

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0603216N Aviation Survivability					
COST (\$ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost			7.346	13.703	7.486	7.618	6.475	6.549	6.639	Continuing	Continuing
W0584 Aircrew Protective Clothing and Devices			2.821	2.850	2.895	2.964	2.519	2.547	2.579	Continuing	Continuing
W0591 Aircraft Survivability, Vulnerability and Safety			1.813	1.876	1.857	1.884	1.593	1.615	1.642	Continuing	Continuing
W0592 A/C & Ordnance Safety			1.742	1.729	1.772	1.789	1.532	1.546	1.566	Continuing	Continuing
W1819 Carrier Vehicle Aircraft Fire Suppression System			0.970	1.017	0.962	0.981	0.831	0.841	0.852	Continuing	Continuing
W9034 Modular Helmet and Display Development				1.982							1.982
W9036 Color Focal Plane Array				4.249							4.249
Quantity of RDT&E Articles	Not Applicable										
<p>* The FY 2002 budget reflects a \$4.300M Congressional add for Color Focal Plane Array executed under project W9036, which was reduced by \$.051M for a Congressional undistributed reduction, that was erroneously included in this program element.</p> <p>(U) 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.</p> <p>(U) Aircrew Protective Clothing and Devices develops, demonstrates, and validates technology options that enhance aircrew capability to perform assigned missions. In addition, this project ensures aircrew protection against natural and induced environmental or physiological hazards encountered during routine, combat and emergency flight operations as well as during escape, and survival and rescue, following loss of aircraft.</p> <p>(U) Projects W0591, W0592, and W1819 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 W9034 reflects a Congressional Add that will complete development of the low resolution Crusader modular helmet, and begin development of an enhanced Advanced Helmet Vision System.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION and VALIDATION because it develops and integrates hardware for experimental tests related to specific ship or aircraft applications.</p>											

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Exhibit R-2, RDTEN Budget Item Justification
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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices					
COST (\$ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			2.821	2.850	2.895	2.964	2.519	2.547	2.579	Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Project W0584 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. In 1996, the various sub-projects were restructured into a combined Advanced Technology Crew Station (ATCS) and Advanced Integrated Life Support System (AILSS) program. This project is validated by two Non-Acquisition Development Documents (NAPDDS)-- one for an ATCS, and the other for AILSS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) (\$1.210) Continued Advanced Technology Escape System (ATES) using controllable propulsion (Fourth Generation Escape System). Continued component integration.
- (U) (\$.304) Completed enhanced resolution Crusader day/night all weather helmet mounted display system.
- (U) (\$.434) Continued Smart Aircrew Integrated Life Support System (SAILSS).
- (U) (\$.547) Completed technology demonstration for non-linear materials phase of frequency agile laser eye protection development.
- (U) (\$.326) Continued development of Pilot Vehicle Interface (PVI) with on board /off board data fusion.

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RDT&E, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices

2. FY 2002 PLANS:

- (U) (\$.512) Exercise option to begin development of frequency Agile flight worthy unity magnification goggles (laser eye protection).
- (U) (\$.281) Begin system integration and flight testing of Advanced Helmet Vision System enhanced resolution Crusader. Conduct I2/Thermal mode control studies.
- (U) (\$.466) Integrate SAILSS with on-board oxygen and personal air conditioning systems.
- (U) (\$.377) Integrate PVI on-board/off-board data correlation on test aircraft and begin flight testing.
- (U) (\$.555) Integrate ATES ejection seat trajectory and crashworthy seat stroking models with biodynamic models. Incorporate computational fluid dynamics and parachute models.
- (U) (\$.297) Conduct preliminary ergonomic seating design, validate BioRID performance, and mature final version.
- (U) (\$.276) Begin crewstation technology laboratory demonstration of Active Network Guidance Emergency Logic (ANGEL).
- (U) (\$.086) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. FY 2003 PLANS:

- (U) (\$.326) Continue development of frequency Agile flight worthy goggles, begin laboratory and field testing of prototypes.
- (U) (\$.380) Complete flight testing of Advanced Helmet Vision System enhanced resolution Crusader.
- (U) (\$.474) Complete the integration of SAILSS on-board oxygen systems and personal air conditioning system.

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RDT&E, N / BA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices
<p>3. FY 2003 PLANS (continued):</p> <ul style="list-style-type: none">- (U) (\$.279) Incorporate models of helmet mounted displays into the PVI to support testing and validation of on board/off board data correlation.- (U) (\$.480) Continue ATES, exploring various integrated aircrew head/neck protection configurations for ejection safe helmet mounted systems.- (U) (\$.428) Conduct horizontal accelerator/vibrating platform assessment of ergonomics, posture, and crashworthiness.- (U) (\$.528) Begin system integration laboratory demonstration of ANGEL.		

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: 100px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>FY2001</u></th> <th style="text-align: center;"><u>FY2002</u></th> <th style="text-align: center;"><u>FY2003</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: center;">2.842</td> <td style="text-align: center;">2.875</td> <td></td> </tr> <tr> <td>(U) Adjustments from the FY 2002 President's Budget:</td> <td style="text-align: center;">-0.021</td> <td style="text-align: center;">-0.025</td> <td></td> </tr> <tr> <td>(U) FY 2003 President's Budget Submit:</td> <td style="text-align: center;">2.821</td> <td style="text-align: center;">2.850</td> <td style="text-align: center;">2.895</td> </tr> </tbody> </table> <p style="margin-left: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 40px;">(U) Funding: The FY 2001 net decrease of \$0.021 million consist of a \$0.012 million decrease for Small Business Innovation Research Assessment and a \$.009 million decrease for reprioritization of requirement within the Navy. The FY 2002 net decrease of \$0.025 million is for a undistributed congressional reduction.</p> <p style="margin-left: 40px;">(U) Schedule: Not applicable. (U) Technical: Not applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <p>Related RDT&E</p> <ul style="list-style-type: none"> (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) 				<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	(U) FY 2002 President's Budget:	2.842	2.875		(U) Adjustments from the FY 2002 President's Budget:	-0.021	-0.025		(U) FY 2003 President's Budget Submit:	2.821	2.850	2.895
	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>															
(U) FY 2002 President's Budget:	2.842	2.875																
(U) Adjustments from the FY 2002 President's Budget:	-0.021	-0.025																
(U) FY 2003 President's Budget Submit:	2.821	2.850	2.895															

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, NBA-4	0603216N Aviation Survivability	W0584 Aircrew Protective Clothing and Devices		
(U) D. ACQUISITION STRATEGY: Not applicable				
(U) E. SCHEDULE PROFILE:				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>TO COMPLETE</u>
(U) Program Milestones				
4th Generation Escape (ATES) & controllable propulsion	Continue	Complete integration 1Q 02		
Crusader Day/Night All Weather Display System	Complete 4Q 01			
Crusader High Resolution Upgrade		Initiate 1Q 02	Continue	Continue
Frequency Agile Laser Eye Protection (non-linear materials)	Complete Tech Demo (4Q 01)	Begin prototype develop. (1Q 02)	Initiate lab goggle testing (1Q 02)	Continue
SAILSS	Continue	Continue	Continue	Continue
PVI - On Board/Off Board Data Correlation	Complete interface development	Integrate into test aircraft and begin flight testing	Complete On Board/Off Board 3 Q 03	
(U) Engineering Milestones				
(U) T&E Milestones				
Crusader day/night High resolution system DT-1 ANGEL		Initiate 1Q 02 Initiate Demonstrations 1Q 02	Complete 4Q 03 Continue	Continue
(U) Contract Milestones	Not applicable			

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APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0603216N Aviation Survivability				W0584 Aircrew Protective Clothing and Devices					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous	WX	NAWC AD Pax River	16.641	1.367	Various	1.258	Various	1.351	Various	Continuing	Continuing	
Miscellaneous	Various	Various	10.765								10.765	10.765
McDonnell Douglas	C/CPFF	McDonnell Douglas, St. Louis	1.325								1.325	1.325
Boeing	C/CPFF	Boeing, Seattle, Wa	1.660								1.660	1.660
Subtotal Product Development			30.391	1.367		1.258		1.351		Continuing	Continuing	
Remarks:												
Miscellaneous	Various	Various	1.019	0.467	Various	0.500	Various	0.519	Various	Continuing	Continuing	
Subtotal Support			1.019	0.467		0.500		0.519		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W0584 Aircrew Protective Clothing and Devices					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	13.873	0.977	Various	0.996	Various	1.015	Various	Continuing	Continuing	
Subtotal T&E			13.873	0.977		0.996		1.015		Continuing	Continuing	
Remarks:												
Travel	WX	NAWC AD Patuxent River	0.085	0.010	10/00	0.010	10/01	0.010	10/02	Continuing	Continuing	
SBIR assessment						0.086					0.086	
Subtotal Management			0.085	0.010		0.096		0.010		Continuing	Continuing	
Remarks:												
Total Cost			45.368	2.821		2.850		2.895		Continuing	Continuing	
Remarks:												

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability					PROJECT NUMBER AND NAME W0591 Aircraft Survivability and Vulnerability					
COST (\$ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			1.813	1.876	1.857	1.884	1.593	1.615	1.642	Continuing	Continuing
RDT&E Articles Qty											

(U) 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.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS:

- (U) (\$1.424) Completed the development of a rotary wing IR survivability signature suppression system.
- (U) (\$.020) Prepared biannual update of RDT&E master plan.
- (U) (\$.020) Prepared annual update of Aircraft Survivability Database.
- (U) (\$.122) Continued development of Survivability Analysis Methodology (based on FY99 roadmap).
- (U) (\$.227) Continued Unmanned Air Vehicles (UAV) survivability trade study (defined hardware technology candidate).

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216 Aviation Survivability	W0591 Aircraft Survivability, Vulnerability, and Safety

2. FY 2002 PLANS:

- (U) (\$1.336) Continue UAV Survivability Enhancement (design and fabrication of selected technology candidates).
- (U) (\$.183) Initiate Transport/Reconnaissance Survivability program; focus on trade study/cost analysis.
- (U) (\$.200) Initiate Aircraft Advanced Fire Protection Technology trade study.
- (U) (\$.100) Initiate Advanced Threats study (Start radio frequency (RF) weapons).
- (U) (\$.057) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 638.

3. FY 2003 PLANS:

- (U) (\$1.361) Continue UAV Survivability Enhancement platform integration (complete flight test).
- (U) (\$.194) Continue Transport/Reconnaissance Survivability program (complete trade study/define hardware technology candidate)
- (U) (\$.027) Continue Advanced Threats study (Complete RF weapons. Start high energy laser).
- (U) (\$.250) Complete Advanced Fire Protection Technology (design, fabrication, cost).
- (U) (\$.025) Biannual update of RDT&E master plan.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216 Aviation Survivability	PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability, and Safety	
(U) B. PROGRAM CHANGE SUMMARY:			
	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>
(U) FY 2002 President's Budget:	1.884	1.893	
(U) Adjustments from the FY 2002 President's Budget:	-0.071	-0.017	
(U) FY 2003 President's Budget Submit:	1.813	1.876	1.857
CHANGE SUMMARY EXPLANATION:			
(U) Funding: The FY 2001 net decrease of \$.071 million consists of a \$.028 million decrease for a Small Business Innovative Research Assessment and a \$.043 million decrease for reprioritization of requirements within the Navy. The FY 2002 decrease of \$.017 million is for an undistributed Congressional reduction.			
(U) Schedule: Not applicable			
(U) Technical: Not Applicable			
(U) C. OTHER PROGRAM FUNDING SUMMARY:			
Related RDT&E:			
(U) PE 0605132D (Joint Technical Coordinating Group on Aircraft Survivability)			
(U) PE 0603384D (Chemical/Biological Defense (Advanced Development))			

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N BA-4	06031216N Aviation Survivability	W0591 Aviation Survivability, Vulnerability and Safety		
(U) D. ACQUISITION STRATEGY: Not applicable				
(U) E. SCHEDULE PROFILE:				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>TO COMPLETE</u>
(U) Program Milestones				
UAV survivability trade study	Completed 3Q01			
Bi-annual Master Plan updates	Completed 4Q01			Continue
Transport/Reconnaissance Survivability Trade Study		Initiate 2Q02	Complete 4Q03	
Advanced Threats Trade Study (RF weapons)		Initiate 1Q02	Complete 4Q03	
Advanced A/C Fire Protection Trade Study		Initiate 2Q02/Comp 4Q02		
(U) Engineering Milestones				
Not applicable				
(U) T&E Milestones				
IR Suppressor flight test	Completed 4Q01			
UAV flight test		Initiate 4Q02	Complete 4Q03	
Advanced Aircraft Fire Protection Demonstration			Initiate 1Q03/Complete 3Q03	
(U) Contract Milestones				
Not applicable				

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APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W0591 Aircraft Survivability, Vulnerability, and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Sikorsky, Connecticut	2.454	0.659	10/00						3.113	3.113
Primary Hardware Development	TBD	Contractor TBD				0.885	03/02	0.717	10/02		1.602	1.602
Primary Hardware Development	WX	Various- Govt activities				0.050	10/01	0.150	10/02		0.200	
Systems Engineering	WX	Various	5.754	0.481	10/00	0.839	11/01	0.420	10/02	Continuing	Continuing	
Primary Hardware Development	SS/CFF	Bell Helicopter	1.307								1.307	1.307
Subtotal Product Development			9.515	1.140		1.774		1.287		Continuing	Continuing	
Remarks:												
Technical Data	WX	Various	0.143	0.111	11/00			0.025	11/02	Continuing	Continuing	
Subtotal Support			0.143	0.111				0.025		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0591 Aircraft Survivability, Vulnerability and Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	Various	1.018	0.552	10/00			0.500	10/02	Continuing	Continuing	
Subtotal T&E			1.018	0.552				0.500		Continuing	Continuing	
Remarks:												
Program Management Support	WX	Various				0.035	10/01	0.035	10/02	Continuing	Continuing	
Travel	WX	Various	0.185	0.010	10/00	0.010	10/01	0.010	10/02	Continuing	Continuing	
SBIR assessment						0.057						0.057
Subtotal Management			0.185	0.010		0.102		0.045		Continuing	Continuing	
Remarks:												
Total Cost			10.861	1.813		1.876		1.857		Continuing	Continuing	
Remarks:												

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APPROPRIATION/BUDGET ACTIVITY RDT&E, BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability					PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety					
COST (\$ in Millions)	Prior Years Cost	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program	
Project Cost		1.742	1.729	1.772	1.789	1.532	1.546	1.566	Continuing	Continuing	
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project transitions Insensitive Munitions (IM) technology from IM Advanced Development (generic technology) to Air Weapon Systems to comply with Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to fast cook-off (FCO), slow cook-off (SCO), bullet and fragment impact (BI and FI), and sympathetic detonation (SD).</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2001 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$.844) Continued evaluating reactive material warheads for IM compliance. - (U) (\$.400) Demonstrated pumice as a sympathetic detonation barrier for weapon shipping containers. - (U) (\$.498) Completed flight testing and document flight certification process for Sidewinder composite case. <p>2. FY 2002 PLANS:</p> <ul style="list-style-type: none"> - (U) (\$.473) Continue evaluating reactive material warheads for IM compliance. Conduct IM and performance testing on sub-scale manufactured 2.75-inch motors. - (U) (\$.561) Demonstrate pumice as a sympathetic detonation barrier for weapon shipping containers. Refine pumice design capability for SD mitigation. - (U) (\$.643) Continue ground and flight testing Sidewinder composite rocket motor. Conduct air to air missile IM warhead testing. - (U) (\$.052) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. 											

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RDT&E, N / BA-4	0603216N Aviation Survivability	W0592 A/C & Ordnance Safety
<p>3. FY 2003 PLANS:</p> <ul style="list-style-type: none">- (U) (\$.751) Continue evaluating reactive material warheads for IM compliance.- (U) (\$.800) Conduct MK36/Sidewinder composite case IM testing demonstration. Begin medium range air to air composite case/HTPE propellant IM demonstration.- (U) (\$.221) Continue air to air missile IM warhead testing.		

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EXHIBIT R-2a, RDT&E Project Justification		DATE: FEBRUARY 2002																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>FY2001</u></th> <th style="text-align: center;"><u>FY2002</u></th> <th style="text-align: center;"><u>FY2003</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: center;">1.750</td> <td style="text-align: center;">1.744</td> <td></td> </tr> <tr> <td>(U) Adjustments from the FY2002 President's Budget:</td> <td style="text-align: center;">-0.008</td> <td style="text-align: center;">-0.015</td> <td></td> </tr> <tr> <td>(U) FY 2003 President's Budget Submit:</td> <td style="text-align: center;">1.742</td> <td style="text-align: center;">1.729</td> <td style="text-align: center;">1.772</td> </tr> </tbody> </table> <p style="margin-left: 40px;">CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 80px;">(U) Funding: FY2001 net decrease of \$.008 million is for reprioritization of requirements within the Navy. FY2002 net decrease of \$.015 million is for an undistributed congressional reduction.</p> <p style="margin-left: 80px;">(U) Schedule: Not applicable</p> <p style="margin-left: 80px;">(U) Technical: Not applicable</p> <p style="margin-left: 40px;">(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable</p> <p style="margin-left: 80px;">Related RDT&E:</p> <p style="margin-left: 120px;">PE 0604802A PE 0603609N</p> <p style="margin-left: 40px;">(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.</p> <p style="margin-left: 40px;">(U) E. SCHEDULE PROFILE: Not applicable</p>				<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	(U) FY 2002 President's Budget:	1.750	1.744		(U) Adjustments from the FY2002 President's Budget:	-0.008	-0.015		(U) FY 2003 President's Budget Submit:	1.742	1.729	1.772
	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>															
(U) FY 2002 President's Budget:	1.750	1.744																
(U) Adjustments from the FY2002 President's Budget:	-0.008	-0.015																
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: FEBRUARY 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WX	NAWCWD China Lake	12.585	1.712	10/00	1.647	10/01	1.742	10/02	Continuing	Continuing	
Subtotal Product Development			12.585	1.712		1.647		1.742		Continuing	Continuing	
Remarks:												
Subtotal Support												
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W0592 A/C & Ordnance Safety						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks:												
Travel	WX	NAWCAD Pax River	0.060	0.030	10/00	0.030	10/01	0.030	10/02	Continuing	Continuing	
SBIR assessment						0.052					0.052	
Subtotal Management			0.060	0.030		0.082		0.030		Continuing	Continuing	
Remarks:												
Total Cost			12.645	1.742		1.729		1.772		Continuing	Continuing	
Remarks:												

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 19 of 28)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability					PROJECT NUMBER AND NAME W1819 Carrier Vehicle Aircraft Fire Suppression System					
COST (\$ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			0.970	1.017	0.962	0.981	0.831	0.841	0.852	Continuing	Continuing
RDT&E Articles Qty											

(U) 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.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 ACCOMPLISHMENTS

- (U) (\$.296) Completed testing and finalized fire test standards for wheel/brake, electrical, and spill fires. Completed identification of critical test parameters and provision of adequate instrumentation for testing. Compiled pros and cons of each system for review.
- (U) (\$.269) Continued carrier reduced manning studies. Evaluated potential negative safety impact of reduced manning of Navy ships relative to current levels of onboard fire fighting provisions. Ensured adequate fire fighting provisions are maintained through evaluation of systems hardware enhancements, development of novel fire fighting approaches, and optimized personnel emergency procedures. Assessed opportunities for overall improvement in shipboard handling of fire emergencies.
- (U) (\$.080) Initiated studies of fire threat from alternate fuel. Evaluated the different characteristics of JP-8 versus JP-5 fires. Identified deficiencies and promoted opportunities for improvement.
- (U) (\$.325) Evaluated next generation fire threats aboard carriers. Assessed enhanced fire threats associated with more reliance on high powered electrical and electromagnetic components aboard ship. Evaluated remote fire detection and fire suppression methodologies and tested prototypical hardware for performance.

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EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603216N Aviation Survivability	W1819 Carrier Vehicle Aircraft Fire Suppression System
<p>2. FY 2002 PLANS</p> <ul style="list-style-type: none">(U) (\$.198) Evaluate alternatives to Aqueous Film Forming Foam (AFFF) for compliance with environmental, safety, and health regulations. Assess agent compatability with next generation fire threats. Continue development of acceptable fire fighting agents.(U) (\$.477) Evaluate systems tailored to composite fire threats. Develop enhancements to Personnel Protection Equipment. Continue development of acceptable fire fighting systems.(U) (\$.311) Continue reduced manning evaluations. Develop techniques to minimize threat from involved ordnance. Optimize training apparatus and provide opportunities for training during agent/system testing. Continue development of acceptable fire fighting tactics.(U) (\$.031) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 638. <p>3. FY 2003 PLANS</p> <ul style="list-style-type: none">(U) (\$.207) Develop new or enhanced agents to adequately address changing fire threats. Continue development of acceptable fire fighting agents.(U) (\$.491) Evaluate system automation features. Develop enhancements to Personnel Protection Equipment. Continue development of acceptable fire fighting systems.(U) (\$.264) Continue carrier reduced manning evaluations. Continue to optimize training apparatus and provide opportunities for training during agent/system testing. Continue development of acceptable fire fighting tactics.		

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 21 of 28)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W1819 Carrier Vehicle Aircraft Fire Suppression System																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>FY2001</u></th> <th style="text-align: center;"><u>FY2002</u></th> <th style="text-align: center;"><u>FY2003</u></th> </tr> </thead> <tbody> <tr> <td style="padding-left: 20px;">(U) FY 2002 President's Budget:</td> <td style="text-align: center;">0.982</td> <td style="text-align: center;">1.026</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">(U) Adjustments from the FY 2002 President's Budget:</td> <td style="text-align: center;">-0.012</td> <td style="text-align: center;">-0.009</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">(U) FY 2003 President's Budget Submit:</td> <td style="text-align: center;">0.970</td> <td style="text-align: center;">1.017</td> <td style="text-align: center;">0.962</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p style="padding-left: 40px;">(U) Funding: The FY 2001 net decrease of \$.012 million consists of a \$.009 million decrease for a Small Business Innovative Research Assessment and a \$.003 million decrease for reprioritization of requirements within the Navy. The FY 2002 net decrease of \$.009 million is for an undistributed Congressional reduction.</p> <p style="padding-left: 40px;">(U) Schedule: Not Applicable</p> <p style="padding-left: 40px;">(U) Technical: Not Applicable</p> <p style="margin-top: 20px;">(U) C. OTHER PROGRAM FUNDING SUMMARY: Not applicable</p> <p style="padding-left: 40px;">Related RDT&E: Not applicable</p> <p style="margin-top: 20px;">(U) D. ACQUISITION STRATEGY: Not applicable</p> <p style="margin-top: 20px;">(U) E. SCHEDULE PROFILE: Not applicable</p>				<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	(U) FY 2002 President's Budget:	0.982	1.026		(U) Adjustments from the FY 2002 President's Budget:	-0.012	-0.009		(U) FY 2003 President's Budget Submit:	0.970	1.017	0.962
	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>															
(U) FY 2002 President's Budget:	0.982	1.026																
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(U) FY 2003 President's Budget Submit:	0.970	1.017	0.962															

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-4			0603216N Aviation Survivability				W1819 Carrier Vehicle Aircraft Fire Suppression System					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WX	MISC	5.414	0.184	Various	0.440	Various	0.404	Various	Continuing	Continuing	
Subtotal Product Development			5.414	0.184		0.440		0.404		Continuing	Continuing	
Remarks:												
Configuration Management	WX	MISC	1.360	0.354	Various	0.091	Various	0.098	Various	Continuing	Continuing	
Subtotal Support			1.360	0.354		0.091		0.098		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)								DATE: February 2002				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603216N Aviation Survivability			W1819 Carrier Vehicle Aircraft Fire Suppression System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	MISC	2.933	0.422	Various	0.444	Various	0.445	Various	Continuing	Continuing	
Subtotal T&E			2.933	0.422		0.444		0.445		Continuing	Continuing	
Remarks:												
Travel	WX	MISC	0.045	0.010	10/00	0.011	10/01	0.015	10/02	Continuing	Continuing	
SBIR assessment						0.031					0.031	
Subtotal Management			0.045	0.010		0.042		0.015		Continuing	Continuing	
Remarks:												
Total Cost			9.752	0.970		1.017		0.962		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability				PROJECT NUMBER AND NAME W9034 Modular Helmet and Display Development					
COST (\$ in Millions)	Prior Year Cost		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				1.982							1.982
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project will complete the development of the low resolution crusader modular helmet, and begin development of an enhanced Advaced Helmet Vision System.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2002 PLANS:

- (U) (\$.900) Complete the development of the low resolution Crusader modular helmet.
- (U) (\$.800) Begin the development of the enhanced resolution variant to be entitled Advanced Helmet Vision System (AHVS). Currently the system exists as a walk around demonstrator which will be missionized to support limited flight testing.
- (U) (\$.282) Laboratory evaluation of Crusader final and prototype AHVS to include resolution, brightness, weight, center of gravity and moments of inertia.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603216N Aviation Survivability	PROJECT NUMBER AND NAME W9034 Modular Helmet and Display Development																
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	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>															
(U) FY 2002 President's Budget:		0.000																
(U) Adjustments from the FY 2002 President's Budget:		1.982																
(U) FY 2003 President's Budget Submit:		1.982																

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT 0603216N Aviation Survivability			PROJECT NUMBER AND NAME W9034 Modular Helmet and Display Development						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Remarks:												
Travel	WX	NAWC AD Patuxent River				0.020	02/02				0.020	
Subtotal Management						0.020					0.020	
Remarks:												
Total Cost						1.982					1.982	
Remarks:												

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