

# UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-4</b>					R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	16.992	39.062	6.255	6.355	6.492	6.627	6.759	6.902
0584 Aircrew Protective Clothing and Devices	3.794	4.519	2.834	2.512	2.564	2.618	2.672	2.727
0591 Aircraft Survivability, Vulnerabilty and Safety	2.951	6.080	1.572	1.601	1.639	1.671	1.703	1.740
0592 A/C & Ordnance Safety	1.345	1.237	1.278	1.536	1.568	1.601	1.633	1.667
1819 Carrier Vehicle Aircraft Fire Suppression	0.739	0.583	0.571	0.706	0.721	0.737	0.751	0.768
9170 Modular Advanced Vision System	2.330	4.160						
9173 Rotorcraft External Airbag	3.390	3.764						
9346 Equipment Life Extension Program	2.443	1.485						
9505 Advanced Maritime Technology Center		1.882						
9506 Integrated Manifold & Tube Ceramic Oxygen Gen		4.160						
9507 Intelligent Autonomy Technology Transition		2.476						
9508 Intelligent Control System for SWARM		3.764						
9510 Silver Fox UAV		4.952						
A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.								

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Exhibit R-2, RDTEN Budget Item Justification  
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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY /BA-4</b>	R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability	
<p>(U) Project W0584 develops protective clothing and devices to safeguard aircrew against environmental and physiological threats/hazards during flight and escape. Project W0584 strives to improve the full spectrum of life support equipment ranging from advanced laser eye protection to integrated life support systems to ejection and crashworthiness. In addition to protection, project W0584 enhances situational awareness and target acquisition through the development of helmet mounted displays (HMDs) and smart integrated life support systems. W0584 develops and transitions state-of-the-art life support equipment and protective devices to optimize human/warfighter effectiveness, safety, and survival. Projects 0591, 0592, and 1819 focus on platform survivability, addressing the reductions in aircraft susceptibility to enemy and non-combat threats, as well as aircraft vulnerabilities to conventional, nuclear, chemical, biological, radiological and directed energy weapons. The Aircraft Survivability, Vulnerability and Safety project expands the survivability technology base and develops prototype hardware which is required to improve the survivability of Naval aircraft. Aircraft and Ordnance Safety transitions generic insensitive munitions technology to Navy and Marine Corps air weapons, ensuring that they are insensitive to fast cook-off, slow cook-off, and fragment impact and sympathetic detonation. Carrier Aircraft Fire Suppression Systems develops improved fire fighting systems and fire protective measures for aircraft carriers. Project 9170 (Congressional Add) will shift from traditional cathode ray tube (CRT) based helmet mounted displays to a reflective liquid crystal (RLCD) displays using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. As part of the design goals, the ability to add fixed line laser eye protection to the visor assembly will be explored. Project 9173 (Congressional Add) will address the level of protection afforded and feasibility of an external rotorcraft airbag and development of "predictive" crash sensors. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway. Project 9346 reflects a Congressional Add that will fund an equipment life extension laboratory for definition of systems no longer procurable but critical to functionality of weapons systems. Project 9505 (Congressional Add) will support an engineering facility to modify and optimize effective new aviation and information technologies to port the capability over to small maritime craft for special operations. Project 9506 (Congressional Add) will support the feasibility of integrating a Ceramic Oxygen Generator (COGS) into aircraft. Project 9507 (Congressional Add) will support and demonstrate a higher level of Autonomy and Artificial Intelligence for Unmanned Systems to allow them to operate and be accepted in a manned environment. Project 9508 (Congressional Add) develop SWARM, a system consisting of many low cost UAVs (Unmanned Air Vehicles) operating autonomously to achieve a mission with minimum operator intervention. Project 9510 (Congressional Add) will support the assessment of Silver Fox's ability to provide surveillance during mine clearing operations.</p>		

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EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RDT&E, N / BA-4		0603216N Aviation Survivability			0584 Aircrew Protective Clothing and Devices			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.794	4.519	2.834	2.512	2.564	2.618	2.672	2.727
RDT&E Articles Qty								
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> Project 0584 develops, demonstrates, and validates technology options for integrated aircrew emergency and life support systems designed to enhance mission effectiveness, in-flight protection and survivability. The project covers fixed and rotary wing life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and cockpit integration programs. It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological (CB) Protection, OR#099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF 208-93) for an Aerospace Control Helmet Mounted Cueing System. This project also includes a Congressional plus up for the development of an Air Bag Attenuated Airborne Troop Seat. This efforts goal is to use air bag technology to produce an energy attenuating seating system that is more efficient, more capable, and lighter.</p>								

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices																																
<b>B. Accomplishments/Planned Program</b>																																		
<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <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> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">1.760</td> <td style="text-align: center;">2.079</td> <td style="text-align: center;">1.304</td> <td style="text-align: center;">1.156</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>Advanced Integrated Life Support System (AILSS) program.</b> Exercise option to begin the development of frequency Agile flight worthy unity magnification goggles (laser eye protection). Laboratory and field testing of Agile flight worthy goggles prototypes. Focus on alternative materials and optical design to maximize performance. Finalize unity magnification frequency Agile flight worthy goggles and ready for EMD transition. Integrate Smart Advanced Integrated Life Support System (SAILSS) with on-board oxygen and personal air conditioning systems. Integration of SAILSS with focus on imbedded microsensors and personal air conditioning system. Tactical variant of AILSS (TAILSS), move SAILSS into final phases of laboratory testing. Crewstation technology laboratory demonstration of Active Network Guidance Emergency Logic (ANGEL). System integration laboratory demonstration of ANGEL. Combine flight testing of on board/off board data correlation and ANGEL.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <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> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td style="text-align: center;">2.034</td> <td style="text-align: center;">2.440</td> <td style="text-align: center;">1.530</td> <td style="text-align: center;">1.356</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px;"> <p><b>Advanced Technology Crew Station (ATCS) program.</b> System integration and flight testing of Advanced Helmet Vision System enhanced resolution Crusader. I2/Thermal mode control studies. Pilot Vehicle Interface (PVI) on-board/off board data correlation on test aircraft and began flight testing. Advanced Technology Escape System (ATES) ejection seat trajectory and crashworthy seat stroke models with biodynamic models exploring various integrated aircrew head/neck protection configurations for ejection safe helmet mounted systems. Incorporate computational fluid dynamics and parachute models. Preliminary ergonomic seating design, validated BioRID performance and mature final version. Incorporate models of helmet mounted displays into the PVI to support testing and validation of on board/off board data correlation. Horizontal accelerator/vibrating platform assessment of ergonomics, posture, and crashworthiness. Development of Charge Coupled Device (CCD) based, high resolution Advanced Helmet Vision System (follow on to the low resolution Crusader HMD). Integrate results of injury prevention research into protective equipment to include helmet mounted devices and into ejection seat design for improved seal performance, retention, and safety. Development and testing of side facing seat and improved restraint system. Focus on shock and vibration work.</p> </div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.760	2.079	1.304	1.156	RDT&E Articles Quantity						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	2.034	2.440	1.530	1.356	RDT&E Articles Quantity				
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Exhibit R-2a, RDTEN Project Justification  
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EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices		

**C. PROGRAM CHANGE SUMMARY:**

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	3.827	2.441	2.457	2.482
Current BES/President's Budget	3.794	4.519	2.834	2.512
Total Adjustments	-0.033	2.078	0.377	0.030
Summary of Adjustments				
Congressional undistributed reductions		-0.021		
SBIR/STTR Transfer	-0.029			
OSD		-0.001	0.353	-0.002
Navy Misc. Adjustments	-0.004		0.024	0.032
Congressional increases		2.100		
Subtotal	-0.033	2.078	0.377	0.030

Schedule:

Not Applicable

  
  
  

Technical:

Not Applicable.

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

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## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-4</b>			0603216N Aviation Survivability			0584 Aircrew Protective Clothing and Devices						
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	Various	Various				1.140	Various	1.187	Various	Continuing	Continuing	
Systems Engineering	WR	NAWCAD Pax River, MD	22.117	3.179	Various	0.884	Various	0.515	Various	Continuing	Continuing	
Systems Engineering	C/CPFF	McDonnell Douglas, St Louis	1.325								1.325	1.325
Systems Engineering	C/CPFF	Boeing, Seattle, WA	1.660								1.660	1.660
Systems Engineering	Various	Various	10.915								10.915	
Licenses	Various	Various				0.180	Various	0.180	Various	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			36.017	3.179		2.204		1.882		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management	Various	Various	3.232	0.448	Various						3.680	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			3.232	0.448		0.000		0.000		0.000	3.680	
Remarks:												

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**CLASSIFICATION:**

Exhibit R-3 Cost Analysis (page 2)										DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>			PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 0584 Aircrew Protective Clothing and Devices					
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	Various	Various	18.240	0.882	Various	0.200	Various	0.200	Various	Continuing	Continuing	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			18.240	0.882		0.200		0.200		Continuing	Continuing	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WR	NAWCAD Pax River, MD				0.410	Various	0.410	Various	Continuing	Continuing	
Travel	WR	NAWCAD Pax River, MD	0.135	0.010	10/04	0.020	10/05	0.020	10/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.135	0.010		0.430		0.430		Continuing	Continuing	
Remarks:												
Total Cost			57.624	4.519		2.834		2.512		Continuing	Continuing	
Remarks:												



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EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-4												0603216N Aviation Survivability												0584 Aircrew Protective Clothing and Devices											
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	1	2	3	4			
Program Milestones																																			
Agile Laser Eye Protection																																			
Unity Magnification Goggle																																			
Intensified Unity Mag Goggle																																			
Advance Helmet Vision System (AHVS)																																			
Crusader																																			
Visually Coupled Display (high resolution)																																			
Adanced Integrated Life Support System (AILSS)																																			
Tactical AILSS (TAILSS)																																			
Smart AILSS (SAILSS)																																			
Injury Prevention																																			
T&E Milestones																																			
AHVS laboratory testing																																			
ANGEL																																			
Advanced Technology Crew Station (ATCS)																																			

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\* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4, Schedule Profile  
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[illegible]

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**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 10 of 68)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety			
COST (\$ in Millions)	2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.951	6.080	1.572	1.601	1.639	1.671	1.703	1.740
RDT&E Articles Qty	2	23						

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems and the Military Flight Operations Quality Assurance (MFOQA).

\*RDT& E,N test articles include Military Flight Operations Quality Assurance (**MFOQA**) units.

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety																	
<b>B. Accomplishments/Planned Program</b>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.100	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>Unmanned Aerial Vehicles (UAV) Survivability Enhancement Program (SEP):</b>            This program will develop and test survivability enhancements for UAV platforms. Included are Advanced Insulated Exhaust Systems, Situational Awareness Systems, Self-sealing polymers, and acoustic signature reduction.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 15%;">FY04</td> <td style="width: 15%;">FY 05</td> <td style="width: 15%;">FY 06</td> <td style="width: 15%;">FY 07</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.306</td> <td>0.963</td> <td>0.100</td> <td>0.000</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.306	0.963	0.100	0.000	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	1.306	0.963	0.100	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>Transport/Reconnaissance Survivability Enhancement Program (TR/SEP):</b>            This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for transport and reconnaissance aircraft to include KC-130J, P-3/MMA, E-6B and others. Fabrication, integration and test will occur in FY05.</p> </div>																			
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Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.188	0.087	0.100	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>Advanced Threats:</b>                      This program assessed the vulnerability of USN/USMC aircraft materials and sensors to low-level laser, high level laser and high power microwave threats (FY 02-FY-04). In FY 04, the advanced 35mm threat will be assessed. In FY06, Remotely Propelled Grenades (RPGs) and other similar threats will be assessed.                 </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <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;">0.030</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.030</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.000	0.030	0.000	0.030	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.030	0.000	0.030															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>Biannual Update of R&amp;D Master Plan:</b>                      Supports outyear aircraft survivability R&amp;D requirements.                 </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <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;">0.100</td> <td style="text-align: center;">0.150</td> <td style="text-align: center;">1.208</td> <td style="text-align: center;">1.352</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.100	0.150	1.208	1.352	RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.100	0.150	1.208	1.352															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>Rotorcraft Survivability Enhancement Program:</b>                      This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for rotorcraft to include H-1 variants, H-53, H-60 and V-22. FY05 work will determine system requirements and technology suitable for demonstration.                 </div>																			

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety																	
<b>B. Accomplishments/Planned Program (Cont.)</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <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;">0.100</td> <td style="text-align: center;">0.050</td> <td style="text-align: center;">0.064</td> <td style="text-align: center;">0.069</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	0.100	0.050	0.064	0.069	RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost	0.100	0.050	0.064	0.069															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>Survivability Analysis Methodology Update:</b>                      This program will update USN/USMC Vulnerability models (Computation of Vulnerable Area and Repair Time (COVART)), Advanced Joint Effectiveness Model (AJEM) to ensure the most up to date analysis tools. This will include updating component probability of kill (PK) data as necessary and will assess conversion methodologies such as Pro/engineer (PRO/E) Computer Aided Design (CAD) model conversion to Facet Generator (FASTGEN) used to show ballistic shot lines.                 </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <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;">1.157</td> <td style="text-align: center;">4.800</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td style="text-align: center;">2</td> <td style="text-align: center;">23</td> <td></td> <td></td> </tr> </table>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost	1.157	4.800	0.000	0.000	RDT&E Articles Quantity	2	23		
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	1.157	4.800	0.000	0.000															
RDT&E Articles Quantity	2	23																	
<div style="border: 1px solid black; padding: 5px;"> <b>MFOQA</b>                      Conduct an MFOQA flight demonstration on multiple fleet platforms (F/A-18, H-60, H-53, T-45, V-22, C-40) that includes: Develop requirements for MFOQA parameter selection and standardization. Develop and refine a concept of operations (CONOPS) for MFOQA in the DON. Develop an implementation plan/acquisition strategy for future fleet-wide introduction of MFOQA. RDT&amp;E articles in FY04 were required for data recorders for T-45.                 </div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.100	0.150															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>Fixed Wing Survivability Enhancement Program (FW SEP)</b>                      This program will develop and test survivability enhancements (i.e., Infrared (IR) engine suppression, new ballistic armor and fire protection) for fixed wing aircraft to include F/A-18E/F/G and JSF. FY 06/07 work will determine system requirements and technology suitable for demonstration.                 </div>																			

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 0591 Aircraft Survivability, Vulnerability and Safety		

**C. PROGRAM CHANGE SUMMARY:**

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	7.408	6.543	1.558	1.582
Current/BES President's Budget	2.951	6.080	1.572	1.601
Total Adjustments	-4.457	-0.463	0.014	0.019
Summary of Adjustments				
Congressional undistributed reductions		-0.062		
SBIR/STTR Transfer	-0.012			
Navy Misc. Adjustments	-4.445	-0.401	-0.001	-0.001
Economic Assumptions			0.015	0.020
Subtotal	-4.457	-0.463	0.014	0.019

Schedule:

Not Applicable

  
  
  

Technical:

Not Applicable

R-1 SHOPPING LIST - Item No. 31

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>																																				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>			PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 0591 Aircraft Survivability , Vulnerability and Safety																																					
<p><b>D. OTHER PROGRAM FUNDING SUMMARY:</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. &amp; Name</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2004</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2005</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2006</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2007</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2008</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2009</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2010</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2011</th> <th style="text-align: center; border-bottom: 1px solid black;">To Complete</th> <th style="text-align: center; border-bottom: 1px solid black;">Total Cost</th> </tr> </thead> <tbody> <tr> <td colspan="11" style="padding-top: 10px;">PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)</td> </tr> <tr> <td colspan="11" style="padding-top: 5px;">PE 0603384D (Chemical/Biological Defense (Advanced Development))</td> </tr> </tbody> </table> <p style="margin-top: 20px;"><b>E. ACQUISITION STRATEGY:</b></p> <p style="margin-top: 10px;">Military Flight Operations Quality Assurance (MFOQA) utilizes existing aircraft hardware, and a combination of existing Commercial Off The Shelf (COTS) and Government Off The Shelf (GOTS) ground analysis tools. A competitive contract will be awarded to meet the increased aircraft recorder requirements for the demonstration platforms. The program will integrate with existing aircraft systems that are currently post-MS III, utilizing existing contract vehicles to add MFOQA capabilities to demonstrate platform systems.</p>											Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost	PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)											PE 0603384D (Chemical/Biological Defense (Advanced Development))										
Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost																																	
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R-1 SHOPPING LIST - Item No. 31

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## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-4</b>			0603216N Aviation Survivability			0591 Aircraft Survivability, Vulnerability and Safety						
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	SS/CPFF	INS/LITTON	0.849	0.199	11/04						1.048	1.048
Primary Hardware Development	SS/CPFF	BOEING, ST. LOUIS, MO	0.725	0.633	11/04						1.358	1.358
Primary Hardware Development	SS/CPFF	Lockheed, Marietta, GA	0.322	0.188	11/04	0.798	11/05	0.387	11/06	Continuing	Continuing	
Primary Hardware Development	SS/CPFF	Sikorsky, Connecticut	3.113								3.113	3.113
Primary Hardware Development	SS/CPFF	BAE (UAV)	1.175								1.175	1.175
Systems Engineering	WX	VARIOUS	7.766	0.422	10/04	0.250	11/05	0.250	11/06	Continuing	Continuing	
Primary Hardware Development	WX	VARIOUS	0.673								0.673	
Primary Hardware Development	SS/CPFF	Bell Helicopter	1.307								1.307	
Primary Hardware Development	SS/CPFF	MR&D/COI	0.442								0.442	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			16.372	1.442		1.048		0.637		Continuing	Continuing	
Remarks:												
Development Support, MFOQA	WX	NSWC, Carderock, MD	2.483	2.356	12/04						4.839	
Software Development, MFOQA	TBD	BOEING, ST. LOUIS, MO	1.012	0.978	11/04						1.990	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	WX	VARIOUS	0.279								0.279	
Studies & Analyses	CPFF	SURVICE Inc.	0.150	0.075	11/04	0.250	11/05	0.185	11/06	Continuing	Continuing	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			3.924	3.409		0.250		0.185		Continuing	Continuing	
Remarks:												

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDTE, N / BA-4</b>			0603216N Aviation Survivability			0591 Aircraft Survivability, Vulnerability and Safety						
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	1.922	0.556	10/04	0.200	11/05	0.700	11/06	Continuing	Continuing	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation	WX	NAWCWD, CA	0.350								0.350	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			2.272	0.556		0.200		0.700		Continuing	Continuing	
Remarks:												
Contractor Engineering Spt, MFOQA	WX	NAWCAD, Pax River, MD	0.613	0.613	02/05						1.226	
Government Engineering Support											0.000	
Program Management Support	WX	NAWCAD, Pax River, MD	0.120	0.050	10/04	0.064	11/05	0.069	11/06	Continuing	Continuing	
Travel	WX	NAWCAD, Pax River, MD	0.225	0.010	10/04	0.010	11/05	0.010	11/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.958	0.673		0.074		0.079		Continuing	Continuing	
Remarks:												
Total Cost			23.526	6.080		1.572		1.601		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-4										0603216N Aviation Survivability										0591 Aircraft Survivability, Vulnerability and Safety												
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				
<b>Program Milestones</b>																																
<b>Advanced Fire Protection</b>																																
System Design Review																																
Ballistic Tests																																
Test Report																																
<b>UAV/SEP</b>																																
Ground/Flight Tests																																
Integration Report																																
<b>TR/SEP</b>																																
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Test Plan Review																																
Ground/Flight Tests																																
Integration Report																																
<b>Advanced Threats</b>																																
High Power Laser Report																																
35mm Component Test Report																																
<b>Survivability Master Plan Update Reports</b>																																
<b>Survivability Analysis Methodology</b>																																
Platform Vulnerability Report																																
Component Probability of Kill (PK) Report																																
<b>Rotocraft SEP</b>																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																
Integration Report																																
<b>Fixed Wing SEP</b>																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																
<b>Unmanned Combat Aerial Vehicle (UCAV) SEP Tech Demo</b>																																
Tech Demo Downselect																																
System Design Review																																
Test Plan Review																																
Ground/Flight Tests																																

R-1 SHOPPING LIST - Item No. 3331

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## CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE:		
APPROPRIATION/BUDGET ACTIVITY						FEBRUARY 2005		
RDT&E, N / BA-4						0591 Aircraft Survivability, Vulnerability and Safety		
Schedule Profile	2004	2005	2006	2007	2008	2009	2010	2011
Advanced Fire Protection System Design Review								
Advanced Fire Protection Ballistic Tests	1Q-2Q							
Advanced Fire Protection Test Report	2Q							
UAV/SEP Ground/Flight Tests	1Q-2Q							
UAV/SEP Integration Report	1Q-2Q							
TR/SEP System Design Review	1Q							
TR/SEP Test Plan Review	3Q							
TR/SEP Ground/Flight Tests		1Q						
TR/SEP Integration Report		4Q						
Advanced Threats High Power Laser Report	3Q							
Advanced Threats 35mm Component Test Report		4Q						
Survivability Master Plan Update Reports		4Q		4Q		4Q		
Survivability AnalysisMethodology Update-Platform Vulner	4Q							
Survivability AnalysisMethodology Update-Component								
probability of Kill (PK) Report		4Q						
Rotorcraft SEP Tech Demo Downselect		1Q						
Rotorcraft SEP System Design Review			1Q					
Rotorcraft SEP Test Plan Review			3Q					
Rotorcraft SEP Ground/Flight Tests				1Q				
Rotorcraft SEP Integration Report				4Q				
Fixed Wing SEP Tech Demo Downselect			1Q					
Fixed Wing SEP System Design Review					1Q			
Fixed Wing SEP Test Plan Review					3Q			
Fixed Wing SEP Ground/Flight Tests						1Q		
Unmanned Combat Aerial Vehicle (UCAV) SEP Tech								
Demo Downselect					1Q			
UCAV SEP System Design Review							1Q	
UCAV SEP Test Plan Review							3Q	
UCAV Ground/Flight Tests								1Q

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

Exhibit R-4a, Schedule Detail  
(Exhibit R-4a, page 20 of 68)

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: FEBRUARY 2005									
APPROPRIATION/BUDGET ACTIVITY									MFOQA																								
RDT&E, N / BA-4									PROGRAM ELEMENT NUMBER AND NAME																PROJECT NUMBER AND NAME								
									0603216N Aviation Survivability																0591 Aircraft Survivability, Vulnerability and Safety								
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																																	
MFOQA Parameter Selection																																	
MFOQA Version 1 Release																																	
MFOQA Version 2 Release																																	
Report																																	
Systems Integration																																	
Flight Demos																																	
CONOPS/Fleet Implementation Plan																																	
Production Milestones																																	
Deliveries																																	

**UNCLASSIFIED**

**CLASSIFICATION:**

[illegible]

R-1 SHOPPING LIST - Item No. 31

**UNCLASSIFIED**

**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 22 of 68)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability				PROJECT NUMBER AND NAME 0592, Aircrfat & Ordnance Safety			
COST (\$ in Millions)	FY2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	1.345	1.237	1.278	1.536	1.568	1.601	1.633	1.667
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft and Ordnance Safety Program transitions transformational munitions technology to Navy and Marine Corps air weapons, to comply with the Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to unplanned stimuli (thermal, impact, and shock events). The Aircraft and Ordnance Safety Program also ensures the safety and protection of personnel, aircraft, ships, and operational facilities, through improved precision targeting, fail-safe ordnance, selective effects munitions and shock/blast force protection technologies.

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EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.130	0.216															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>REACTIVE MATERIALS:</b>            Continue evaluating reactive material warheads for Insensitive Munitions (IM) compliance.             Output: IM characterization of warheads with reactive material components.         </div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	0.248	0.100	0.112	0.135															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>SYMPATHETIC DETONATION PROTECTION:</b>            Demonstrate pumice as a sympathetic detonation (SD) barrier for weapon shipping containers. Refine pumice design capability for SD mitigation.             Output: New modeling capabilities and demonstrated technology to reduce the threat of SD in Joint Stand-Off Weapon (JSOW) and General Purpose (GP) bomb Munitions.         </div>																			
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Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.210	0.156															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <b>IMPROVED NAVY IM BOMB:</b>            Analysis/Design/Demonstration of an improved IM Navy Bomb that will mitigate SD and Cook-off threats             Output: qualification of an IM compliant Navy Bomb         </div>																			



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety																	
<b>B. Accomplishments/Planned Program (Cont.)</b>																			
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Accomplishments/Effort/Subtotal Cost	0.378	0.000	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>COMPOSITE CASE IM DEMONSTRATION:</b>  Conduct composite case Insensitive Munitions (IM) testing demonstration. Begin long range air to surface composite case IM demonstration.</p> <p>Output: Flight demo of composite case weapon airframe for air to air/ground missile.</p> </div>																			
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Accomplishments/Effort/Subtotal Cost	0.277	0.404	0.205	0.136															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>AIR TO AIR MISSILE PROPULSION SYSTEM DEMO/TESTING:</b>  Conduct improved air to air missile demonstration and testing.</p> <p>Output: baseline IM performance of air breathing systems.</p> </div>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>SHOCK/BLAST BARRIER PROTECTION DEMO/TESTING:</b>  Conduct shock/blast protection demonstration and testing.</p> <p>Output: Design and demonstration of shock absorbent materials for the protection of weapons and weapon platforms.</p> </div>																			

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability	PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety																	
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><b>IMPROVED AIR LAUNCHED WEAPONS:</b> Demonstrate improved air launched munitions for force protection and homeland defense.  Output: Demonstrate/determine the IM and safety characteristics of improved air launched munitions.</div>																			
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Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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**CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			FEBRUARY 2005	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	0603216N, Aviation Survivability	0592, Aircraft & Ordnance Safety		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	1.346	1.248	1.266	1.517
Current BES/President's Budget	1.345	1.237	1.278	1.536
Total Adjustments	-0.001	-0.011	0.012	0.019
Summary of Adjustments				
Congressional undistributed reductions		-0.011		
Navy Misc. Adjustments			-0.001	-0.001
Economic Assumptions			0.013	0.020
Subtotal	0.000	-0.011	0.012	0.019
Schedule: Not Applicable				
Technical: Not Applicable				

R-1 SHOPPING LIST - Item No. 31

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**Exhibit R-2a, RD TEN Project Justification**  
(Exhibit R-2a, page 27 of 68)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / BA-4</b>			PROGRAM ELEMENT NUMBER AND NAME 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety			

**D. OTHER PROGRAM FUNDING SUMMARY:**

Line Item No. & Name	FY2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
0604802A, Department of Army 0603609N, Conventional Munitions										

**E. ACQUISITION STRATEGY:**

The Aircraft and Ordnance Safety Project acquisition strategy consists of actions (technology transition) which are intended to assist the improvement of NAVAIR-cognizant munitions. Specific task planning involves close coordination with the program offices, field activities, and the IM and IMAD offices. Primary considerations in planning address windows of opportunity within the overall system procurement/life cycle, including milestone II (E&MD), P3I, and PIP events. Munition system design elements involving IM response risk (existing or anticipated) are analyzed in relation to proven and available IM technologies applicable to improvements in those design elements. When it is established that a system can probably be improved by implementing new technology and a window of opportunity for transition is available, the greatest overall improvement in fleet safety regarding IM response risk is the final deciding factor used to prioritize task selection for funding from limited resources.

R-1 SHOPPING LIST - Item No. 31

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# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N, Aviation Survivability			0592, Aircraft & Ordnance Safety						
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											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	WX	NAWCWD CHINA LAKE, CA	19.195	1.205	10/04	1.248	11/05	1.506	11/06	Continuing	Continuing	
Systems Engineering											0.000	
Training Development											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			19.195	1.205		1.248		1.506		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / BA-4</b>			PROGRAM ELEMENT 0603216N, Aviation Survivability			PROJECT NUMBER AND NAME 0592, Aircraft & Ordnance Safety						
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			0.052								0.052	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.052	0.000		0.000		0.000		0.000	0.052	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel	WX	NAWCWD CHINA LAKE, CA	0.180	0.032	10/04	0.030	11/05	0.030	11/06	Continuing	Continuing	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.180	0.032		0.030		0.030		Continuing	Continuing	
Remarks:												
Total Cost			19.427	1.237		1.278		1.536		Continuing	Continuing	
Remarks:												

# UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:															
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME												FEBRUARY 2005			
RDT&E, N / BA-4												0603216N, Aviation Survivability												0592, Aircrfat & Ordnance Safety															
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	1	2	3	4							
Reactive Materials																																							
Sympathetic Detonation Protection																																							
Composite Case IM Demonstration																																							
Air to Air Missile Propulsion System																																							
Shock/Blast Barrier Protection																																							
Improved Air Launched Weapon																																							
Improved Navy IM Bomb																																							

R-1 SHOPPING LIST - Item No. 31

\* Not required for Budget Activities 1, 2, 3, and 6

# UNCLASSIFIED

**Exhibit R-4, Schedule Profile**  
(Exhibit R-4, page 31 of 68)

**UNCLASSIFIED**

**CLASSIFICATION:**

[illegible]

R-1 SHOPPING LIST - Item No. 31

**UNCLASSIFIED**

**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 32 of 68)



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 1819 Carrier Vehicle Aircraft Fire Suppression System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010	FY2011
Project Cost	0.739	0.583	0.571	0.706	0.721	0.737	0.751	0.768
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops improved fire fighting systems and fire protective measures for aircraft related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire fighter training improvements.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 1819 Carrier Vehicle Fire Suppression System		

  

**B. Accomplishments/Planned Program**

	FY 04	FY 05	FY06	FY07
Accomplishments/Effort/Subtotal Cost	0.090	0.020	0.050	0.086
RDT&E Articles Quantity				

**Fire Fighting Agents:** Evaluate new or modified agents which adequately address changing agent restrictions or technical needs. Objective is to ensure that periodic, but unpredictable, restrictions on agent production or use, primarily driven by the environmental and toxicological fields, do not negatively impact fleet safety.

  

	FY 04	FY 05	FY06	FY07
Accomplishments/Effort/Subtotal Cost	0.281	0.334	0.233	0.268
RDT&E Articles Quantity				

**Fire Fighting Systems:** Evaluate system automation features and demonstrate enhancements to personnel protection equipment. Objective is to evaluate system hardware for effectiveness against updated fire threats.

  

	FY 04	FY 05	FY06	FY07
Accomplishments/Effort/Subtotal Cost	0.368	0.229	0.288	0.352
RDT&E Articles Quantity				

**Fire Fighting Tactics:** Evaluate reduced manning impact and resultant modifications to tactics. Provide opportunities for training during agent/system testing. Objective is to maintain emergency capabilities as reductions in manpower draw from available response crews.

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R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 1819 Carrier Vehicle Aircraft Fire Suppression System					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>FY2011</u>	<u>To Complete</u>	<u>Total Cost</u>
Not applicable										
<b>E. ACQUISITION STRATEGY:</b>										
Not applicable										

R-1 SHOPPING LIST - Item No 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.330	4.160						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This funding will support the shift from traditional CRT based helmet mounted displays to a reflective liquid crystal display using laser projection. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. The AHVS is composed of two modules. The outer helmet module is a binocular, multi-spectral (day, night, NVG, FLIR) visor projected display . Communications equipment, improved hearing protection, and oxygen mask are mounted to the inner module, which is custom fitted to each aircrew. The inner module (helmet) provides a stable platform upon which mission specific outer modules are attached. Their concept reduces future development cost - designers would begin work from a stable, defined inner helmet platform with common attachment points. Separate helmet development would not be required for any future designs.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System																	
<b>B. Accomplishments/Planned Program</b>																			
<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: right;">2.330</td><td style="text-align: right;">4.160</td><td></td><td></td></tr><tr><td>RDT&amp;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	2.330	4.160			RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost	2.330	4.160																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><b>Modular Advanced Vision System</b> The initial design of the laser projected reflective LCD has been completed. This fundamental change in approach will significantly increase display resolution and brightness while reducing weight and center of gravity problems. Currently the laser source and associated relay optics are being fine tuned to improve manufacturability. Fit studies are assessing portion of the population accommodated by inner module and improving level of sound attenuation provided by hearing protection.</div>																			
<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></td><td></td><td></td><td></td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

31

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 38 of 68)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System		

**C. PROGRAM CHANGE SUMMARY:**

Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:	2.374	0.000		
Current BES/President's Budget	2.330	4.160		
Total Adjustments	-0.044	4.160	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.039		
Navy Misc. Adjustments	0.042	-0.001		
Economic Assumptions	0.002			
Congressional increases		4.200		
Subtotal	0.044	4.160	0.000	0.000

Schedule:

Not Applicable

  
  
  

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>			PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9170 Modular Advanced Vision System			

**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
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										

**E. ACQUISITION STRATEGY:**

Not Applicable

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	3.390	3.764						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will address the level of protection afforded and feasibility of a rotorcraft external airbag, and then to bring the capability to a production ready, aircraft fieldable status. While automotive airbag technology is relatively mature, this unique application will require much larger airbags, aircraft structural integration approach for mounting the airbags in a maintainable manner, and the development of a "predictive" crash sensor. Initial impact studies (water and ground) have already been conducted. Joint efforts with the Army for aircrew systems are already underway.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag																	
<b>B. Accomplishments/Planned Program</b>																			
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Accomplishments/Effort/Subtotal Cost	3.390	3.764																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><u><b>Rotocraft External Airbag</b></u>  Rotocraft application will require larger airbags integrated into the aircraft and development of a "predictive" crash sensors and algorithms. Initial impact studies (water and ground) have already been conducted. Two flight tests of the REAPS system onboard H-53 will be conducted.</div>																			
<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></td><td></td><td></td><td></td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 42 of 68)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag		

**C. PROGRAM CHANGE SUMMARY:**

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:	3.461			
Current BES/President's Budget	3.390	3.764		
Total Adjustments	-0.071	3.764	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.035		
SBIR/STTR Transfer	-0.068			
Navy Misc. Adjustments		-0.001		
Economic Assumptions	-0.003			
Congressional increases		3.800		
Subtotal	-0.071	3.764	0.000	0.000

Schedule:

Not Applicable

  
  
  

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9173 Rotocraft External Airbag					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	2.443	1.485						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized. The alternative of modifying and updating aircraft and weapons systems to accept new technologies is cost prohibitive.

R-1 SHOPPING LIST - Item No. 31

**Exhibit R-2a, RDTEN Project Justification**  
(Exhibit R-2a, page 45 of 68)

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program																	
<b>B. Accomplishments/Planned Program</b>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><b>Equipment Life Extension Program</b> This effort will fund an equipment life extension laboratory for definition of systems no longer procurable that are critical to functionality of weapon systems. By equipping currently existing in house laboratories to maintain, modify, and update existing, non supported systems a significant cost reduction will be realized.</div>																			
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RDT&E Articles Quantity																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			
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R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program		

**C. PROGRAM CHANGE SUMMARY:**

	FY 2004	FY2005	FY2006	FY2007
Funding:				
Previous President's Budget:	2.472			
Current BES/President's Budget	2.443	1.485		
Total Adjustments	-0.029	1.485	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.015		
SBIR/STTR Transfer	-0.027			
Economic Assumptions	-0.002			
Congressional Increases		1.500		
Subtotal	-0.029	-0.015	0.000	0.000

Schedule:

Not Applicable

  
  
  

Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>February 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability		PROJECT NUMBER AND NAME 9346 Equipment Life Extension Program			

  

**D. OTHER PROGRAM FUNDING SUMMARY:**

<u>Line Item No. &amp; Name</u>	<u>FY 2003</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>To Complete</u>	<u>Total Cost</u>
PE 0602201F (Aerospace Flight Dynamics)									
PE 0602233N (Mission Support Equipment)									
PE 0604264N (Aircrew Systems Development)									
PE 0604706F (Life Support Systems)									
PE 06023231F (Crew Systems and Personal Protection Technology)									

  

**E. ACQUISITION STRATEGY:**

Not Applicable

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		1.882						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will establish a technology center to rapidly transition capabilities developed for air to sea environment. In particular, advanced display concepts, helmets, crashworthiness, energy absorbing systems, as well as basic injury component models are directly applicable and needed for fast attack boats and other surface application. Although developed for aircraft the technologies are directly applicable to the harsh surface environment. The resultant capability will establish a capability to rapidly modify and transition critical products.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center																	
<b>B. Accomplishments/Planned Program</b>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		1.882																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p><b><u>Advanced Maritime Technology Center</u></b></p><p>The Advanced Maritime Technology Center will be an engineering facility to modify / optimize effective new aviation and information technologies to port the capability over to small maritime craft for special operations. The key feature in designing small watercraft are mission / crew-centered innovations embodying technology drawn from advances in the areas of display design, crashworthiness, advanced restraint systems, helmet mounted displays , and supporting head / neck injury research,</p></div>																			
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Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 50 of 68)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
<b>RDTE, N / BA-4</b>	0603216N Aviation Survivability	9505 Advanced Maritime Technology Center		
<b>C. PROGRAM CHANGE SUMMARY:</b>				
Funding:	FY 04	FY 05	FY 06	FY 07
Previous President's Budget:		0.000		
Current BES/President's Budget		1.882		
Total Adjustments	0.000	1.882	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.018		
Congressional increases		1.900		
Subtotal	0.000	1.882	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9505 Advanced Maritime Technology Center					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		4.160						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will begin research that will primarily be devoted to advancing the oxygen generating technology using ceramic membranes. To integrate Ceramic Oxygen Generators (COGS) into an aircraft work will be required to conserve oxygen using pulse dosing breathing regulators, monitoring aircrew via user acceptable sensors and biofeedback technology, and improving real-time oxygen sensing capability.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator																	
<b>B. Accomplishments/Planned Program</b>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost		4.160																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p><b><u>Integrated Manifold and Tube Ceramic Oxygen Generator</u></b></p><p>This effort will complete a currently unfunded effort to build and flight test a molecular sieve based oxygen concentrator with built in diagnostics and dilution control via external input. The research will focus on advancing the oxygen generating technology using ceramic membranes. To integrate COGS into an aircraft will require a method to conserve oxygen using pulse dosing breathing regulators, monitoring aircrew via user acceptable sensors and biofeedback technology, and improving real-time oxygen sensing capability. An alternative advanced Oxygen Generating Technology will also be pursued to improve fleet oxygen systems as ceramic technology matures. This effort will complete a currently unfunded effort to build and flight test a molecular sieve based oxygen concentrator that has built in diagnostics and dilution control via external input</p></div>																			
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	FY 04	FY 05	FY 06	FY 07															
Accomplishments/Effort/Subtotal Cost																			
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification  
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# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator		

**C. PROGRAM CHANGE SUMMARY:**

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:				
Current BES/President's Budget		4.160		
Total Adjustments	0.000	4.160	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.039		
Navy Misc. Adjustments		-0.001		
Congressional increases		4.200		
Subtotal	0.000	4.160	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9506 Integrated Manifold & Tube Ceramic Oxygen Generator					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

R-1 SHOPPING LIST - Item No. 31

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# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		2.476						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will focus on transitioning advancements and COTS technology into Unmanned Systems. The capability will greatly expand DoD's tactical options while safeguarding the warfighter. Physical limits on bandwidth and network connectivity require future devices to have high levels of organic autonomy to support the envisioned scenarios. Core technologies include sensing, data fusion, situational awareness, and intelligent autonomous operations, replanning, systems management and group cooperation. The funding will be used to demonstrate a higher level of Autonomy and Artificial Intelligence for Unmanned Systems to allow them to operate and be accepted in a manned environment. A high level of autonomy is required to achieve manpower reduction goals, data-link bandwidth limitations, and covert operations. The challenge is integrating new technology into existing military unmanned craft and finding a Research and Development/Test and Integration Center to host developmental testing. Autonomous systems are non-deterministic which are very difficult to test/certify. The current effort attempts to break this cycle of cost increases for unmanned systems by developing control algorithms and low cost high bandwidth data links to connect the UAVs to the control systems.

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>FEBRUARY 2005</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition		
<b>B. Accomplishments/Planned Program</b>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		2.476		
RDT&E Articles Quantity				
<div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><b><u>Intelligent Autonomy Technology Transition</u></b>  A high level of autonomy is required to achieve manpower reduction goals, data-link bandwidth limitations, and covert operations. The challenge is integrating new technology into existing military unmanned craft and finding a Research and Development/Test and Integration Center to host developmental testing. Autonomous systems are non-deterministic which are very difficult to test/certify. The current effort attempts to break this cycle of cost increases for unmanned systems by developing control algorithms and low cost high bandwidth data links to connect to UAV's to the control system.</div>				
	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 58 of 68)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition		

**C. PROGRAM CHANGE SUMMARY:**

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:				
Current BES/President's Budget		2.476		
Total Adjustments	0.000	2.476	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.023		
Navy Misc. Adjustments		-0.001		
Congressional increases		2.500		
Subtotal	0.000	2.476	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9507 Intelligent Autonomy Technology Transition					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
(U) PE 0602201F (Aerospace Flight Dynamics)										
(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

UNCLASSIFIED

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		3.764						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program will develop an intelligent control system for the next generation of UAVs, with particular applicability for the SWARM UAV concept. The developed technology would have the capability for coordinated control of multiple UAVs and have processing capabilities required for responding to threat assessment for chemical, biological and nuclear detection sensors. Technology transfers to industry will be included in the program to establish an industrial base to support Defense applications.

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM																	
<b>B. Accomplishments/Planned Program</b>																			
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Accomplishments/Effort/Subtotal Cost		3.764																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p><b><u>Intelligent Control System for SWARM</u></b></p><p>The ultimate goal is to develop an intelligent control system that will demonstrate autonomous operations and cooperative behavior for persistent surveillance. The objective is to identify, acquire, and integrate, available technologies to develop prototype SWARM UAVs for test and evaluation. Specific tasks include: 1) identifying available components such as airframes, avionics controls, communication software, and sensors suitable for SWARM applications, 2) evaluating existing technologies and determining required enhancements, 3) algorithm and software development to control several vehicles in the air simultaneously, 4) cooperative behavior such that the vehicles positions are simultaneously tracked on the mission plan map.</p></div>																			
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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM		

**C. PROGRAM CHANGE SUMMARY:**

	FY 04	FY 05	FY 06	FY 07
Funding:				
Previous President's Budget:				
Current BES/President's Budget		3.764		
Total Adjustments	0.000	3.764	0.000	0.000
Summary of Adjustments				
Congressional undistributed reductions		-0.035		
Navy Misc. Adjustments		-0.001		
Congressional increases		3.800		
Subtotal	0.000	3.764	0.000	0.000
Schedule:				
Not Applicable				
Technical:				
Not Applicable.				

R-1 SHOPPING LIST - Item No. 31

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9508 Intelligent Control System for SWARM					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
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(U) PE 0602233N (Mission Support Equipment)										
(U) PE 0604264N (Aircrew Systems Development)										
(U) PE 0604706F (Life Support Systems)										
(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>FEBRUARY 2005</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME 9510 Silver Fox UAV			
COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost		4.952						
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This effort will further accelerate the development of small, low-cost, unmanned air vehicles for Navy ship operations, marine mammal detection, submarine detection, tactical support for ground troops and special operations forces - including convoy protection perimeter defense. This effort will continue airframe, engine, and sensor development, as well as the integration of the Autonomous Intelligent Network of Systems (AINS) program to support autonomous intelligent networks of UAVs.

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2005</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603216N Avation Survivability	PROJECT NUMBER AND NAME 9510 Silver Fox UAV																	
<b>B. Accomplishments/Planned Program</b>																			
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Accomplishments/Effort/Subtotal Cost		4.952																	
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 10px; min-height: 100px;"><p><b><u>Silver Fox UAV</u></b></p><p>Support the assessment of Silver Fox's ability to provide surveillance during mine clearing operations. In particular, search and scan patterns will be assessed and optimized. Key areas of study include determining resolution and field of view of the sensor as function of altitude and mission profile.</p></div>																			
<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></td><td></td><td></td><td></td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>						FY 04	FY 05	FY 06	FY 07	Accomplishments/Effort/Subtotal Cost					RDT&E Articles Quantity				
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<p><b>C. PROGRAM CHANGE SUMMARY:</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: right;">FY 04</th> <th style="width: 10%; text-align: right;">FY 05</th> <th style="width: 10%; text-align: right;">FY 06</th> <th style="width: 10%; text-align: right;">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></td> <td style="text-align: right;">4.952</td> <td></td> <td></td> </tr> <tr> <td>Current BES/President's Budget</td> <td></td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>    Congressional program reductions</td> <td></td> <td style="text-align: right;">-0.047</td> <td></td> <td></td> </tr> <tr> <td>    Congressional undistributed reductions</td> <td></td> <td style="text-align: right;">-0.047</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></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    OSD</td> <td></td> <td style="text-align: right;">-0.001</td> <td></td> <td></td> </tr> <tr> <td>    Navy Misc. Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Economic Assumptions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Reprogrammings</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>    Congressional increases</td> <td></td> <td style="text-align: right;">5.000</td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">4.952</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule:</p> <p style="margin-left: 20px;">Not Applicable</p> <p style="margin-top: 20px;">Technical:</p> <p style="margin-left: 20px;">Not Applicable.</p>						FY 04	FY 05	FY 06	FY 07	Funding:					Previous President's Budget:		4.952			Current BES/President's Budget		4.952	0.000	0.000	Total Adjustments	0.000	4.952	0.000	0.000	Summary of Adjustments					Congressional program reductions		-0.047			Congressional undistributed reductions		-0.047			Congressional rescissions					SBIR/STTR Transfer					OSD		-0.001			Navy Misc. Adjustments					Economic Assumptions					Reprogrammings					Congressional increases		5.000			Subtotal	0.000	4.952	0.000	0.000
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Exhibit R-2a, RDTE Project Justification  
(Exhibit R-2a, page 67 of 68)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>FEBRUARY 2005</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability			PROJECT NUMBER AND NAME 9510 Silver Fox UAV					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>										
<u>Line Item No. &amp; 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>
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(U) PE 06023231F (Crew Systems and Personal Protection Technology)										
<b>E. ACQUISITION STRATEGY:</b>										
Not Applicable										

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