Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	9.151	10.893	8.783	-	8.783	6.640	5.761	5.885	6.135	Continuing	Continuing
0584: *Acft Protective Clothing*	5.693	7.106	5.049	-	5.049	3.496	2.599	2.644	2.720	Continuing	Continuing
0591: *Acft Survivability, Vulnerability & Safety*	1.439	1.643	1.616	-	1.616	1.454	1.475	1.527	1.585	Continuing	Continuing
0592: *Acft & Ordnance Safety*	1.386	1.417	1.401	-	1.401	1.073	1.068	1.083	1.168	Continuing	Continuing
1819: *CV Acft Fire Suppress System*	0.633	0.727	0.717	-	0.717	0.617	0.619	0.631	0.662	Continuing	Continuing

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.

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	9.480	10.893	8.806	-	8.806
Current President's Budget	9.151	10.893	8.783	-	8.783
Total Adjustments	-0.329	-	-0.023	-	-0.023
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.168	-			
• SBIR/STTR Transfer	-0.112	-			
• Program Adjustments	-	-	-0.045	-	-0.045
• Rate/Misc Adjustments	-	-	0.022	-	0.022
• Congressional General Reductions Adjustments	-0.049	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy	DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*

Schedule: Not Applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0584: *Acft Protective Clothing*	5.693	7.106	5.049	-	5.049	3.496	2.599	2.644	2.720	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project 0584 develops, demonstrates, and validates technologies designed to enhance warfighter performance, protection, mission effectiveness, and survivability. The project addresses life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and control stations. Integrate and use alternative and new technologies for the Pilot Vehicle Integration, optimization of Intelligence Surveillance and Reconnaissance (ISR), and Forward Air Control-Air mission areas. Demonstrate innovative tools / approaches to improve situational awareness, new ISR technologies, and Graphical User Interfaces (new symbology and optimized logic for system employment). It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Advanced Technology Crew Station	4.669	5.617	3.982
Articles:	0	0	0
FY 2011 Accomplishments: Developed high resolution Ultra eXtended Graphics Array Charge Coupled Device day / night vision cameras. Began safety of flight testing on a tactical platform. Migrated crashworthy seating designs to the fast attack boat community. Focused on shock and vibration work, Under Pilot Vehicle Interface draft experimental paradigm, in collaboration with the Royal Netherlands Air Force to assess the relationship between scan patterns (e.g., eye movements) and information processing.			
FY 2012 Plans: Expand capability of rotary system to accommodate tactical platforms, begin integration of high resolution 4 megapixel cameras. Begin collaborative experimental data collection with the Netherlands under the signed Memorandum of Agreement to determine optimal scan patterns. Studies will occur in both the United States and Netherlands Ministry of Defense simulators. Continue the development and testing of the smart controllers for cockpit and external airbag deployment.			
FY 2013 Plans: Improve manufacturability of digital, high resolution (4 megapixel) night cameras. Begin development of high resolution (4 megapixel) displays. Continue safety of flight testing on a tactical platform for the Advanced Helmet Vision System. Begin integrating smart controllers for crashworthy seating and external airbag deployment into the Joint Multi Role Future Vertical Lift platforms.			
Title: Advanced Integrated Life Support System	1.024	1.489	1.067
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
FY 2011 Accomplishments: Complete and standardize fixed wavelength protective technologies to accommodate all substrates (spectacle, visor, goggle, step-in visor). Demonstrate protection in a visor and spectacle format. Finalize design for both man and aircraft mounted cooling system. ***FY 2012 Plans:*** Develop prototype personal mounted cooling device for initial testing. Modify visor / spectacle laser protective technologies to include color balancing. Color balancing will improve cockpit compatibility by reducing spectral distortion. ***FY 2013 Plans:*** Work jointly with Air Force and Army to expand the anthropometric database. Use injury data and Navy aircrew anthropometry to further improve aircrew accommodation (seating and protective personal equipment) and injury analysis / mitigation. Finish study of adding corrective prescriptions to laser eye protection.			
Accomplishments/Planned Programs Subtotals	5.693	7.106	5.049

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Primary Hardware Development for the Navy Advanced Technology Crew Station efforts in FY11 will be performed under a Cost Plus Fixed Fee Indefinite Delivery Indefinite Quantity contract.

E. Performance Metrics

Complete development of advanced crashworthy system level models, investigate improved visual search methodologies, and improve the ability to assess cockpit compatibility through new analytic approaches to anthropometry.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Gentex:Simpson, PA	7.628	4.317	Jan 2012	1.960	Jan 2013	-		1.960	0.000	13.905	13.905
Systems Engineering	WR	NAWCAD:Pax River MD	29.664	1.090	Dec 2011	0.589	Dec 2012	-		0.589	Continuing	Continuing	Continuing
Licenses	WR	NAWCAD:Pax River MD	1.085	0.211	Dec 2011	0.211	Dec 2012	-		0.211	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Intevac:San Jose CA	-	-		1.192	Jan 2013	-		1.192	0.000	1.192	1.192
Prior Year Prod Dev no Longer Funded in Budget Year or Outyears	Various	Various:Various	13.900	-		-		-		-	0.000	13.900	
		Subtotal	52.277	5.618		3.952		-		3.952			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAWCAD:Pax River MD	1.228	0.596	Dec 2011	0.110	Dec 2012	-		0.110	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	3.232	-		-		-		-	0.000	3.232	
		Subtotal	4.460	0.596		0.110		-		0.110			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River MD	2.783	0.502	Dec 2011	0.545	Dec 2012	-		0.545	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	18.240	-		-		-		-	0.000	18.240	
		Subtotal	21.023	0.502		0.545		-		0.545			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River MD	2.120	0.340	Dec 2011	0.392	Dec 2012	-		0.392	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Pax River MD	0.385	0.050	Oct 2011	0.050	Oct 2012	-		0.050	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various:Various	0.010	-		-		-		-	0.000	0.010	
		Subtotal	2.515	0.390		0.442		-		0.442			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	80.275	7.106		5.049		-		5.049			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0584: *Acft Protective Clothing*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0584: *Acft Protective Clothing*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Protective Clothing				
Acquisition Milestones: Intensified Unity Mag Goggle	1	2011	2	2011
Acquisition Milestones: Advanced Helmet Vision System (AHVS)	1	2011	4	2017
Acquisition Milestones: Advanced Integrated Life Support Systems (AILSS)	1	2011	4	2017
Acquisition Milestones: Injury Prevention	1	2011	4	2013
Test & Evaluation Milestones: AHVS Laboratory Testing	1	2011	2	2014
Test & Evaluation Milestones: AHVS Safety of Flight Testing	1	2011	4	2015
Test & Evaluation Milestones: Advanced Technology Crew Station (ATCS)	1	2011	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0591: *Acft Survivability, Vulnerability & Safety*	1.439	1.643	1.616	-	1.616	1.454	1.475	1.527	1.585	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Technology Requirements	0.250	0.278	0.259
Articles:	0	0	0
FY 2011 Accomplishments: Updated program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, and threat systems analysis.			
FY 2012 Plans: Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, fire protection technologies, threat systems analysis, and biofuels impacts to survivability systems.			
FY 2013 Plans: Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and biofuels impacts to survivability systems.			
Title: Technology Design & Development	0.782	0.920	0.956
Articles:	0	0	0
FY 2011 Accomplishments: Develop prototype materials to reduce acoustic/infrared footprint of operational platforms. Transitioned prototype of transparent armor to another DoD organization. Develop platform specific gearbox polymer modifications.			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Develop prototype materials to reduce infrared footprint of operational platforms. Develop and demonstrate/validate phase II prototype of transparent armor canopy and egress system. Develop platform-specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing. ***FY 2013 Plans:*** Evaluate equipment/technologies to reduce infrared footprint of operational platforms. Evaluate alternate transparent armor materials for canopy upgrades. Develop platform specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing. Develop alternate O2 bottles.			
Title: Technology Test & Evaluation	0.407	0.445	0.401
Articles:	0	0	0
FY 2011 Accomplishments: Performed live fire testing on platform specific gearbox polymer modifications. ***FY 2012 Plans:*** Flight test armored canopy. Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. ***FY 2013 Plans:*** Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. Perform live fire test on alternate O2 bottles.			
Accomplishments/Planned Programs Subtotals	1.439	1.643	1.616

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Primary Hardware Development will be performed under either a Cost Plus Fixed Fee or a Firm Fixed Price contract.

E. Performance Metrics

Evaluate 100% of deployed/developmental USN/USMC aircraft platforms for survivability deficiencies using Navy gap analysis as baseline. Identify prototype hardware solutions to address 25% to 50% of deficiencies, and initiate a minimum of two new demonstration projects per year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Bell Helicopter:Dallas, TX	0.934	0.220	Mar 2012	-		-		-	0.000	1.154	1.154
Primary Hardware Development	WR	NAWCAD:Pax River, MD	10.342	0.256	Oct 2011	0.195	Oct 2012	-		0.195	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Pax River, MD	11.239	0.496	Oct 2011	0.653	Oct 2012	-		0.653	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD:China Lake, CA	-	0.050	Oct 2011	0.108	Oct 2012	-		0.108	Continuing	Continuing	Continuing
Prior Year MgmtT&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	4.770	-		-		-		-	0.000	4.770	
		Subtotal	27.285	1.022		0.956		-		0.956			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	4.569	-		-		-		-	0.000	4.569	
		Subtotal	4.569	-		-		-		-	0.000	4.569	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	2.148	0.115	Oct 2011	0.113	Oct 2012	-		0.113	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	MIPR	Army Research Lab:Aberdeen, MD	0.405	0.103	Mar 2012	0.122	Nov 2012	-		0.122	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NAWCWD:China Lake, CA	1.647	0.150	Oct 2011	0.166	Oct 2012	-		0.166	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	0.348	-		-		-		-	0.000	0.348	
		Subtotal	4.548	0.368		0.401		-		0.401			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River, MD	0.879	0.238	Oct 2011	0.239	Oct 2012	-		0.239	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	JF Taylor:Lexington Park, MD	0.332	-		-		-		-	0.000	0.332	0.332
Travel	PO	NAVAIR:Patuxent River, MD	0.324	0.015	Dec 2011	0.020	Oct 2012	-		0.020	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various:Various	0.008	-		-		-		-	0.000	0.008	
		Subtotal	1.543	0.253		0.259		-		0.259			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.945	1.643		1.616		-		1.616			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0591: *Acft Survivability, Vulnerability & Safety*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Survivability, Vulnerability & Safe				
Technology Requirements: Survivability Master Plan Update 1	4	2011	4	2011
Technology Requirements: Survivability Master Plan Update 2	4	2013	4	2013
Technology Requirements: Survivability Master Plan Update 3	4	2015	4	2015
Technology Requirements: Survivability Master Plan Update 4	4	2017	4	2017
Technology Requirements: Asymmetric Threat Evaluations	1	2011	4	2017
Technology Design & Development: Rotary Wing Prototype Hardware	1	2011	4	2015
Technology Design & Development: Survivability Improvements	1	2011	4	2017
Technology Test & Evaluation: Rotary Wing Ballistic Testing	1	2011	4	2015
Technology Test & Evaluation: Rotary Wing Signature Tests	1	2011	4	2015
Technology Test & Evaluation: Prototype Hardware Tests	1	2011	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0592: *Acft & Ordnance Safety*	1.386	1.417	1.401	-	1.401	1.073	1.068	1.083	1.168	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Aircraft and Ordnance Safety Program transitions innovative munitions safety 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Insensitive Munitions	1.386	1.417	1.401
Articles:	0	0	0

FY 2011 Accomplishments:

Improve Air-to-Air Demonstration: The Sidewinder warhead evaluation continued in direct support of PMA 259 FY14 planned transition. The Sidewinder Rocket motor technology evaluation also continued in support of a potential PMA 259 FY14 transition. Initiated Insensitive Munitions (IM) technology demonstration for 8-inch metal matrix rocket motor.

Improve Air-Launched Weapons: Continued reactive liner evaluation in support of current transition efforts in bombs (Bomb Live Unit-BLU 110/111). Continued evaluation of affordable, high-performance, low shock sensitivity explosive for use with reactive liner and other potential applications. Initiated IM evaluation for Tomahawk tandem warhead.

Advanced Containment/Case/Warhead Materials: Completed Tomahawk Sympathetic Detonation (SD) test/analysis in CNU-308 container. Continued pallet design/demonstration for BLU-126. Transitioned Tomahawk Mk 135 case effort from composite to hybrid design/demonstration.

Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continued Advanced Anti-Radiation Guided Missile (AARGM) container design/demonstration for PMA 242 planned transition (FY11 focus on modeling/design based on FY10 baseline testing).

FY 2012 Plans:

Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in direct support of PMA 259 FY14 planned transition. Continue IM technology demonstration for 8-inch metal matrix rocket motor.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Improve Air-Launched Weapons: Continue reactive liner evaluation in support of current transition efforts in bombs (BLU 110/111). Continue IM evaluation for Tomahawk tandem warhead. Initiate minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program). Advanced Containment/Case/Warhead Materials: Continue Tomahawk hybrid case Mk 135 design/demonstration. Initiate IM evaluation of new Mk 135 propellant in composite case. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue AARGM container design/demonstration for PMA 242 planned transition (finalize design/initiate IM testing). Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons. ***FY 2013 Plans:*** Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY14 planned transition. Continue Insensitive Munitions (IM) technology demonstration for 8-inch metal matrix rocket motor. Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for Bomb Live Unit (BLU) 110 in support of current transition efforts and the PMA 201 plan of action and milestones. Continue IM evaluation for Tomahawk tandem (Joint Multi-Effects Warhead System) warhead, and initiate demonstration. Continue minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program). Advanced Containment/Case/Warhead Materials: Continue Tomahawk Mk 135 hybrid case design/demonstration with evaluation of new propellant designed to improve slow cook-off and operational performance. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize Advanced Anti-Radiation Guided Missile (AARGM) container Insensitive Munitions testing for PMA 242. Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons. Initiate Sidewinder Block III container design/demonstration to support PMA 259 transition. Continue alternative barrier evaluation for ballistic and shock mitigation.			
Accomplishments/Planned Programs Subtotals	1.386	1.417	1.401

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

E. Performance Metrics

The Aircraft and Ordnance Safety program will initiate six to nine technology development/maturation efforts to improve Insensitive Munitions signature and will work to transition those technologies to weapons programs. The weapons programs will be chosen based on PEO(U&W) weapons portfolio and will focus on the priority weapons as defined in the 2011/2012 Insensitive Munitions strategic plan.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCWD:China Lake, CA	29.629	1.417	Nov 2011	1.401	Nov 2012	-		1.401	Continuing	Continuing	Continuing
		Subtotal	29.629	1.417		1.401		-		1.401			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce Fund	Various	Various:Various	0.008	-		-		-		-	0.000	0.008	
		Subtotal	0.008	-		-		-		-	0.000	0.008	

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.637	1.417		1.401		-		1.401			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0592: *Acft & Ordnance Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft & Ordnance Safety				
Air-to-Air Missile Demonstration/Testing	1	2011	4	2017
Improved Air-Launched Weapons	1	2011	4	2017
Advanced Containment/Case/Warhead Materials	1	2011	4	2017
Shock/Blast Barrier Protection Modeling Demonstration/Testing	1	2011	4	2017
Advanced Energetic Materials	1	2011	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1819: *CV Acft Fire Suppress System*	0.633	0.727	0.717	-	0.717	0.617	0.619	0.631	0.662	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Fire-Fighting	0.633	0.727	0.717
Articles:	0	0	0

FY 2011 Accomplishments:

Tested hardware for cooling of Joint Strike Fighter (JSF) internally carried ordnance. Evaluated adequacy of current procedures for handling aircraft composite fires with consideration of new-generation aircraft composites. Issued improved proximity suit commercial item description. Finalized procedures for high-occupancy/rolled helicopter crash incident. Issued final report of Halon 1211 replacement recommendations. Issued report identifying rapid canopy access tool. Authored necessary revisions/additions to the Aircraft Fire-Fighting Naval Air Training and Operating Procedures Standardization (NATOPS) and submit for consideration. Provided subject matter expert support to the Aircraft Fire Fighting NATOPS (80R-14) model manager in preparation for the 80R-14 Naval NATOPS Rewrite Conference. Initiated development of Aqueous Film-Forming Foam (AFFF) application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS).

FY 2012 Plans:

Continue to test hardware for cooling of JSF internally carried ordnance. Continue development of AFFF application nozzle and procedures for EMALS. Finalize procedures for cooling of JSF internally carried ordnance. Provide subject matter expert support to the Aircraft Fire Fighting NATOPS (80R-14) model manager during the upcoming 80R-14 NATOPS Rewrite Conference. Evaluate the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Continue participation in development/testing of new environmentally friendly AFFF concentrates.

FY 2013 Plans:

Continue development of AFFF application nozzle and procedures for EMALS. Research means to prevent aircraft loss due to lithium ion battery runaway casualty. Initiate study to determine crash and fire procedures necessary for large-frame unmanned air vehicles (e.g., Navy Unmanned Combat Air System). Begin development of a composite filtering flash hood. Conclude evaluation

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
of the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Develop doctrine and tactics to address hazardous material pile fire threatening aircraft in hangar.			
Accomplishments/Planned Programs Subtotals	0.633	0.727	0.717

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

The Carrier Aircraft Fire Suppression (CAFS) program will, at a minimum, fund 6 to 10 projects per year that investigate and evaluate tactical capability gaps and potential capability improvements regarding shipboard aircraft fire suppression doctrine and equipment. CAFS projects will have a greater than 90% success rate of insertion into DON shipboard aircraft fire-fighting procedures and documentation.