E Articles Quantity			6	8															

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 2185 Advanced Anti-Radiation Guided Missile (AARGM)		

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	31.188	61.450	74.435	94.176
Current BES/OSD Budget	30.401	63.768	74.987	97.105
Total Adjustments	-0.787	2.318	0.552	2.929
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.568		
Congressional rescissions				
SBIR/STTR Transfer	-2.730			
Other		-0.014	-0.156	1.532
Economic Assumptions	-0.029		0.708	1.397
Reprogrammings	1.972			
Congressional increases		2.900		
Subtotal	-0.787	2.318	0.552	2.929

Schedule:

Schedule change is due to a correction from previous budget submission. LRIPII deliveries extending from 1st Qtr FY10 through 4th Qtr FY10.

Technical:

R-1 SHOPPING LIST - Item No. 178

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 13 of 38)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME 2185 Advanced Anti-Radiation Guided Missile (AARGM)				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
P-1 Proc. Line Item No. 232700, HARM MODS	0	0	0	0	40.985	43.05	43.954	44.877	800.034	972.900

E. ACQUISITION STRATEGY:

The AARGM program started as a Phase I Small Business Innovative Research (SBIR), Advanced Technology Program (ATD), evolved into a Phase III SBIR program, and transitioned into a System Development and Demonstration (SD&D) ACAT 1C program in June 2003. The AARGM SD&D will fulfill U.S. Navy operational requirements and incorporates AARGM ATD and Quick Bolt ACTD-demonstrated system requirements. Government responsibilities for SD&D include monitoring, technical assessment and validation of contractor technology development and testing.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0205601N HARM Improvement			2185 Advanced Anti-Radiation Guided Missile (AARGM)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF	SAT, Woodland Hills, CA	98.562	0.000		0.000		0.000		0.000	98.562	98.562
Primary Hardware Dev. - Risk Red.	CPFF	SAT, Woodland Hills, CA	66.305	0.000		0.000		0.000		0.000	66.305	66.305
Primary Hardware Dev. - Quick Bolt	CPFF	SAT, Woodland Hills, CA	17.334	0.000		0.000		0.000		0.000	17.334	17.334
Primary Hardware Dev. - SD&D	CPIF	AMSC, Woodland Hills, CA	36.802	47.686	10/04	55.250	12/05	69.160	12/06	20.492	229.390	229.390
Aircraft Integration	WX	NAWC WD, China Lake	3.223	0.643	10/04	1.040	10/05	4.298	10/06	0.410	9.614	
Systems Engineering	WX	NAWC WD, China Lake	22.043	6.731	10/04	6.859	10/05	9.736	10/06	1.207	46.576	
Systems Engineering	WX	JHU/APL, MD	0.615	0.000						0.000	0.615	
Primary Hardware Dev. - Risk Red.	CPFF	AMSC, Woodland Hills, CA	7.000	0.000						0.000	7.000	7.000
											0.000	
											0.000	
											0.000	
Subtotal Product Development			251.884	55.060		63.149		83.194		22.109	475.396	
Remarks: Total SD&D contract target value includes \$4.971 of OSD funding in FY03 and \$.500 of Other Customer Funds (OCF) in FY04.												
Integrated Logistics Support	WX	NAWC WD, China Lake	0.458	0.580	10/04	0.900	10/05	1.200	10/06	0.634	3.772	
Integrated Logistics Support	WX	NAWC AD, Pax River, MD	0.012	0.000		0.000		0.000		0.000	0.012	
Studies & Analyses	Various	Various	0.462	1.407	11/04	0.090	11/05	0.485	11/06	0.000	2.444	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.932	1.987		0.990		1.685		0.634	6.228	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-7			0205601N HARM Improvement			2185 Advanced Anti-Radiation Guided Missile (AARGM)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC WD, CHINA LAKE	2.093	1.183	10/04	3.071	10/05	4.499	10/06	Continuing	Continuing	
Operational Test & Evaluation	WX	NAWC WD, CHINA LAKE	0.000	0.000		0.000		0.000		Continuing	Continuing	
Test Assets	WX	NAWC WD, CHINA LAKE	0.000	1.335	10/04	2.716	10/05	1.522	10/06	0.223	5.796	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			2.093	2.518		5.787		6.021		0.223	16.642	
Remarks:												
Contractor Engineering Support	Various	DCS Corp, Alexandria, VA	4.323	0.000		0.000		0.000		0.000	4.323	4.323
Contractor Engineering Support	Various	Various	0.242	0.645	11/04	0.942	11/05	0.970	11/06	0.000	2.799	
Program Management	Various	NAWC AD, Pax River, MD	0.105	0.290	10/04	0.290	10/05	0.290	10/06	0.040	1.015	
Travel	Various	NAWC AD, Pax River, MD	0.752	0.080	10/04	0.080	10/05	0.090	10/06	0.100	1.102	
SBIR Assessment			0.000	3.188		3.749		4.855		1.454	13.246	
											0.000	
Subtotal Management			5.422	4.203		5.061		6.205		1.594	22.485	
Remarks:												
Total Cost			260.331	63.768		74.987		97.105		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 16 of 38)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: February 2005								
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7												PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement												PROJECT NUMBER AND NAME 2185 Advanced Anti-Radiation Guided Missile (AARGM)								
Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																	MSC	△														
Completion of AARGM ATD																																
Completion of Quick Bolt ACTD																																
Contract Award (SD&D)																																
Development	▲	SDR																														
System Design Review																																
Preliminary Design Review						PDR	△																									
Critical Design Review																																
Functional Configuration Audit																																
Production Readiness Review																																
Physical Configuration Audit																																
Testing & Evaluation Milestones																																
Development Testing																																
Development Testing																																
Operational Testing (OTC)																																
Operational Assessment																																
Production Milestones																																
Low-Rate Initial Production LRIP I																																
Low-Rate Initial Production LRIP II																																
Full Rate Production																																
Deliveries																																
Low-Rate Initial Production LRIP I																																
Low-Rate Initial Production LRIP II																																
Full Rate																																
Initial Operational Capability (IOC)																																

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EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement				PROJECT NUMBER AND NAME 2211 Joint Common Missile*			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	13.452	82.016	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty		12	0	0	0	0		

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

*Previously referred to as JAWS/Modernized HELLFIRE. Justification material includes decision to terminate the Joint Common Missile (JCM) program beginning in FY2006.

(U) Joint Common Missile (JCM): Army led joint service program to replace the aging legacy TOW, Maverick, and Hellfire missiles with a single multi-role weapon, IAW J8 validated and Navy, Army and Marine Corps approved Initial Capabilities Document (ICD) and Capabilities Development Document (CDD). Joint Common Missile will provide Line of Sight (LOS), Non-Line of Sight (NLOS), and Beyond Line of Sight (BLOS) capabilities including precision strike with Fire & Forget technologies, increased range, and increased lethality for both Fixed Wing and Rotary Wing Aircraft. Joint Common Missile will maximize the Warfighter's operational flexibility by allowing them to effectively engage a variety of stationary and mobile targets, including advanced armor, bunkers, buildings, command and control vehicles, transporter/erector launchers and patrol craft.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005																															
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 2211 Joint Common Missile																																
B. Accomplishments/Planned Program																																		
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">13.452</td> <td style="text-align: center;">48.311</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td style="text-align: center;">7</td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Phase I: Participation with the Army in Joint Common Missile Risk Reduction/Producibility as part of SD&D. Development of seeker, propulsion and warhead technologies for Navy and Marine Corps Fixed and Rotary Wing peculiar requirements (including shipboard operability and suitability); Systems engineering, including development of component technical solutions using SMART (simulation and modeling for acquisition, requirements and training). Risk reduction engineering efforts for the low smoke rocket motor, the tri-mode seeker, development of the Interface Control Document, initial platform integration, modeling and testing.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> <td style="width: 15%; text-align: center;">FY 06</td> <td style="width: 15%; text-align: center;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">33.705</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&E Articles Quantity</td> <td></td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Phase II: Continued participation with the Army in Joint Common Missile System Development and Demonstration (SD&D) activities after the completion of Phase I. Contractor to update the SD&D subsystem designs for the overall System Performance Specification and conduct System Design Review, Preliminary Design Review, Critical Design Review, and Design Readiness Reviews. Contractor to conduct risk mitigation efforts and complete the design, development, fabrication, test, and qualification of a single configuration Joint Common Missile. Field activities to support System Engineering, aircraft integration (including Software Configuration support), test asset, and test and evaluation requirements analysis, and developmental logistics support. Platform integration will be conducted on AH-1Z, F/A-18 E/F, and MH-60R.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	13.452	48.311	0.000	0.000	RDT&E Articles Quantity		7				FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	33.705	0.000	0.000	RDT&E Articles Quantity		5	0	0
	FY 04	FY 05	FY 06	FY 07																														
Accomplishments/Effort/Subtotal Cost	13.452	48.311	0.000	0.000																														
RDT&E Articles Quantity		7																																
	FY 04	FY 05	FY 06	FY 07																														
Accomplishments/Effort/Subtotal Cost	0.000	33.705	0.000	0.000																														
RDT&E Articles Quantity		5	0	0																														

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 20 of 38)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 2211 Joint Common Missile

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	13.749	82.820	117.343	62.246
Current President's Budget	13.452	82.016	0.000	0.000
Total Adjustments	-0.297	-0.804	-117.343	-62.246
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.787		
Congressional rescissions				
SBIR/STTR Transfer	-1.223			
Other		-0.017	-118.456	-64.338
Economic Assumptions			1.113	2.092
Reprogrammings	0.926			
Congressional increases				
Subtotal	-0.297	-0.804	-117.343	-62.246

Schedule:

Schedule change based on decision to terminate the Joint Common Missile (JCM) program beginning in FY2006.

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 178

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7			PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME 2211 Joint Common Missile			

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
P-1 225000 (\$M) Joint Common Missile				0	0	0	0	0	0	0
RDT&E ARMY P.E. 0604329A Proj 013 JCM	93.705	152.381	0	0	0	0	0	0	0	246.086
PROCUREMENT ARMY C70302/APE				0	0	0	0	0	0	0

E. ACQUISITION STRATEGY:

Acquisition Strategy change due to the decision to terminate the Joint Common Missile (JCM) program beginning in FY2006.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: September 2004	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement				PROJECT NUMBER AND NAME 3056Advanced Precision Kill Weapon System (APKWS)			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	4.579	12.336	12.126	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty	22		25					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Precision Kill Weapon System (APKWS) is an Army led SD&D program to develop a low cost Semi Active Laser (SAL) precision guidance section for existing 2.75 inch unguided rockets. DON participation began in FY04. APKWS will provide an inexpensive, small, lightweight, precision guided weapon that is effective against soft and lightly armored targets and which enhances crew survivability with increased stand-off range. APKWS offers precision, maximum stored kills per aircraft sortie, minimum collateral damage potential, and increased effectiveness over legacy unguided rockets. The guidance package can be assembled with existing unguided rocket components. The Navy is developing a digital launcher to maximize the effectiveness of the APKWS .

Test articles are being procured in FY04 for Developmental Test & Evaluation/Operational Assessment. Low Rate initial Production (LRIP) test articles are being procured in FY06 for Operational Test & Evaluation.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 3056 Advanced Precision Kill Weapon System (APKWS)																	
B. Accomplishments/Planned Program																			
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th><th style="width: 15%;">FY 06</th><th style="width: 15%;">FY 07</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">4.579</td><td style="text-align: center;">12.336</td><td style="text-align: center;">12.126</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">22</td><td style="text-align: center;">0</td><td style="text-align: center;">25</td><td style="text-align: center;">0</td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; min-height: 200px;"><p>Advanced Precision Kill Weapon System (APKWS) funding supports the Navy aircraft integration onto the AH-1W. The program will develop, test and qualify a laser guided 2.75-inch munitions for initial integration on Marine Corps rotary wing aviation. Funding will provide for System Qualification and Developmental Testing and technical analysis. The Army is the program lead. The Navy participated with the Army to validate the Operational Requirements Document (ORD), in Milestone B decision, and will participate in Milestone C decision in late FY05 .</p></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	4.579	12.336	12.126	0.000	RDT&E Articles Quantity	22	0	25	0
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	4.579	12.336	12.126	0.000															
RDT&E Articles Quantity	22	0	25	0															

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 24 of 38)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 3056 Advanced Precision Kill Weapon System (APKWS)

C. PROGRAM CHANGE SUMMARY:

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	4.673	12.504	12.502	0.000
Current BES/President Budget	4.579	12.336	12.126	0.000
Total Adjustments	-0.094	-0.168	-0.376	0.000
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.165		
Congressional rescissions				
SBIR/STTR Transfer	-0.090			
Other		-0.003	-0.466	
Economic Assumptions			0.090	
Reprogrammings	-0.004			
Congressional increases				
Subtotal	-0.094	-0.168	-0.376	0.000

Schedule:

Initial Operational Capability (IOC) has always been scheduled for first quarter FY08. Operational Test II has been added to FY07. Navy schedule for LRIP, FRP, and follow on have been added to the schedule for clarification.

Technical:

Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME 3056 Advanced Precision Kill Weapon System (APKWS)				

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
PANMC - (BLI 015100) Airborne Rockets, All Types	26.618	34.019	35.159	15.575	37.206	37.396	38.209	39.039	TBD	TBD
APKWS Procurement*		0.000	8.079	12.000	15.000	15.000	15.000	15.000	TBD	TBD
Related RDT&E: U. S. Army P.E. 0604802A PROJ D705 Advanced Precision Weapon System	46.870	12.450	10.884	8.593	17.235	15.750	5.750	0.000	0.00	117.532
Procurement: U. S. Army P.E. 0203802A PROJ D786		6.879	27.931	86.16**	95.608**	109.803**	102.450	102.250	TBD	TBD

* Planned procurement strategy for the APKWS 2.75-inch guidance sections within the current Airborne Rockets, All Types PANMC funding profile

** Army procurement numbers include unguided rockets.

E. ACQUISITION STRATEGY:

Department of Army (DOA) ACAT II program. Entered SDD in 2nd qtr FY03. DON acquisition strategy is to contract unique requirements & Test Assets with the DOA. Platform integration is on AH-1W.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-7			PROGRAM ELEMENT 0205601N HARM Improvement			PROJECT NUMBER AND NAME 3056 Advanced Precision Kill Weapon System (APKWS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	MP	AMCOM, Huntsville, AL	0.678	2.300	12/04						2.978	
Primary Hardware Development	PX	NSWC Indian Head, MD		1.500	10/04						1.500	
											0.000	
Aircraft Integration	WX	Various	0.196	0.650	11/04	0.550	11/05				1.396	
											0.000	
Systems Engineering	WX	NSWC Indian Head, MD		0.444	11/04	0.653	11/05				1.097	
Training Development	WX	NSWC Indian Head, MD		0.145	11/04	0.345	11/05				0.490	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.874	5.039		1.548		0.000		0.000	7.461	
Remarks:												
											0.000	
Software Development	WX	NAWCWD, CA		1.682	10/04	0.000					1.682	
Integrated Logistics Support	WX	NSWC Indian Head, MD		0.300	11/04	0.400	11/05				0.700	
Configuration Management	WX	NSWC Indian Head, MD		0.096	11/04	0.135	11/05				0.231	
Technical Data	WX	NSWC Indian Head, MD		0.140	11/04	0.100	11/05				0.240	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	2.218		0.635		0.000		0.000	2.853	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2005				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE, N / BA-7			0205601N HARM Improvement			3056 Advanced Precision Kill Weapon System (APKWS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	Various	0.409	1.000	11/04	1.200	11/05				2.609	
Developmental Test & Evaluation	WX	NSWC, Indian Head, MD		0.455	11/04	0.550	11/05				1.005	
Operational Test & Evaluation	WX	Various	0.030			4.493	11/05				4.523	
Test Assets	MP	AMCOM, Huntsville, AL	2.045			0.621	12/05				2.666	
Test Assets	WX	NSWC, Indian Head, MD		1.450	10/04	0.650	11/05				2.100	
											0.000	
											0.000	
Subtotal T&E			2.484	2.905		7.514		0.000		0.000	12.903	
Remarks:												
											0.000	
Government Engineering Support	WX	Various	0.990	1.650	10/04	1.639	10/05				4.279	
Program Management Support	WX	NSWC, Indian Head, MD	0.157	0.400	10/04	0.533	10/05				1.090	
Travel	WX	Various	0.074	0.124	10/04	0.257	10/05				0.455	
											0.000	
											0.000	
Subtotal Management			1.221	2.174		2.429		0.000		0.000	5.824	
Remarks:												
Total Cost			4.579	12.336		12.126		0.000		0.000	29.041	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 28 of 38)

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* Navy only milestones. All others are Department of Army (DOA)

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* Navy only milestones. All others are Department of Army (DOA)

Exhibit R-4, Schedule Profile
(Exhibit R-4, page 29 of 38)

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Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 30 of 38)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement				PROJECT NUMBER AND NAME 3057 Common Defense			
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Project Cost	0.000	4.790	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Department of the Navy has a requirement to replace legacy weapons with an advanced .50 caliber crew served weapon, called the GAU-21 Common Defense Weapon System (CDWS), for assault support helicopters. Specific applications include a machine gun to replace GAU-16 and the XM-218.50 caliber machine guns that will provide a significant increase in firepower, accuracy, lethality and reliability, and will maximize survivability through suppressive fire capabilities. Funding will support requirements validation, advance technology demonstration, and prototype development.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA - 7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 3057 Common Defense		
B. Accomplishments/Planned Program				
	FY04	FY05	FY06	FY07
Accomplishments/Effort/Subtotal Cost	0.000	4.790	0.000	0.000
RDT&E Articles Quantity				
<p>Funding will support requirements validation, advance technology demonstration, and hardware development, including integration and system qualification efforts on the H1, H46, CH-53D/E, H-60, and V-22 helicopters.</p>				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME 3057 Common Defense		

C. PROGRAM CHANGE SUMMARY:

	FY 2004	FY 2005	FY 2006	FY 2007
Funding:				
Previous President's Budget:	0.000	4.842	0.005	0.000
Current President's Budget	0.000	4.790	0.000	0.000
Total Adjustments	0.000	-0.052	-0.005	0.000
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.051		
Congressional rescissions				
SBIR/STTR Transfer				
Economic Assumptions				
Reprogrammings				
Congressional increases				
Other		-0.001	-0.005	
Subtotal	0.000	-0.052	-0.005	0.000

Schedule:

Not Applicable.

Technical:

Not Applicable

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 33 of 38)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME 3057 Common Defense					

D. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
APN-5, P-1 Proc. Line Item No. 052800, GAU-21 .50 Cal ATAV	8.271	0	0	0	0	0	0	0	0	8.271
APN -5, P-1 Proc. Line Item No. 058100	0	7.670	13.752	13.731	0	0	0	0	24.28	59.433

E. ACQUISITION STRATEGY:

This is a recurring Assault Support OAG action item for all platforms. Funding supports the replacement of WWII era .50 caliber machine guns currently in fleet use across all USMC & USN helicopter platforms. Proposed replacement will offer enhanced reliability, safety, increased operational effectiveness, reduced life cycle costs, and commonality across all support platforms. Required funding would support outfit of all fleet helicopters to the new configuration which include greater ammunition capacity and a soft mount system to reduce airframe fatigue.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement				PROJECT NUMBER AND NAME S9626 Spectral Beam Combining Fiber Lasers			
COST (\$ in Millions)	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Project Cost	0.000	0.988	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Spectral Beam Combining Fiber Lasers are in accordance with NAVSEA Notice 5400, Ser 09B/240, Subj: ESTABLISHMENT OF THE NAVY DIRECTED ENERGY WEAPONS PROGRAM OFFICE (PMS 405), dated 4 Jan 02 and NAVSEA Instruction 5400.101, Ser SEA 06/058, Subj: DIRECTED ENERGY AND ELECTRIC WEAPONS PROGRAM OFFICE (PMS 405) CHARTER, dated 21 Jul 04 - COMNAVSEASYS COM (PMS 405) was assigned as the single Point of Contact for matters related to Directed Energy and Electric Weapons development and acquisition initiation for the Navy and for those matters being coordinated with other Federal agencies and military services.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2005		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME S9626 Spectral Beam Combining Fiber Lasers		
B. Accomplishments/Planned Program				
Spectral Beam Comb. Fiber Lasers	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	0.000	0.988	0.000	0.000
RDT&E Articles Quantity	N/A	N/A	N/A	N/A
<p>FY 05 - Funding will be used for technology development of high power lasers for Directed Energy military applications based on spectral beam combining of fiber lasers. Spectral Beam Combination (SBC), when combined with fiber lasers, allows the construction of high power lasers from an array of lower power fiber laser elements at reduced cost, size, and complexity. Funding would be utilized to accelerate the technology advancement necessary for the development of high power laser weapons. This effort will demonstrate the power scaling capability necessary for the development of a high power, electrically driven, tactical laser weapon system. Specific efforts include:</p> <ul style="list-style-type: none">• validate power scaling capability of the SBC approach to potentially achieve the 100kW power level• accelerate the test and evaluation program by fabricating specialty fiber demonstrate a multi-kW SBC fiber laser system.				

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Exhibit R-2a, RDTEEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2005	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement	PROJECT NUMBER AND NAME S9626 Spectral Beam Combining Fiber Lasers		

C. PROGRAM CHANGE SUMMARY:
PMS 405 Portion Only

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Funding:				
Previous President's Budget:	0.000	0.000	0.000	0.000
Current President's Budget:	0.000	0.988	0.000	0.000
Total Adjustments	0.000	0.988	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.012		
Congressional rescissions				
SBIR/STTR Transfer				
Economic Assumptions				
Reprogrammings				
Congressional increases		1.000		
Other				
Subtotal	0.000	0.988	0.000	0.000

Schedule:
Not Applicable.

Technical:
Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2005			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205601N HARM Improvement			PROJECT NUMBER AND NAME S9626 Spectral Beam Combining Fiber Lasers					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>To Complete</u>	<u>Total Cost</u>
0604755N Directed Energy User Scrutiny Equip.		2.476								2.476
0603582N Multiple Items	11.994	24.204								
0604574N Compact Ultra Fast Laser System Development		1.978								
0601108F - JTO *										
0602890F - JTO *										
0601108F - JTO *										
0602114N - ONR *										
0603114N - ONR *										
Note: * Funding from these other sources varies from year to year based on the development efforts required/funded.										
E. ACQUISITION STRATEGY:										
Not Applicable (R&D effort only)										

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